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A PHASE I HERITAGE AND ARCHAEOLOGICAL STUDY FOR SIBANYE STILLWATER'S PROPOSED NEW MARIKANA SOLAR PV FACILITY PROJECT NEAR RUSTENBURG IN THE NORTH-WEST

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EXECUTIVE SUMMARY

Sibanye Stillwater intends to establish the new Marikana Solar PV Facility Project east of Marikana in the Central Bankeveld in the North-West Province. To comply with legislation, Sibanye Stillwater requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in the project area to take pro-active measures if any of these heritage remains may be affected, damaged, or destroyed when the proposed new RPM Solar PV Facility is constructed. Consequently, A Phase I Heritage Impact Assessment (HIA) study as required by Section 38 of the National Heritage Resources Act NHRA (No 25 of 1999) was conducted for the project.

The aims with the heritage survey and impact assessment for the proposed new RPM Solar PV Facility Project were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 38 of the NHRA do occur in the proposed project area.
- To establish the significance of any heritage resources that may occur in the proposed project area as well as the level of significance of any possible impact on these heritage resources.
- To propose mitigation measures for those types and ranges of heritage resources that may be affected by the construction of the proposed Marikana Solar PV Facility Project.

The Phase I HIA study for the proposed Marikana Solar PV Facility Project revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Remains of stone walls belonging to Late Iron Age stone walled settlements (Site LIA01) on a low dolerite outcrop along the southern perimeter of the project area.

The stone walled settlement was geo-referenced and mapped (Figures 6-9; Table 1).

The significance of the stone walled settlements which may be affected by the Marikana Solar PV Facility Project was determined by means of using two ranking scales, namely stipulations derived from the National Heritage Resources Act (No 25 of 1999) (Table 2) and a field rating scheme for heritage resources (Section 7 of the NHRA [Act No 25 of 1999) (Table 3).

The significance of the stone wallled sites

The stone walled settlements are most likely historically and culturally linked with Sotho-Tswana people who occupy the project area during AD1700 to AD1840. These settlements date from the last four hundred years, have cultural and historical connections with the Tswana and qualify as archaeological sites which are protected by the National Heritage Resources Act (No 25 of 1999).

The significance of these remains is rated as of medium significance. This rating is based on the use of two rating (grading) schemes, namely (Tables 2 & 3):

- A scheme of criteria which qualifies places and objects as part of the national estate as they have cultural significance or other special value (outlined in Section 3 of the NHRA [Act No 25 of 1999] (see Box 1). According to these criteria the stone walled settlements are rated as of medium significance (Table 2).
- A field rating scheme according to which heritage resources are graded in three tiers (levels) of significance based on the regional occurrence of heritage resources (Section 7 of the NHRA [Act No 25 of 1999). According to the highlighted field rating scheme the stone walled settlements can be rated as of medium significance and therefore must be recorded before they can be destroyed (Table 3).

Impact on the stone walled sites

No lay out plan is available for the Marikana Solar PV Facility. Consequently, it is uncertain whether the project may impact on the stone walled sites. If the Marikana Solar PV Facility is established in the eastern part of the project area no impact will occur on the stone walled settlements. However, if the Marikana Solar PV Facility is established in the western part of the project area it must be assumed that it is most likely that the stone walled settlements will be destroyed by the proposed project.

The significance of the impact on the stone walled site

If the Marikana Solar PV Facility is established in the western part of the project area the significance of the impact on the stone walled settlements will be high (Table 4).

Mitigating the stone wallled settlements

The stone walled settlements may be destroyed if the proposed Marikana Solar PV Facility Project is established in the western part of the project area. The stone walled settlements must be mitigated through a Phase II investigation before they may be affected by the proposed Wonderkop Solar PV Facility Project.

A Phase II investigation implies that the stone walled settlements must be mapped and that test excavations must be conducted in the sites. These investigations can only be conducted after the South African Heritage Resources Authority (SAHRA) has issued a permit which would authorise the Phase II investigation. Hereafter, Sibanye Stillwater can apply from SAHRA for the destruction of these settlements.

Chance-find procedures

If heritage resources have been missed during the survey detail chance-find procedures have been outlined for heritage resources and for graves which must be implemented during the construction, operation, or closure phases of the proposed Marikana Solar PV Facility Project.

General (disclaimer)

It is possible that this Phase I HIA study may have missed heritage resources within the project area due to various reasons set out in the report. If any heritage resources of significance or graves are exposed during the Marikana Solar PV Facility Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped, and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notified to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures. Therefore, detail chance-find procedures for heritage resources and graves have been outlined in the report.

CONTENTS

ACRONYMS AND ABBREVIATIONS

ASAPA	Association of South African Professional Archaeologists
BP	Before Present
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIA	Early Iron Age
EMPr	Environmental Management Programme
EMPR	Environmental Management Programme Report
ESA	Early Stone Age
GPS	Global Positioning System
GY	Graveyard
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Late Stone Age
MIA	Middle Iron Age
MPRDA	Mineral and Petroleum Resources Development Act, Act No 28 of 2002
MSA	Middle Stone Age
NEMA	National Environmental Management Act, Act No 107 of 1998
NEM: WA	National Environmental Management: Waste Act, Act No 59 of 2008
NHRA	National Heritage Resources Act, Act No 25 of 1999
No	Number
NWA	National Water Act, Act No 36 of 1998
PHRA	Provincial Heritage Resource Agency
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
ToR	Terms of Reference

TERMINOLOGY

Terms that may be used in this report are briefly outlined below:

1. Conservation: The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration, and enhancement of the natural and cultural environment.

2. Cultural resource management: A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.

3. Cultural resources: A broad, generic term covering any physical, natural, and spiritual properties and features adapted, used, and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief, or social interaction. They can be but are not necessarily identified with defined locations.

4. Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological, or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

5. In-Situ Conservation: The conservation and maintenance of ecosystems, natural habitats, and cultural resources in their natural and original surroundings.

6. Iron Age: Refers to the last two millennia and ‘Early Iron Age’ to the first thousand years AD. ‘Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the Historical Period.

7. Maintenance: Keeping something in good health or repair.

8. Pre-historical: Refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Project Area, to the first appearance or use of ‘modern’ Western writing brought to the Eastern Highveld by the first Colonists who settled here from the 1840’s onwards.

9. Preservation: Conservation activities that consolidate and maintain the existing form, material, and integrity of a cultural resource.

10. Recent past: Refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, soon, qualify as heritage resources.

11. Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems. Various types of protected areas occur in South Africa.

12. Reconstruction: Re-erecting a structure on its original site using original components.

13. Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.

14. Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.

15. Stone Age: Refers to the prehistoric past, although Late Stone Age people lived in South Africa well into the Historical Period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).

16. Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.

17. Translocation: Dismantling a structure and re-erecting it on a new site using original components.

18. Project Area: refers to the area (footprint) where the developer wants to focus its development activities.

19. Phase I archaeological studies refer to surveys using various sources of data to establish the presence of all possible types and ranges of heritage resources in any given Project Area (excluding paleontological remains as these studies are done by registered and accredited palaeontologists).

20. Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involves permitting processes, requires the input

of different specialists and the co-operation and approval of the South African Heritage Resources Agency (SAHRA).

1 INTRODUCTION

1.1 Background and context

This document contains the report on the results of a Phase I Heritage Impact Assessment (HIA) study done for Sibanye Stillwater's proposed Marikana Solar PV Facility east of Marikana in the Central Bankeveld in the North-West Province**.**

The Central Bankeveld is located, ecologically speaking, between the Bushveld (to the north) and the Highveld (to the south). The Central Bankeveld has a rich heritage comprised of remains dating from the prehistoric and the historical (or colonial) periods of South Africa. Prehistoric and historical remains in the Central Bankeveld form a record of the cultural heritage of most groups living in South Africa today. Various types and ranges of heritage resources as outlined in the National Heritage Resources Act (Act No 25 of 1999) occur in this region (see Box 1).

Consequently, Savannah Environmental who is responsible for obtaining environmental authorisation for the project, commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the Marikana Solar PV Facility Project.

1.2 Aim of this report

Sibanye Stillwater intends to establish the new Marikana Solar PV Facility Project east of Marikana in the Central Bankeveld in the North-West Province. To comply with legislation Sibanye Stillwater requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in the project area to take pro-active measures if any of these heritage remains may be affected, damaged, or destroyed when the proposed new Marikana Solar PV Facility is constructed. Savannah Environmental therefore commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the project area to be affected by the proposed new development.

The aims with the heritage survey and impact assessment for the proposed new Marikana PV Facility Project were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 38 of the NHRA do occur in the proposed project area.
- To establish the significance of any heritage resources that may occur in the proposed project area as well as the level of significance of any possible impact on these heritage resources.
- To propose mitigation measures for those types and ranges of heritage resources that may be affected by the construction of the proposed Marikana Solar PV Facility Project.

1.3 Assumptions and limitations

The findings, observations, conclusions, and recommendations reached in this report are based on the author's best scientific and professional knowledge, available information, and his ability to keep up with the physical challenges that the project commanded. The area around the proposed Marikana Solar PV Facility was surveyed on several former occasions in the past when various heritage surveys were done for platinum mines as well as for other developments projects in the larger area (See Part 13, 'Bibliography relating to heritage studies').

The report's findings are based on accepted archaeological survey and assessment techniques and methodologies. However, the author preserves the right to modify aspects of the report including the recommendations when new information becomes available which may have an influence on the report's results and recommendations.

The heritage survey may also have missed heritage resources or graves which may be located below the surface of the earth, and which may be exposed because of the construction of the proposed Marikana Solar PV Facility and its affiliated infrastructure. It is also possible that heritage resources simply may have been missed because of human failure to observe or to recognise them.

2 DETAILS OF THE SPECIALIST

Profession: Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer, and Heritage Consultant

Qualifications:

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

Work experience:

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

Independent Archaeologist and Heritage Consultant (2003-)

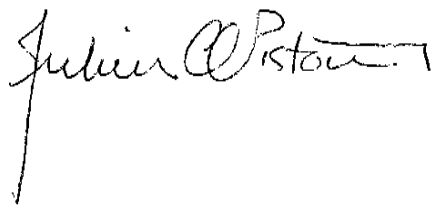
Accreditation: Member of the Association for Southern African Professional Archaeologists. (ASAPA)

Summary: Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher, and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has excavated more than twenty LIA settlements in North-West and twelve IA settlements in the Lowveld and has mapped hundreds of stone walled sites in the North-West. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekhurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol, PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources, Pilanesberg Platinum Mine (PPM) etc. as well as with several environmental companies.

3 DECLARATION OF INDEPENDANCE

I, Dr Julius CC Pistorius, declare the following:

- I act as an independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even, if this result in views and findings that are not favourable for the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialists report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the applications;
- I will comply with the Act, Regulations and other applicable legislation;
- I will consider, to the extent possible, the matters listed in Regulation 13;
- I understand to disclose to the applicant and the competent authority all material information in my possession
- All the particulars furnished by me in this form are true and correct that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan, or document to be prepared by myself for submission to the competent authority; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



31 March 2022

4 LEGAL FRAMEWORK

South Africa's heritage resources ('national estate') are protected by international, national, provincial, and local legislation which provides regulations, policies and guidelines for the protection, management, promotion, and utilisation of heritage resources. South Africa's 'national estate' includes a wide range of various types of heritage resources as outlined in Section 3 of the NHRA (see Box 1).

At a national level, heritage resources are dealt with by the National Heritage Council Act, 1999 (No. 11 of 1999) and the NHRA. According to the NHRA, heritage resources are categorized using a three-tier system, namely Grade I (national), Grade II (provincial) and Grade III (local) heritage resources.

At the provincial level, heritage legislation is implemented by Provincial Heritage Resources Agencies (PHRA's) which apply the NHRA together with provincial government guidelines and strategic frameworks. Metropolitan or Municipal (local) policy regarding the protection of cultural heritage resources is also linked to national and provincial acts and is implemented by the SAHRA and the PHRA's.

4.1 Legislation relevant to heritage resources

Legislation relevant to South Africa's national estate includes the following:

21. National Environmental Management Act, 1999 (No. 107 of 1998) (NEMA)
22. Minerals and Petroleum Resources Development Act, 2022 (No. 28 of 2002) (MPRDA)
23. National Heritage Resources Act 1999, (No. 25 of 1999) (NHRA).

Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the NHRA

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

(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 by in terms of the Human Tissues 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, photographs, 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).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value …'. These criteria are the following:

(a) its importance in the community, or pattern of South Africa's history;
1. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
2. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
3. its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
1. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
2. its importance in demonstrating a high degree of creative or technical achievement at a particular period;
3. its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
4. its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
(i) sites of significance relating to the history of slavery in South Africa.

4.1.1 NEMA

The NEMA stipulates under Section 2(4)(a) that sustainable development requires the consideration of all relevant factors including (iii) the disturbance of landscapes and sites that constitute the nation's cultural heritage must be avoided, or where it cannot be altogether avoided, is minimised and remedied. Heritage assessments are implemented in terms of the NEMA Section 24 to give effect to the general objectives. Procedures considering heritage resource management in terms of the NEMA are summarised under Section 24(4) as amended in 2008. In addition to the NEMA, the National Environmental Management: Protected Areas Act, 2003 (No. 57 of 2003) may also be applicable. This act applies to protected areas and world heritage sites, declared as such in terms of the World Heritage Convention Act, 1999 (No. 49 of 1999).

4.1.2 MPRDA

The MPRDA stipulates under Section 5(4) no person may prospect for or remove, mine, conduct technical co-operation operations, reconnaissance operations, explore for and produce any mineral or petroleum or commence with any work incidental thereto on any area without (a) an approved Environmental Management Programme (EMPr) or approved environmental management plan.

4.1.3 NHRA

According to Section 3 of the NHRA the 'national estate' comprises a wide range and various types of heritage resources (refer to Box 1).

4.1.3.1 Heritage Impact Assessment studies

According to Section 38 of the NHRA, a Heritage Impact Assessment (HIA) process must be followed under the following circumstances:

1. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300 m in length;
2. The construction of a bridge or similar structure exceeding 50 m in length;

3. Any development or activity that will change the character of a site and which exceeds 5 000 m^2 or which involve three or more existing erven or subdivisions thereof
4. Re-zoning of a site exceeding 10 000 m^2; and
5. Any other category provided for in the regulations of SAHRA, a provincial or local heritage authority or any other legislation such as NEMA, MPRDA, etc.

4.1.3.2 Section 34 (Buildings and structures)

Section 34 of the NHRA provides for general protection of structures older than 60 years. According to Section 34(1) no person may alter (demolish) any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

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

Alter means any action which affects the structure, appearance or physical properties of a place or object, whether by way of structural or any other works such as painting, plastering, decorating, etc.

Most importantly, Section 34(1) clearly states that no structure or part thereof may be altered or demolished without a permit issued by the relevant PHRA. These permits will not be granted without a HIA being completed. A destruction permit will thus be required before any removal and/or demolition may take place, unless exempted by the PHRA according to Section 34(2) of the NHRA.

4.1.3.3 Section 35 (Archaeological and palaeontological resources and meteorites)

Section 35 of the NHRA provides for the general protection of archaeological and palaeontological resources, and meteorites. In the event that archaeological resources

are discovered during the course of development, Section 38(3) specifically requires that the discovery must immediately be reported to the PHRA, or local authority or museum who must notify the PHRA. Furthermore, no person may without permits issued by the responsible heritage resources authority:

1. Destroy, damage, excavate, alter, deface, or otherwise disturb any archaeological or paleontological site or any meteorite;
2. Destroy, damage, excavate, remove from its original position, collect, or own any archaeological or paleontological material or object or any meteorite;
3. Trade in, sell for private gain, export, or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites; and
4. Alter or demolish any structure or part of a structure which is older than 60 years.

Heritage resources may only be disturbed or moved by an archaeologist after being issued with a permit received from SAHRA. To demolish heritage resources, the developer must acquire a destruction permit from SAHRA.

4.1.3.4 Section 36 (Burial grounds and graves)

Section 36 of the NHRA allows for the general protection of burial grounds and graves. Should burial grounds or graves be found during development, Section 36(6) stipulates that such activities must immediately cease, and the discovery reported to the responsible heritage resources authority and the South African Police Service (SAPS). Section 36 also stipulates that no person without a permit issued by the relevant heritage resources authority may:

(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, or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) Bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Section 36 of the NHRA divides graves and burial grounds into the following categories:

1. Ancestral graves;
2. Royal graves and graves of traditional leaders;
3. Graves of victims of conflict;
4. Graves designated by the Minister;
5. Historical graves and cemeteries; and
6. Human remains.

Human remains less than 60 years old are subject to provisions of the National Health Act, 2003 (No. 61 of 2003), Ordinance 12 of 1980 (Exhumation Ordinance) and Ordinance No 7 of 1925 (Graves and dead bodies Ordinance, repealed by Mpumalanga). Municipal bylaws with regard to graves and graveyards may differ. Professionals involved with the exhumation and relocation of graves and graveyards must establish whether such bylaws exist and must adhere to these laws.

Unidentified graves are handled as if they are older than 60 years until proven otherwise.

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

Human remains can only be handled by a registered undertaker, or an institution declared under the Human Tissues Act, 1983 (No. 65 of 1983).

4.1.3.5 Section 37 (Public monuments and memorials)

Section 37 makes provision for the protection of all public monuments and memorials in the same manner as places which are entered in a heritage register referred to in Section 30 of the NHRA.

4.1.3.6 Section 38 (Heritage Resource Management)

Section 38 (8): The provisions of this section do not apply to a development as described in Section 38 (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No 50 of 1991), or any other legislation. Section 38(8) ensures cooperative governance between all responsible authorities through ensuring that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of Subsection (3), and any comments and recommendations of the relevant heritage resources authority about such development have been considered prior to the granting of the consent.

4.2 NEMA (Appendix Six requirements)

NEMA Regulations, 2014 (as amended 2107) **Appendix 6 Relevant section in report**	
Details of the specialist who prepared the report and the expertise of that person to compile a specialist report including a curriculum vitae	Part 2. Details of the specialist

A declaration that the person is independent in a form as may be specified by the competent authority	Part 3. Declaration of independence
An indication of the scope of, and the purpose for which the report was prepared	Part 1. Introduction Part 1.2. Aims with this report
An indication of the quality and age of base data used for the specialist report	Part 7. Approach and Methodology
The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Part 7. Approach and Methodology Part 7.1. Field survey
A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Part 7. Approach and Methodology
Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives	Part 8. Heritage survey Part 8.1. Field survey
An identification of any areas to be avoided, including buffers	Part 9.1 The significance of the stone wallled sites
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 8
A description of any assumptions made and any uncertainties or gaps in knowledge;	Part 1.3. Assumptions and limitations
A description of the findings and potential implications of such findings on the impact of	Part 9.1 The significance of the stone wallled sites

the proposed activity, including identified alternatives, on the environment	Part 9.2 Impact on the stone walled site Part 9.4 Mitigating the stone wallled settlements
Any mitigation measures for inclusion in the EMPr	Part 9.4 Mitigating the stone wallled settlements
Any conditions for inclusion in the environmental authorisation	Disclaimer Part 10. Conclusion and recommendations
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	
A reasoned opinion – • whether the proposed activity, activities or portions thereof should be authorised; • regarding the acceptability of the proposed activity or activities; and if the opinion is that the proposed activity, activities, or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr.	Part 10 Conclusion and recommendations
A description of any consultation process that was undertaken during preparing the specialist report	Part 7.4 Consultation process undertaken, and comments received from stakeholders
A summary and copies if any comments that were received during any consultation process	Part 7.4 Consultation process undertaken and comments received from stakeholders
Any other information requested by the competent authority.	None

5 THE PROJECT AREA

5.1 Location

Sibanye Stillwater's proposed new Marikana Solar PV Facility will be established between existing facilities, industries, and mines, some already long established such as the TD8 Tailings Facility to the north and wedged between the TD1 Tailings Facility (east) and the DT7 Tailings (west). The elongated project area lies between a railway line which serves as its northern boundary and a tar road which demarcates the project area in the south. The proposed project area covers an adjustable piece of land up to 162ha. The land is owned by Sibanye Stillwater with the closest electrical tie-in points being the Wonderkop substation.

On a regional scale the Marikana Solar Plant will be established on the farm Middelkraal 966JQ approximately 4km south-east of Marikana within the Rustenburg Local Municipality in the North-West (Figure 1; 1:50 000 topographical map of Rustenburg East [2527CB]).

5.2 The altered state of the study area

The Project Area is surrounded with mines, industries, and related infrastructure. Although a few undisturbed patches of land still occur, such as a few low rising dolerite dykes which outcrop towards the central part and more noticeable south of the project area the surrounding piece of land have been affected and altered by agricultural activities, including ploughing, planting, and harvesting of fields. These fields occur predominantly in the eastern part of the project area.

The Project Area in general, can be defined as a brown field since it has been scarred by a mixture of agricultural, industrial, and mining related development activities during many decades. This was accompanied with the construction of tar roads, power lines, laying of pipelines, erecting power lines and other supportive infrastructure. These development activities have changed the indigenous vegetation, landscape, and appearance of the Project Area to such an extent that it cannot be described as a pristine area any longer.

Figure 1- The Project Area which is proposed for the Marikana Solar PV Facility near Marikana in the North-West (above).

5.3 The Marikana Solar PV Facility Project

The development of renewable energy facilities is proposed by various Special Purpose Vehicles (SPVs). The project entails the development of three (3) separate solar Photovoltaic (PV) facilities with a combined contracted capacity of up to 205MW and will be known as SRPM Solar PV, Karee Solar PV, and Marikana Solar PV respectively, each including a grid connection and other associated infrastructure. The Solar PV facilities are based near current Sibanye Stillwater mining operations, 6km east of the town of Rustenburg, 3km east of the town of Photshaneng and 8km east from the town of Marikana within the Rustenburg and Madibeng Local Municipalities respectively, and within the greater Bonjanala Platinum District Municipality, North-West Province (NWP). The projects will all tie-in to the electricity grid behind the Eskom meter at the respective Sibanye customer substations.

As of 2019, the Industrial Sector was the leading electricity consumer in South Africa, with up to 56 percent of the total consumption (Ratshomo 2019). *Mining* and quarrying accounted for 10% of the industrial *consumption* while non-ferrous metals and non-metallic both accounted for 8% and 5%, respectively (*Chamber of Mines of South Africa, 2017*,). The NWP is rated as the fourth largest electricity consuming province in South Africa and consumes approximately 12% of the available electricity (*Department of Economic Development, Environment, Conservation and Tourism (DEDECT) 2012*). This is mainly due to the high demand of the electrical energy-intensive mining and related industrial sector. Approximately 63% of the electricity supplied to the NWP is consumed in its mining sector (*DEDECT 2012*)

The North-West DEDECT's renewable energy strategy aims to improve the North-West Province's environment, reduce the NWP's contribution to climate change, and alleviate energy poverty, whilst promoting economic development and job creation in the province whilst developing its green economy. Sibanye Stillwater aims to comply with the Mining industry's Mission to decarbonise.

The successful development of the renewable energy projects will enable Sibanye Stillwater to make a valuable and meaningful contribution towards growing the green economy within the province and South Africa. This will assist the NWP in creating

green jobs and reducing Green House Gas emissions, whilst reducing the energy demand on the National Grid.

A development footprint of approximately up to 230 ha for SRPM Solar PV, up to 210 ha for Karee Solar PV and up to 100 ha for Marikana Solar PV has been identified within the broader combined project sites (approximately 780 ha in extent) for the development of the Rustenburg Solar facilities. The onsite infrastructure will include:

- Solar PV array comprising bifacial PV modules and mounting structures, using single axis tracking technology. Once installed, the entire structure will stand up to 5m above ground level.
- Inverters and transformers.
- Cabling between the project components.
- Balance of Plant.
- On-site facility substation to facilitate the connection between the solar PV facility and Eskom electricity grid. The size and capacity of each of the on-site stations will be 80MVA, 95MVA and 30MVA respectively.
- An onsite Medium Voltage (MV) switching station forming part of the collector substation.
- 100MWh Battery Energy Storage System (BESS) per site.
- Temporary Laydown areas.
- Access roads, internal roads and fencing around the development area.
- Up to 132kV Overhead Power Lines (OHPL) – maximum of 30m height with a 15m servitude width
- Underground LV cabling will be used on the PV sites.

The details on the SRPM Solar PV Facility and grid connection infrastructure are as follow:

Applicant	Project Name	Generating capacity	Farm Name and No.	Portion No.
Marikana Solar (Pty) Ltd	Marikana Solar PV	30MW	Farm Middelkraal No. 466	9

Grid connection infrastructure

Applicant	Project Name	Capacity	Farm Name/s and no/s.	Alternatives	Infrastructure components
Marikana Solar (Pty) Ltd	Marikana Solar PV	88Kv	Farm Middelkraal No. 466 Portions 9, 12, 7, 36, 5, 3	» Alternative 1: farm Middelkraal 466, Portions 9, 12, 7, 15, 14, 3 » Alternative 2: farm Middelkraal 466, RE/9, 12, 7, 15, 14, RE/3. » Alternative 3: farm Middelkraal 466: RE/9, 12, 7, 36, RE/5, River crossing, 18, RE/3. » Alternative addition to Alternative 1 to reach tie in point: RE/3.	Power line to the Marikana sub-station
N/A	Marikana alternatives from Karee			» Alternative 1: Farm Brakspruit No. 299 Portion 23, Farm Rooikoppies 297: 280, RE/329,RE/281,RE/282, 283, 1, 221, 248, 250, 249, 247, RE/415, 244, 122, RE/333; Farm Elandsdrift 467: RE/2, 100, RE/21, 56, 38; Farm Middelkraal No. 466: RE/22, 48, RE/23, 49, RE/1, 29, 30, 47, 16, 14, Unmarked, RE/3; » Alternative 2: Farm Brakspruit No. 299 Portion 23, Farm Rooikoppies 297: 280, RE/314, RE/5; Farm Elandsdrift 467; Farm Middelkraal No. 466: 14, Unmarked, RE/3;	

5.4 Earlier heritage studies

Several heritage studies for different mines, Eskom power lines, and other developmental projects beyond the project area have been conducted during the last two to three decades. A number of these studies are listed (see Part 11, Bibliography relating to heritage studies'). These studies have pointed out that the main types and ranges of heritage resources in the broader area comprise of the following:

- Stone walled settlements dating from approximately AD1700 although these settlements are mainly confined to rocky outcrops in the area. The sites usually are small and do not cover extensive surface areas as contemporary stone walled sites elsewhere in the Bankeveld.
- Graveyards younger and older than sixty years. The numbers of graves in these cemeteries vary from single graves to large cemeteries holding more than hundred graves.
- Other settlements from the Iron Age without stone walls but with a limited number of potsherds. However, these sites are limited in numbers, mostly severed eroded and of low heritage significance.

- Settlements with numbers of potsherds and MSA artefacts. These sites are also limited in numbers, mostly severed eroded and of low heritage significance.
- Settlements with potsherds, usually limited in numbers and historical structures and remains such as potsherds and ‘modern’ material items such as glass, metal wares and even porcelain. However, these sites in general are seldom found and are also mostly severed eroded and of low heritage significance.
- Historical farmsteads with main residential houses and limited other outbuildings and other infrastructure such as tobacco and wagon sheds, kraals, etc. these types of historical sites are becoming scarcer to find because of illegal demolishment.
- Limited mine infrastructure which may be older than sixty years.

The most common types and ranges in the larger therefore include Late Iron Age stone walled sites (if kopjes occur) and graveyards.

6 CONTEXTUALISING THE PROJECT AREA

The proposed Marikana Solar PV Facility will be established north of the Magaliesberg in the Rustenburg (Bafokeng) District of the North-West. This region is known for its rich and diverse range of heritage resources. Subsequently, a broad outline of the historical context of this region is provided below.

6.1 Pre-historical context

Stone Age sites are scattered along the Magaliesberg and are also found in caves and rock shelters in the mountain. Rock engraving sites are located further towards Maanhaarrand and to the west of the Magaliesberg. The most abundant heritage resources in the Bankeveld are those that date from the Late Iron Age and which are associated with the numerous Tswana chiefdoms who occupied this region during the last four centuries. This proto-historical period therefore is associated with the ancestors of the Tswana who lived in the general area where the proposed RPM Solar Plant will be established

6.2 Proto-historical context

The interaction between the climate, geology, topography, and the fauna and flora of the Central Bankeveld established a milieu in which the first Tswana found a suitable living environment to practised herding, agriculture, metal working and trading. It was here that their chiefdoms flourished during AD1600 to 1840.

The settlements of these early Tswana chiefdoms are characterised by an impressive and elaborate stone-built tradition. Hundreds and perhaps thousands of sites were built along the bases of the granite hills. The most formidable of these chiefdoms were the Kwena Môgôpa and the Kwena Môgale (Bapô) between Brits and Marikana. Further to the west, closer to Rustenburg, was the Fôkeng chiefdom while several Kgatla spheres of influence emerged further to the east near Brits. The Kgatla were subjected by Mzilikazi and were used as labourers to build one of the Ndebele's villages, probably known as emHlalandlela.

The Bapô, a people whose earliest ancestors were descended from the Amambô Nguni from Kwa Zulu/Natal, arrived in the Magaliesberg during the 16th or 17th centuries. They established a sphere of influence close to Segwalane and Makolokwe. One of their capitals was Tlhôgôkgôlô (Wolhuterskop). Several of the chiefs of this clan where known by the name of Môgale. The name of the Magalies Mountains (Magaliesberg) was derived from the name Môgale.

Numerous *difaqane* wars were fought during the last quarter of the 18th century and during the first quarter of the 19th century in the Central Bankeveld. These wars led to the displacement of large numbers of Tswana in the Bankeveld. The *difaqane* wars were caused by the Ndebele (Matabele) of Mzilikazi who arrived from the Vaal River region to occupy the Bankeveld in August 1827. The Ndebele destroyed the Kwena Môgôpa, the Kgatla and what had remained of the Bapô after an earlier defeat by the Pedi of Thulare. These wars exacerbated the havoc started earlier in the Bankeveld and gradually became a characteristic feature of historical events in this region during the early 19th century.

The Ndebele established several settlement complexes in the Central Bankeveld from whence they maintained their grip on the indigenous population. Four of these Zulu/Nguni residences (*imisi*) and military kraals (*amakhanda*) have been discovered during archaeological surveys.

Internal strife between the various Tswana chiefdoms also seems to have been on the increase from the latter half of the 18th century onwards. Paternal relatives fought against each other to attain the chieftaincy of the various Tswana chiefdoms. Succession disputes also led to the splintering of the existing chiefdoms into a growing number of independent spheres of influence in the Bankeveld.

During the early 19th century travellers, traders and missionaries visited the Central Bankeveld where they encountered the devastated Tswana chiefdoms. They also mentioned that numerous Tswana tribes were displaced. These travellers included the traders Robert Schoon and William McLuckie in August 1829. They were soon followed by the missionary Robert Moffat who visited Mzilikazi in an *umuzi* near what is today, Pretoria. In June 1835 Charles Bell and other members of Andrew Smith's expedition

visited a Ndebele village near Rustenburg which Bell subsequently painted. One year later, in December 1836, Cornwallis Harris also visited the Central Bankeveld where he painted emHlalandlela near Brits.

The Bankeveld was rich in fauna which attracted the Griqua and the first white hunters to the region. Ivory was plentiful, with herds of elephants roaming the area. Ivory and the skins of the wide variety of fauna were sought after as precious trade commodities. Although the Tswana hunted the fauna of the Bankeveld, they were more renowned as agriculturists and cattle herders than as hunters.

Complex causes led to the unfolding of the numerous Tswana chiefdoms and their spheres of influence throughout the Bankeveld during the last decades of the 18th century and during the first decades of the 19th century. These causes were multidimensional and included the ecological potential of the region, the social and political formation and expansion of different spheres of influence, the establishment of short and long-distance trade relations and local and regional wars. These causes and historical events were complex and are not fully recorded in oral traditions or in any other records.

6.3 Historical context

The first immigrant Boers established themselves to the north of the Magaliesberg in the late 1840's. These Voortrekkers established the first colonial farmsteads along the southern and the northern foot of the Magaliesberg. Early colonial farm homesteads also arose near Marikana (Schaapkraal), in the Selons River valley to the west of Rustenburg and at Tierpoort and Garsfontein near Pretoria. Some of the earliest Voortrekkers who moved into the Rustenburg and Phokeng areas, close to the Wonderkop Solar PV Facility Project Area, established themselves on the farms Kafferskraal and Witpensfontein (today Rustenburg) and Schaapkraal, to the east of the study area.

During the Second/Anglo Transvaal Boer War (1899-1902) British blockhouses were built along the ridge of the Magaliesburg, from Pretoria in the east to Rustenburg in the

west. Several of these structures are in Kommandonek and in Pampoennek in the Magaliesberg, south of the current project area.

Since the second half of the 19th century, farmers and workers have occupied the Rustenburg District (including the Mooinooi, Marikana, Hartebeespoort and Brits areas). Tobacco and citrus farming, together with cattle herding, became a subsistence pattern that has lasted to this day. Old farm homesteads, agricultural implements, and other infrastructure such as tobacco drying sheds may still exist on farms adjacent to the study area.

After the discovery of the Merensky Reef in 1929, the economy of the area was gradually changed from farming into platinum and chrome mining. Farmers, farmworkers, and more recently, mine workers have therefore occupied the area without interruption for more than a hundred and fifty years. Remains dating from this historical (colonial and modern) period and from the relatively recent past therefore exist in or near the study area.

7 APPROACH AND METHODOLOGY

This heritage survey and impact assessment study was conducted by means of the following:

7.1 Field survey

A field survey for the Marikana Solar PV Facility was conducted during the fourth week of March 2022. Earlier heritage surveys for mines, Eskom power lines, and infrastructure related projects were undertaken during the past two decades, several of these in which the author was involved with. The Project Area itself was also surveyed by the author himself when compiling a heritage register for Lonmin (see Part 11, 'Bibliography relating to heritage studies').

Figure 2- The GPS track log which the surveyor followed (red line) when covering the project area (above).

Google Earth imagery was used as a supplementary source (*prior* and after fieldwork) to establish the presence of any possible heritage resources in the proposed project area. Google Earth's historical imagery also confirmed the presence of the stone walled site directly to the north of the Project Area.

All coordinates for heritage resources recorded by the author were done with a Garmin Etrex hand set Global Positioning System (instrument) with an accuracy of < 15m.

A track which was followed during the survey was logged on a Google Earth image (Figure 2).

The nature and character of the project area has further been illuminated with descriptions and photographs (Part 8, 'The Phase I heritage survey').

7.2 Databases, literature surveys and maps

Databases kept and maintained at institutions such as the PHRA, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and SAHRA's national archive (referred to as the South African Heritage Resources Information System, (SAHRIS) were consulted to determine whether any heritage resources of significance had been identified during earlier heritage surveys in or near the project area. The larger project area has been subjected to several heritage assessments studies in the past (see Part 11, 'Bibliography relating to heritage studies').

Literature relating to the pre-historical and the historical unfolding of the region where the project area is located was reviewed (see Part 6, 'Contextualising the Project Area' and Part 10, 'Select Bibliography).

7.3 Consultation process undertaken and comments received from stakeholders

No specific consultation process was undertaken for the purposes of the heritage study as the stakeholder consultation for the project is being done by Savannah Environmental as part of their Environmental Authorisation and Assessment Process.

7.4 Significance ratings

The significance of possible impacts on the heritage resources was determined using a ranking scale provided by Savannah Environmental.

8 THE PHASE I HERITAGE SURVEY

8.1 The field survey

The field survey was conducted with a vehicle following Graeme Sinclair tar road along the southern border and the dirt road north of the railway line along the northern border of the project area. Several footpaths criss-cross the project area and were used during the pedestrian survey. Considering the size and extent of the project area it could not be covered fully on foot. Nevertheless, Google Earth imagery provided useful information on the original state of the project area especially when using the historical scale to go back in time.

Reaching end of summer and after an above average rainfall during the season the veld was overgrown with grass and weed. Stands with trees are sparingly but in places they do occur in clumps some of which are dense and impenetrable. Low dolerite outcrops also occur in this western part of the project area where the land was not totally disturbed because of agricultural activities. The eastern part of the project area was intensely used for agricultural fields in the past. The field survey is now briefly outline with descriptions and a few photographs.

Figure 3- The eastern part of the project area was intensely utilized for agricultural activities in the past and seemingly totally devoid of any heritage resources (above).

Figure 4- Small scale projects were also conducted in the eastern part of the project area which further altered and disturbed this piece of land (above).

Figure 5- The western part of the project area is less disturbed. However, granite dykes and dense patches with trees occur in certain areas (above).

Figure 6- The western part of the project area is marked by granite dykes some of which are covered with the remains of stone walls (above).

Figure 7- A stone walled settlement covered with grass in the western part of the project area (above).

8.2 Types and ranges of heritage resources

The Phase I HIA study for the proposed Marikana Solar PV Facility Project revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Remains of stone walls belonging to Late Iron Age stone walled settlements (Site LIA01) on a low dolerite outcrop along the southern perimeter of the project area.

The stone walled settlement was geo-referenced and mapped (Figures 6-9; Table 1).

The significance of the stone walled settlements which may be affected by the Marikana Solar PV Facility Project was determined by means of using two ranking scales, namely stipulations derived from the National Heritage Resources Act (No 25 of 1999) (Table 2) and a field rating scheme for heritage resources (Section 7 of the NHRA [Act No 25 of 1999) (Table 3). The significance of the impact of the Marikana Solar PV Facility was determined according to a rating scheme outlined in Part 7.5, 'Significance ratings.'

Mitigation and well as chance-find procedures are proposed for the Marikana Solar PV Facility Project Area.

8.2.1 The Late Iron Age site

This stone walled site extents across a dolerite outcrop and comprises what seems like scalloped or circular walls which encircle one or more central enclosures. However, the thick vegetation growth on the outcrop prevents a detail investigation of the settlements. However, it is expected that the settlements conform to typical Sotho-Tswana styled settlements constructed during the Late Iron Age or the period AD1700 to AD1840.

Figure 8- Stone walled settlements on a dolerite dyke covered with grass and demarcated in a white circle in the western part of the project area (above).

Figure 9- An earlier photo of the stone walled settlements when the grass cover has receded in the western part of the project area (above).

8.3 Table

Table 1- Coordinates for stone walled settlements along the southern perimeter of the project area.

Stone walled settlement	Coordinates	Significance
Site LIA01	25º 41 38.05's; 27º 33 36.85e (west) 25º 41 29.89's; 27º 33 53.44e (east)	**Medium to low**
Site LIA02 **Rooiheuwel** **Outside project area**	25º 41.241's; 27º 33 36.577	**Not applicable will not be affected by proposed development**

9 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND MITIGATION OF THE HERITAGE RESOURCES

The Phase I HIA study for the proposed Marikana Solar PV Facility Project revealed the following types and ranges of heritage in the project area, namely:

- Remains of stone walls belonging to Late Iron Age stone walled settlements (Site LIA01) on a low dolerite outcrop along the southern perimeter of the project area.

The significance of the stone walled site must be determined as well as the significance of any possible impact on these settlements to propose mitigation and management measures if these remains may be affected by the Marikana Solar PV Facility Project.

9.1 The significance of the stone wallled sites

The stone walled settlements are most likely historically and culturally linked with Sotho-Tswana people who occupy the project area during AD1700 to AD1840. These settlements date from the last four hundred years, have cultural and historical connections with the Tswana and qualify as archaeological sites which are protected by the National Heritage Resources Act (No 25 of 1999).

The significance of these remains is rated as of medium significance. This rating is based on the use of two rating (grading) schemes, namely (Tables 2 & 3):

- A scheme of criteria which qualifies places and objects as part of the national estate as they have cultural significance or other special value (outlined in Section 3 of the NHRA [Act No 25 of 1999] (see Box 1) (Table 2).
- A field rating scheme according to which heritage resources are graded in three tiers (levels) of significance based on the regional occurrence of heritage resources (Section 7 of the NHRA [Act No 25 of 1999) (Table 3).

9.1.1 Criteria to be part of the national estate

The NHRA (No 25 of 1999) distinguishes nine criteria for places and objects to be 'part of the national estate' if they have cultural significance or other special value, namely (also see Box 1):

- Its importance in/to the community, or pattern of South Africa's history.
- Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural heritage.
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects.
- Its importance in exhibiting aesthetic characteristics valued by a community or cultural group.
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period.
- Its strong or special association with a particular community or cultural group for social, cultural, or spiritual reasons.
- Its strong or special association with the life or work of a person, group, or organisation of importance in the history of South Africa; and
- Sites of significance relating to the history of slavery in South Africa.

	Low	**Medium**	**High**
Historical significance		X	
Social significance		X	
Spiritual significance		X	
Scientific significance (research, use, application, e.g. in tourism industry)		X	

Table 2- Rating the significance of the stone walled settlement from the Late Iron Age according to criteria outlined in the NHRA (25 of 1990) (above).

The highlighted criteria reflect aspects of the social, historical, spiritual and scientific significance (research, use and application, e.g. in tourism industry) of the stone walled settlement.

According to these criteria the stone walled settlement is rated as of medium significance (Table 2).

9.1.2 Field rating scheme for heritage resources

Grading of heritage resources remains the responsibility of heritage resources authorities. However, in terms of minimum standards SAHRA requires that heritage reports include field ratings to comply with Section 38 of the NHRA (No 25 of 1999). The NHRA (No 25 of 1999, Section 7) provides for a three-tier grading system for heritage resources. The field rating process is designed to provide a qualitative and quantitative rating of heritage resources. The rating system distinguishes three categories of heritage resources:

- Grade I Heritage resources hold qualities so exceptional that they are of special national significance.
- Grade II Heritage resources hold qualities which make them significant within the context of a province or a region.
- Grade III heritage resources are worthy of conservation, i. e. are generally protected in terms of Sections 33 to 37 of the NHRA (No 25 of 1999).

Field rating	**Grade**	**Significance**	**Recommended mitigation**
National significance	Grade 1	High significance	Nominate national site. Conservation
Provincial significance	Grade 2	High significance	Nominate provincial site. Conservation
Local significance	Grade 3A	High significance	Conservation. Mitigation not advised.
Local significance	Grade 3B	High significance	Mitigation (part of site should be retained)

Generally Protected (GP.A)	-	Medium to High significance	Mitigation before destruction
Generally Protected (GP.B)	**-**	**Medium significance**	**Recording before destruction**
Generally Protected (GP.C)	-	Low significance	Destruction

Table 3- Field rating (grading) for remains from the recent past (above).

According to the highlighted field rating scheme, the stone walled settlement can be rated as of medium significance and therefore must be recorded before it can be destroyed (Table 3).

9.2 Impact on the stone walled site

No lay out plan is available for the Marikana Solar PV Facility. Consequently, it is uncertain whether the project may impact on the stone walled sites. If the Marikana Solar PV Facility is established in the eastern part of the project area no impact will occur on the stone walled settlements. However, if the Marikana Solar PV Facility is established in the western part of the project area it must be assumed that it is most likely that the stone walled settlements will be affected by the proposed project.

9.3 The significance of the impact on the stone walled site

If the Marikana Solar PV Facility is established in the western part of the project area the significance of the impact on the stone walled settlements will be high (Table 4).

Table 4- The significance of the impact on Stone walled settlements is high (below).

Stone walled settlements	**M**	**D**	**E**	**P**	**S**	**Cum Impact**	**Mitigation required**	**Significance after mitigation**
	10	**5**	**1**	**4**	**64**	**High**	**Phase 2: Mapping Excavating**	**Med-high**

Nature: Construction of the proposed solar plant infrastructure in the western part of project area will cause destruction of stone walled settlements.			
Impact description*:* Clearing surface for the proposed construction of the proposed solar plant infrastructure			
	Rating	Motivation	Significance
Duration	5 (permanent)	The settlements will be destroyed	**High (64)**
Extent	1 (low)	Limited to the site	
Magnitude	10 (very high)	Settlements are non-renewable	
Probability	4 (highly probable)	The possibility of the impact if settlements are not avoided	
Mitigation /enhancement measures			
Mitigation Conducting a Phase 2 archaeological investigation: Mapping and test excavations of settlements			
Post mitigation/Enhancement measures			
Duration	5 (permanent)	Settlements will be destroyed: non renewable	**Low (24) neutral**
Extent	1 (low)	Limited to the site	
Magnitude	6 (moderate)	Settlements will be documented	
Probability	2 low likelihood)	Some possibility but low likelihood if avoided	

Cumulative impacts		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Duration	Permanent (5)	Medium term (5)
Extent	Low (1)	(Low) 2
Magnitude	Very high (10)	Moderate (6)
Probability	Highly probable (4)	Improbability (2)
Significance	High (64)	Low (26)
Status (positive or negative)		Neutral
Reversibility	Low (non-renewable)	Low (non-renewable)

Irreplaceable loss of resources	Yes	Yes
Can impact be mitigated	Yes	Yes
Confidence in findings	Medium	Medium
Mitigation: Conducting a Phase 2 archaeological investigation: Mapping and test excavations of settlements		

According to Table 4 the significance of the impact on the stone wallled settlements is high.

9.4 Mitigating the stone wallled settlements

The stone walled settlements may be destroyed if the proposed Marikana Solar PV Facility Project is established in the western part of the project area. The stone walled settlements must be mitigated through a Phase II investigation before they may be affected by the proposed Marikana Solar PV Facility Project.

A Phase II investigation implies that the stone walled settlements must be mapped and that test excavations must be conducted in the sites. These investigations can only be conducted after the South African Heritage Resources Authority (SAHRA) has issued a permit which would authorise the Phase II investigation. Hereafter, Sibanye Stillwater can apply from SAHRA for the destruction of these settlements.

9.5. Chance-find procedures

If heritage resources have been missed during the survey the following chance-find procedures must be implemented during the construction, operation, or closure phases of the proposed Marikana Solar PV Facility Project.

The chance-find procedures apply to all contractors, subcontractors, subsidiaries, or service providers. If any of these institutions' employees find any heritage resources during any developmental activity all work at the site must be stopped and kept on hold. Chance-finds must be reported to supervisors and through supervisors to the

senior manager on site. Chance-find procedures are summarized for heritage resources and graveyards.

9.5.1 Chance-find procedures for heritage resources

The initial procedure to follow whenever heritage resources are uncovered during development is aimed at avoiding any further possible damage to the heritage resources, namely:

- The person or group (identifier) who identified or exposed the heritage resource or graves must cease all activity in the immediate vicinity of the site.
- The identifier must immediately inform the senior on-site manager of the discovery.
- The senior on-site manager must make an initial assessment of the extent of the find and confirm that further work has stopped and ensure that the site is secured, and that controlled access is implemented.
- The senior on-site manager will inform the Environmental Officer (EO) and Health and Safety (HS) officers of the chance-find and its immediate impact on the Project. The EO will then contact the project archaeologist.
- The project archaeologist will do a site inspection and confirm the significance of the discovery, recommend appropriate mitigation measures to the mine and notify the relevant authorities.
- Based on the comments received from the authorities the project archaeologist will provide the mine with a Terms of References Report and associated costs if mitigation measures must be implemented.

9.5.2 Chance-find Procedures for graves

If previously unidentified graves are uncovered and/or exposed during any of the developmental phases of the Marikana Solar PV Facility Project, the following steps must be implemented after those outlined above:

- The project archaeologist must confirm the presence of graveyards and graves and follow the following procedures.
- Inform the local South African Police Service (SAPS) and traditional authority.

- The project archaeologist in conjunction with the SAPS and traditional authority will inspect the possible graves and make an informed decision whether the remains are of forensic, recent, cultural-historical or of archaeological significance.
- Should it be concluded that the find is of heritage significance and therefore protected in terms of heritage legislation the project archaeologist will notify the relevant authorities.
- The project archaeologist will provide advice about mitigation measures for the graveyards and graves.

10 CONCLUSION AND RECOMMENDATION

The Phase I HIA study for the proposed Marikana Solar PV Facility Project revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Remains of stone walls belonging to Late Iron Age stone walled settlements (Site LIA01) on a low dolerite outcrop along the southern perimeter of the project area.

The stone walled settlement was geo-referenced and mapped (Figures 6-9; Table 1).

The significance of the stone walled settlements which may be affected by the Marikana Solar PV Facility Project was determined by means of using two ranking scales, namely stipulations derived from the National Heritage Resources Act (No 25 of 1999) (Table 2) and a field rating scheme for heritage resources (Section 7 of the NHRA [Act No 25 of 1999) (Table 3).

The significance of the stone wallled sites

The stone walled settlements are most likely historically and culturally linked with Sotho-Tswana people who occupy the project area during AD1700 to AD1840. These settlements date from the last four hundred years, have cultural and historical connections with the Tswana and qualify as archaeological sites which are protected by the National Heritage Resources Act (No 25 of 1999).

The significance of these remains is rated as of medium significance. This rating is based on the use of two rating (grading) schemes, namely (Tables 2 & 3):

- A scheme of criteria which qualifies places and objects as part of the national estate as they have cultural significance or other special value (outlined in Section 3 of the NHRA [Act No 25 of 1999] (see Box 1). According to these criteria the stone walled settlements are rated as of medium significance (Table 2).
- A field rating scheme according to which heritage resources are graded in three tiers (levels) of significance based on the regional occurrence of heritage resources (Section 7 of the NHRA [Act No 25 of 1999). According to the highlighted field rating scheme the stone walled settlements can be rated as of

medium significance and therefore must be recorded before they can be destroyed (Table 3).

Impact on the stone walled sites

No lay out plan is available for the Marikana Solar PV Facility. Consequently, it is uncertain whether the project may impact on the stone walled sites. If the Marikana Solar PV Facility is established in the eastern part of the project area no impact will occur on the stone walled settlements. However, if the Marikana Solar PV Facility is established in the western part of the project area it must be assumed that it is most likely that the stone walled settlements will be destroyed by the proposed project.

The significance of the impact on the stone walled site

If the Marikana Solar PV Facility is established in the western part of the project area the significance of the impact on the stone walled settlements will be high (Table 4).

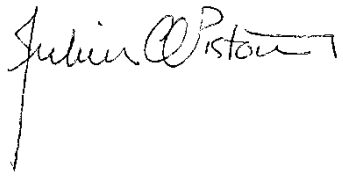
Mitigating the stone wallled settlements

The stone walled settlements may be destroyed if the proposed Marikana Solar PV Facility Project is established in the western part of the project area. The stone walled settlements must be mitigated through a Phase II investigation before they may be affected by the proposed Marikana Solar PV Facility Project.

A Phase II investigation implies that the stone walled settlements must be mapped and that test excavations must be conducted in the sites. These investigations can only be conducted after the South African Heritage Resources Authority (SAHRA) has issued a permit which would authorise the Phase II investigation. Hereafter, Sibanye Stillwater can apply from SAHRA for the destruction of these settlements.

Chance-find procedures

If heritage resources have been missed during the survey detail chance-find procedures have been outlined for heritage resources and for graves which must be implemented during the construction, operation, or closure phases of the proposed Marikana Solar PV Facility Project.



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