

**PHASE 1 HERITAGE IMPACT ASSESSMENT (HIA) FOR THE PROPOSED  
CONSTRUCTION OF THE PULIDA BATTERY ENERGY STORAGE SYSTEM (BESS)  
AND ASSOCIATED INFRASTRUCTURE, LETSEMENG LOCAL MUNICIPALITY,  
FREE STATE PROVINCE**



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## REPORT DETAILS

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<b>Report Title</b>	Phase 1 Heritage Impact Assessment (HIA) for the proposed construction of the Pulida Battery Energy Storage System (BESS) and associated infrastructure, Letsemeng Local Municipality, Free State Province
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<b>Declaration</b>	I, Leonie Marais as authorised representative of Leonie Marais Heritage Practitioner hereby confirm my independence in terms of Section 13.(1)(a) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) 2014 EIA Regulations as amended and the National Heritage Resources Act, 1999 (Act 25 of 1999).
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<b>Disclaimer</b>	Although all possible care is taken to identify/find all sites of cultural importance during the initial survey of the study area, the nature of archaeological and historical sites is as such that it is always possible that hidden or sub-surface sites could be overlooked during the study. Leonie Marais Heritage Practitioner will not be held liable will not be held liable for such oversights or for the costs incurred as a result thereof.

## **EXECUTIVE SUMMARY**

Leonie Marais was appointed by NCC to carry out a Phase 1 Heritage Impact Assessment (HIA) for proposed construction of the Pulida Battery Energy Storage System (BESS) and associated infrastructure, Letsemeng Local Municipality, Free State Province. The site visit took place on 28 February 2022.

A field survey was conducted after which a survey of literature was undertaken.

*No heritage sites nor items are situated on the site earmarked for development.*

It should be noted that the sub-surface archaeological and/or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered, an archaeologist/heritage practitioner should be commissioned to investigate.

## Contents page

<u>Contents</u>	<u>Page</u>
1. INTRODUCTION	8
1.1 WHY A PHASE 1 HIA IS REQUIRED	8
1.1.1 BASELINE STUDY	8
1.1.2 SEASON AND RELEVANCE THEREOF	9
1.1.3 VISIBILITY	9
1.1.4 PREVIOUS STUDIES CONDUCTED IN THE STUDY AREA	9
1.2 HISTORY OF THE STUDY AREA	10
1.3 LOCATION AND PHOTOGRAPHICAL RECORD OF STUDY AREA	11
2. FINDINGS	18
2.1 Pre-Colonial Heritage Sites	18
2.2 Historical Period Heritage sites	19
2.3 Original Landscape	19
2.4 Intangible Heritage	19
3. CATEGORIES OF HERITAGE VALUE	19
3.1 HERITAGE VALUE WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES	21
3.2. SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE LEGISLATION, 1999 (ACT NO. 25 OF 1999)	22
4. DISCUSSION	24
5. RESTRICTIONS	24
6. RECOMMENDATIONS	24
7. WAY FORWARD	25
<b>ADDENDUM 1: IMPACT ASSESSMENT</b>	

## **DEFINITION OF TERMS:**

“alter” means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.

“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 10m 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, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), 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; and

(d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

“conservation”, in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.

“cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

“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 a 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; or object that is specifically designated by that state as being of importance.

“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.

“heritage resource” means any place or object of cultural significance.

“heritage resources authority” means the South African Heritage Resources Agency (SAHRA), or in respect of a province, a provincial heritage resources authority.

“heritage site” means a place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority.

“improvement”, in relation to heritage resources, includes the repair, restoration and rehabilitation of a place protected in terms of Act 25 of 1999.

“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.

“local authority” means a municipality as defined in section 10B of the Local Government Transition Act, 1993 (Act No. 209 of 1993).

“management”, in relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of Act 25 of 1999.

“meteorite” means any naturally-occurring object of extraterrestrial origin.

“object” means any movable property of cultural significance which may be protected in terms of any provisions of Act 25 of 1999, including—

- (a) any archaeological artefact;
- (b) palaeontological and rare geological specimens;
- (c) meteorites; and
- (d) other objects.

“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 trace.

“place” includes—

- (a) a site, area or region;
- (b) a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
- (c) a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;

- (d) an open space, including a public square, street or park; and
- (e) in relation to the management of a place, includes the immediate surroundings of a place.

“presentation” includes—

- (a) the exhibition or display of;
- (b) the provision of access and guidance to;
- (c) the provision, publication or display of information in relation to; and
- (d) performances or oral presentations related to, heritage resources protected in terms of Act 25 of 1999.

“public monuments and memorials” means all monuments and memorials—

- (a) erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
- (b) which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.

“site” means any area of land, including land covered by water, and including any structures or objects thereon.

“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.

“victims of conflict” means—

- (a) certain persons who died in any area now included in the Republic as a direct result of any war or conflict as specified in the regulations, but excluding victims of conflict covered by the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992);
- (b) members of the forces of Great Britain and the former British Empire who died in active service in any area now included in the Republic prior to 4 August 1914;
- (c) persons who, during the Anglo-Boer War (1899-1902) were removed as prisoners of war from any place now included in the Republic to any place outside South Africa and who died there; and
- (d) certain categories of persons who died in the “liberation struggle” as defined in the regulations, and in areas included in the Republic as well as outside the Republic.

## 1. INTRODUCTION

Enel Green Power South Africa (Pty) Ltd (**EGP**) Limited intends to submit an Environmental Authorisation for the retrofitting of a Battery Energy Storage System (BESS) to the existing Pulida Solar photovoltaic facility located in Letsemeng Local Municipality in the Free State Province. Part of the submission requirements is for the positive Environmental Authorisation (EA).

The proposed Battery Energy Storage System (BESS) will be housed inside containers or similar structures with a total footprint of up to 4ha in extent. Both Lithium-ion and Redox-flow technology are being considered for the project, depending on which is most feasible at the time of implementation.

Possible associated infrastructure includes:

- A Substation with a maximum height of - HV busbar up to 10 m max and an HV Building up to 4 m max.
- Access road to the BESS (6m wide road surface with side ditch drainage on each side of the road) branching off the existing roads, and internal roads (up to 8m wide) within the footprint of the BESS, as needed.
- MV Cabling (underground or overhead) between the BESS and the HV/MV BESS substation.
- HV Cabling (underground or overhead) between the HV/MV BESS substation and the HV substation
- Fencing around the BESS and the substation for increased security measures.
- Temporary laydown area within the 4ha footprint of the BESS.
- Possible firebreak around the BESS facility which is to be located within the 4ha BESS footprint

The general purpose and utilisation of a Battery Energy Storage System (BESS) is to save and store excess electrical output as it is generated, allowing for a timed release of electricity to the grid when the capacity is required. BESS systems therefore provide flexibility in the efficient operation of the electricity grid through decoupling of the energy supply and demand

Possible firebreak around the BESS facility which is to be located within the 4ha BESS footprint.



## **1.1 WHY A PHASE 1 HERITAGE IMPACT ASSESSMENT IS REQUIRED?**

This project may potentially impact on any types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Subsequently a Phase 1 Heritage Impact Assessment (HIA) was commissioned by NCC and conducted by Leonie Marais.

### **1.1.1 BASELINE STUDY**

The objective of this Phase 1 Heritage Impact Assessment (HIA) was to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities. The site survey took place on 28 February 2022.

A baseline study was conducted to identify and compile a comprehensive inventory of sites of cultural heritage within the proposed project area, which include:

- (i) all sites of archaeological interest;
- (ii) all buildings and structures older than 60 years;
- (iii) landscape features include sites of historical events or providing a significant historical record or a setting for buildings or monuments of architectural or archaeological importance, historic field patterns and graves.

The baseline study also included a desk-top research and a field survey.

The desktop research was conducted to analyse, collect and collate extant information. The desktop research included:

- Search of the list of declared heritage sites protected by the National Heritage Resources Act, 1999 (Act no. 25 of 1999);
- Search of publications on local historical, architectural, anthropological, archaeological and other cultural studies;
- Search of other unpublished papers, records, archival and historical documents through public libraries, archives, and the tertiary institutions; and
- Search of cartographic and pictorial documents and maps.

The above baseline categories are sufficient for a report of this nature.

### **1.1.2 SEASON AND RELEVANCE THEREOF**

The survey was conducted during late summer. Unlike botanical studies heritage surveys are not restricted by season.

### **1.1.3 VISIBILITY**

Visibility is fair, but in certain areas of the study area the vegetation is dense which results in limited visibility.

#### **1.1.4 PREVIOUS STUDIES CONDUCTED IN THE STUDY AREA**

Hutton Heritage Consultants, Heritage Impact Assessment for the proposed Pulida Solar Park south-east of Kimberley for African Geo Environmental Services (AGES). Unpublished Report. January 2013.

### **1.2 ARCHAEOLOGICAL CONTEXT AND HISTORY OF THE STUDY AREA**

#### **1.2.1 Archaeological context**

##### **1.2.1.1 The Stone Age**

Concentrations of Early Stone Age (ESA) sites are mainly found on the flood-plains of perennial rivers and may date to over 2 million years ago. The said sites may contain scatters of stone tools and manufacturing debris or concentrated deposits ranging from pebble tool choppers to core tools such as handaxes and cleavers.

Middle Stone Age (MSA) sites are also present on flood plains, but are also associated with caves and rock shelters. Such sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Limited drive-hunting activities are also associated with this period.

Late Stone Age (LSA) sites are preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Deposits are well-protected in shelters and these stable conditions result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. South African rock art is associated with this period.

##### **1.2.1.2 The Iron Age**

In the northern regions of South Africa at least three settlement phases can be distinguished associated with early pre-historic agro-pastoralist settlements during the Early Iron Age (EIA). Diagnostic pottery assemblages can be utilised to infer group identities and to investigate movements across the landscape. The first phase of the EIA, known as Happy Rest (named after the site where ceramics were first identified), is representative of the Western Stream of migrations, and dates 400-600 AD. The second phase of Diamant is dated 600-900 AD and was first recognised at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the Eiland tradition, is regarded the final expression of the EIA and occurs over large parts of the North West Province, Limpopo Province, Gauteng Province and Mpumalanga Province. This phase has been dated to approximately 900-1200 AD. These sites are usually located on low-lying spurs close to water. No EIA sites occur in the Free State Province.

The Late Iron Age (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops *circa* 1640-1830. This occupation phase has been

linked to the arrival of ancestral Northern Sotho, Tswana and Southern Ndebele (Nguni-speakers) in the northern and Waterberg regions, and dates from the 16<sup>th</sup> and 17<sup>th</sup> centuries. The terminal LIA is represented by late 18<sup>th</sup> and early 19<sup>th</sup> century settlements with multichrome Moloko pottery commonly attributed to the Sotho-Tswana. These settlements can in various instances be correlated with oral traditions on population movements during which African farming communities sought refuge in mountainous regions during the processes of disruption in the northern interior of South Africa, resulting from the so-called Difaqane or Mfecane.

### 1.2.2 Historical period

In the 1820's the area was affected by the disruptive influence of Mzilikazi (Zulu warrior) and later during the middle and late 19th century the area was settled in by white farmers which resulted in the establishment of fenced farms and formal towns.

### 1.3 LOCATION AND PHOTOGRAPHIC RECORD OF STUDY AREA

The project is in the Letsemeng Local Municipality in the Free State province about 50 km south east from Kimberley.

- Co-ordinates: 29°02'16.3"S 24°55'35.1"E

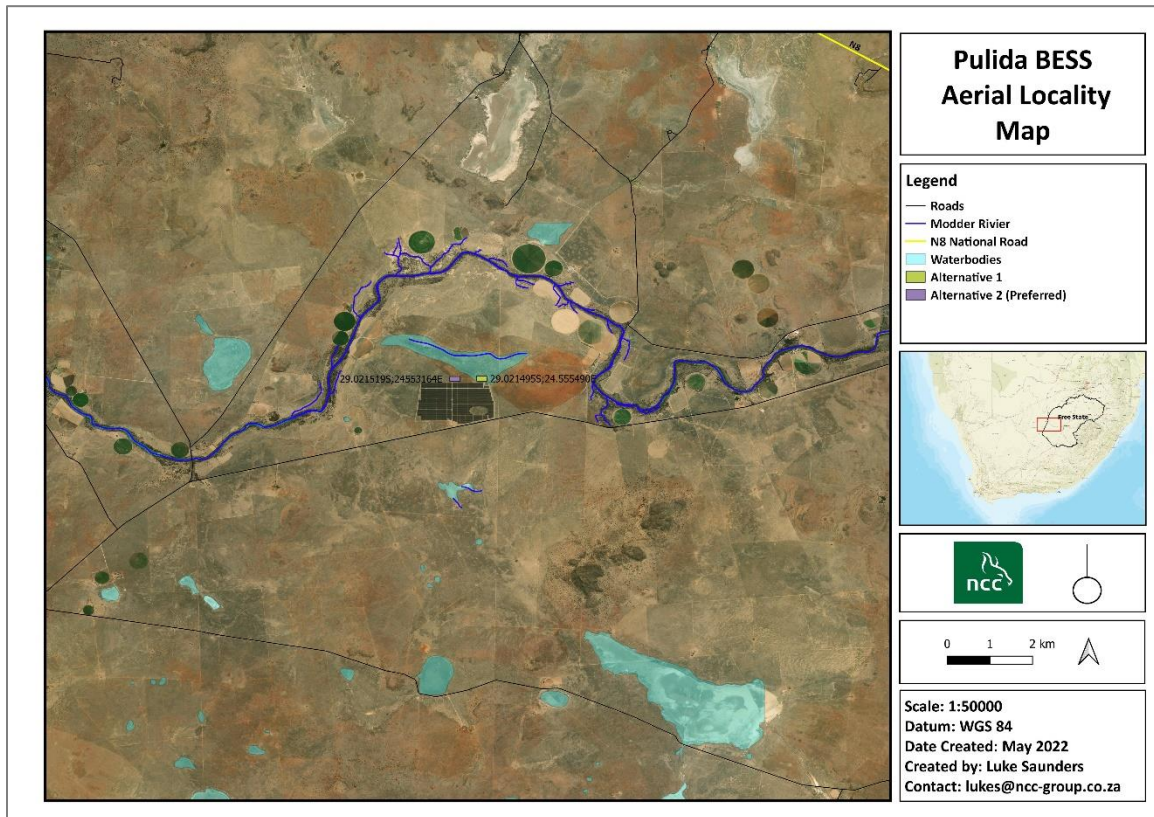


Figure 1: Location map

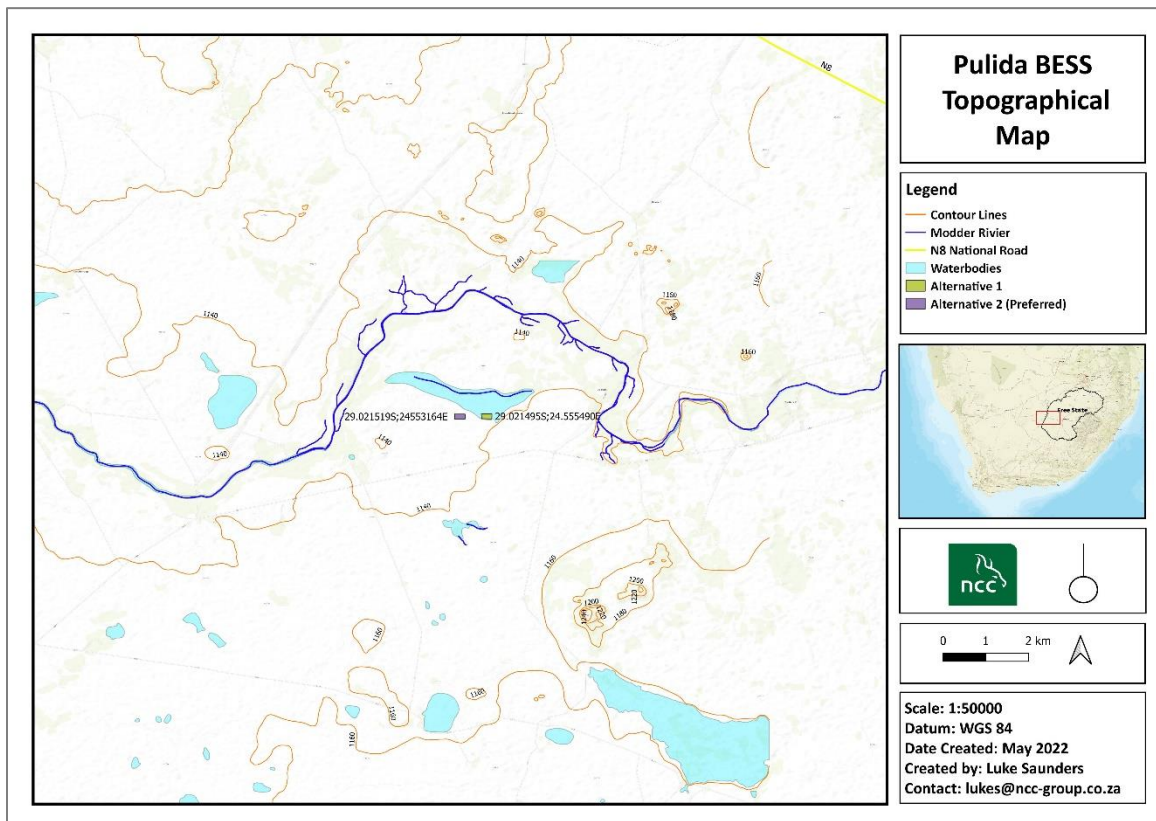


Figure 2: Topographical Map



Figure 3: Track route



**Photograph 1: Site characteristics Alternative 1**



**Photograph 2: Site characteristics Alternative 1**



**Photograph 3: Site characteristics Alternative 1**



**Photograph 4: Site characteristics Alternative 1**



**Photograph 5: Site characteristics Pulida Alternative 1**



**Photograph 6: Site characteristics Pulida Alternative 2 (Preferred)**



**Photograph 7: Site characteristics Pulida Alternative 2 (Preferred)**



**Photograph 8: Site characteristics Pulida Alternative 2 (Preferred)**



## 2 FINDINGS

### 2.1 PRE-COLONIAL HERITAGE SITES

Possibilities: Greater study area taken into account.

#### Stone Age

The Stone Age is the period in human history when stone material was mainly used to produce tools<sup>1</sup>. In South Africa the Stone Age can be divided in three periods<sup>2</sup>;

- Early Stone Age 2 000 000 – 150 000 years ago
- Middle Stone Age 150 000 – 30 000 years ago
- Late Stone Age 40 000 years ago - +/- 1850 AD

#### Iron Age

The Iron Age is the period in human history when metal was mainly used to produce artefacts<sup>3</sup>. In South Africa the Iron Age can be divided in three periods;

- Early Iron Age 250-900 AD
- Middle Iron Age 900-1300 AD
- Late Iron Age 1300-1840 AD<sup>4</sup>

*There are no pre-colonial heritage sites evident in the study area (Alternative A & B). This can be attributed to previous agricultural and infrastructure development activities in the study and greater area.*

### 2.2 HISTORICAL PERIOD HERITAGE SITES

Possibilities: Greater study area taken into account.

- Pioneer sites;
- Sites associated with early mining;
- Structures older than 60 years;
- Graves (Graves younger than 60 years, graves older than 60 years, but younger than 100 years, graves older than 100 years, graves of victims of conflict or of individuals of royal descent).

No historical sites or items are evident in the area earmarked for development, at either Alternative 1 or Alternative2 (Preferred).

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<sup>1</sup> P. J. Coertze & R.D. Coertze, *Verklarende vakwoordeboek vir Antropologie en Argeologie*.

<sup>2</sup> S.A. Korsman & A. Meyer, *Die Steentydperk en rotskuns* in J.S. Bergh (red) *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*.

<sup>3</sup> P.J. Coertze & R.D. Coertze, *Verklarende vakwoordeboek vir Antropologie en Argeologie*.

<sup>4</sup> M.M. van der Ryst & A Meyer. *Die Ystertydperk* in J.S. Bergh (red) *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies* and T.N Huffman, *A Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*.

## 2.3 ORIGINAL LANDSCAPE

The greater study area has been transformed by agricultural, mining and infrastructure development activities.

## 2.4 INTANGIBLE HERITAGE

The intangible heritage of the greater study area can be found in the stories of past and present inhabitants.

## 3 CATEGORIES OF HERITAGE VALUE (NATIONAL HERITAGE RESOURCES ACT, 1999 ACT NO. 25 OF 1999)

*The National Heritage Resources Act, 1999 (Act no. 25 of 1999) identifies the following categories of value under section 3(1) and (2) of the Act under the heading "National Estate":*

- “3 (1) For the purpose 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 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 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 interests; 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).
- (3) Without limiting the generality of the subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-
- (a) Its importance in the community, or pattern of South Africa's history;
  - (b) Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
  - (c) Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
  - (d) Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural objects;
  - (e) Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
  - (f) Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
  - (g) Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
  - (h) Its strong or special association with the life and work of a person, group or organisation of importance in the history of South Africa; and
  - (i) Sites of significance relating to the history of slavery in South Africa".

### **3.1 HERITAGE VALUE WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES**

#### **3.1.1 Spiritual value**

During the site visit/field work no indication of spiritual activity was observed on the site earmarked for development.

#### **3.1.2 Scientific value**

No sites of scientific value were observed on or near the site earmarked for development.

#### **3.1.3 Historical value**

No historical value associated with the site could be found in primary and secondary sources.

#### **3.1.4 Aesthetic value**

No heritage item with exceptional aesthetic (architectural) value was identified in the study area.

#### **3.1.5 Social value**

Social value is attributed to sites that are used by the community for recreation and formal and informal meetings regarding matters that are important to the community. These sites include parks, community halls, sport fields etc.

None of the above is situated on the area earmarked for development.

### **3.2 SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT NO. 25 OF 1999)**

#### **3.2.1 Does the site/s provide the context for a wider number of places, buildings, structures and equipment of cultural significance?**

The greater study area does provide context for a wider number of places, buildings, structures and equipment of cultural significance. No heritage structures or equipment are situated in the study area.

#### **3.2.2 Does the site/s contain places to which oral traditions are attached or which are associated with living heritage?**

Places to which oral traditions are attached or associated with living heritage are usually found in conjunction with traditional settlements and villages which still practise age old traditions. None of these are evident near or on the proposed site.

### **3.2.3 Does the site/s contain historical settlements?**

No historical settlements are located on or near the proposed site.

### **3.2.4 Does the site/s contain landscapes and natural features of cultural significance?**

Due to previous agricultural and infrastructure development the original character of the landscape has been altered significantly in the study area. The site does not contain natural features of cultural significance.

### **3.2.5 Does the site/s contain geological sites of cultural importance?**

Geological sites of cultural importance include meteorite sites (Tswaing Crater and Vredefort Dome), fossil sites (Karoo and Krugersdorp area), important mountain ranges or ridges (Magaliesburg, Drakensberg etc.). The proposed site is not located in an area known for sites of this importance.

### **3.2.6 Does the site/s contain a wide range of archaeological sites?**

The proposed site does not contain any surface archaeological deposits, a possible reason is previous agricultural and infrastructure development.

The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Programme.

If sub-surface archaeological material is discovered work must stop and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations.

### **3.2.7 Does the site/s contain any marked graves and burial grounds?**

The site does not contain marked graves or burial grounds.

The possibility of graves not visible to the human eye always exists and this should be taken into consideration in the Environmental Management Plan. It is important to note that all graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated, namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended).

If sub-surface graves are discovered work should stop and a professional preferably an archaeologist contacted to assess the age of the grave/graves and to advice on the way forward.

**3.2.8 Does the site/s contain aspects that relate to the history of slavery?**

No evidence of the above evident on the site earmarked for development.

**3.2.9 Can the place be considered as a place that is important to the community or in the pattern of South African history?**

In primary and secondary sources the proposed site is not described as important to the community or in the pattern of South African history.<sup>5</sup>

**3.2.10 Does the site/s embody the quality of a place possessing uncommon or rare endangered aspects of South Africa's natural and cultural heritage?**

The proposed site does not possess uncommon, rare or endangered aspects of South Africa's natural and cultural heritage. These sites are usually regarded as Grade 1 or World Heritage Sites.

**3.2.11 Does the site/s demonstrate the principal characteristics of South Africa's natural or cultural places?**

The proposed site does not demonstrate the principal characteristics of South Africa's natural or cultural places. These characteristics are usually associated with aesthetic significance.

**3.2.12 Does the site/s exhibit particular aesthetic characteristics valued by the community or cultural groups?**

This part of the greater study area does not exhibit particular aesthetic characteristics valued by the community or cultural groups. The reason being the low density of heritage buildings and structures located in the greater study area.

**3.2.13 Does the site/s contain elements, which are important in demonstrating a high degree of creative technical achievement?**

The site does not contain elements which are important in demonstrating a high degree of creative technical achievement. Reason being none of the above are evident on site.

**3.2.14 Does the site/s have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons?**

The proposed site does not have a strong or special association with particular communities and cultural groups for social, cultural and spiritual reasons.

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<sup>5</sup> *Standard Encyclopaedia of Southern Africa and the KAB database at the National Archives of South Africa;*

**3.2.15 Does the site/s have a strong and special association with the life or work of a person, group or organisation?**

No indication of the above could be found in primary and secondary research sources.<sup>6</sup>

**4. DISCUSSION**

During the site visit no heritage items nor sites were identified.

**5. RESTRICTIONS**

- None.

**6. RECOMMENDATIONS**

- There are no visible restrictions or negative impacts in terms of heritage associated with the specific sites indicated;
- In terms of heritage the proposed project may continue; and
- The discovery of subsurface archaeological and/or historical material as well as graves must be taken into account in the Environmental Management Programme. See 3.2.6 and 3.2.7

**7. WAY FORWARD**

***Submit this report as a Section 38 Application in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) to the relevant heritage authority for approval/comment.***

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<sup>6</sup> *Dictionary of South African Biography (vol I-V) and the KAB database at the National Archives of South Africa*

## REFERENCES

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**Addendum 1:**

**1. Heritage sites impact table**

<b>Location</b>	<b>Description</b>	<b>Number of identified heritage sites</b>	<b>Approximate distance from proposed development</b>	<b>Detailed location of heritage sites</b>
None	No heritage sites were (archaeological or other) were identified in the study area	0	Not applicable	Not applicable

**Table 1: Location Impact**

<b>Location</b>	<b>Item</b>	<b>Impact</b>	<b>Rating</b>
None	None	None	Low

**Table 2: Significance Impact**

**2. Impact Assessment**

**2.1 Construction Phase**

**2.1.1 Archaeological Impact**

No declared and recorded archaeological sites or archaeological potential areas were identified from both records and field investigations within the Study Area.

The construction of the Preferred Option of the proposed project will not impact on areas of archaeological or historical interest. No further archaeological or historical investigations will be required.

**2.1.2 Impact on Historical Buildings/Structures and Features**

No deemed or declared monuments identified within the Study Area. No historical buildings and structures were identified in the Study Area. No sites falls within the works boundary, and therefore no direct impact is expected.

**2.2 Operational Phase**

The operation of the proposed BESS development will only involve the establishment of a concrete/cement foundation and erection of the BESS prefabricated storage units and therefore no operational impact on cultural heritage is envisaged.

**3. Conclusion**

A literature review supplemented by a site investigation identified no sites of archaeological or historical significance in the study area. No mitigation measures for archaeological or historical resources are considered necessary.



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23 August 2022

**Nick Gates**  
**Senior Environmental Consultant & Service Line Manager: EMC**  
**NCC Environmental Services (Pty) Ltd**  
PO Box 30223  
Tokai  
7966

**Dear Mr Gates**

**RE POSSIBLE PALEONTOLOGICAL IMPACT FOR THE PROPOSED CONSTRUCTION OF THE PULIDA BATTERY ENERGY STORAGE SYSTEM (BESS) AND ASSOCIATED INFRASTRUCTURE, LETSEMENG LOCAL MUNICIPALITY, FREE STATE PROVINCE**

**1. Project Description**

Enel Green Power South Africa (Ltd) Pty (EGP) plans to submit a tender for the retrofitting of a Battery Energy Storage System (BESS) near the existing/in close proximity to the existing Pulida Solar photovoltaic facility located in Letsemeng Local Municipality in the Free State province. Part of the submission requirements is an approved Environmental Authorisation (EA).

The general purpose and utilisation of a Battery Energy Storage System (BESS) is to save and store excess electrical output as it is generated, allowing for a timed release of electricity to the grid when the capacity is required. BESS systems therefore provide flexibility in the efficient operation of the electricity grid through decoupling of the energy supply and demand.

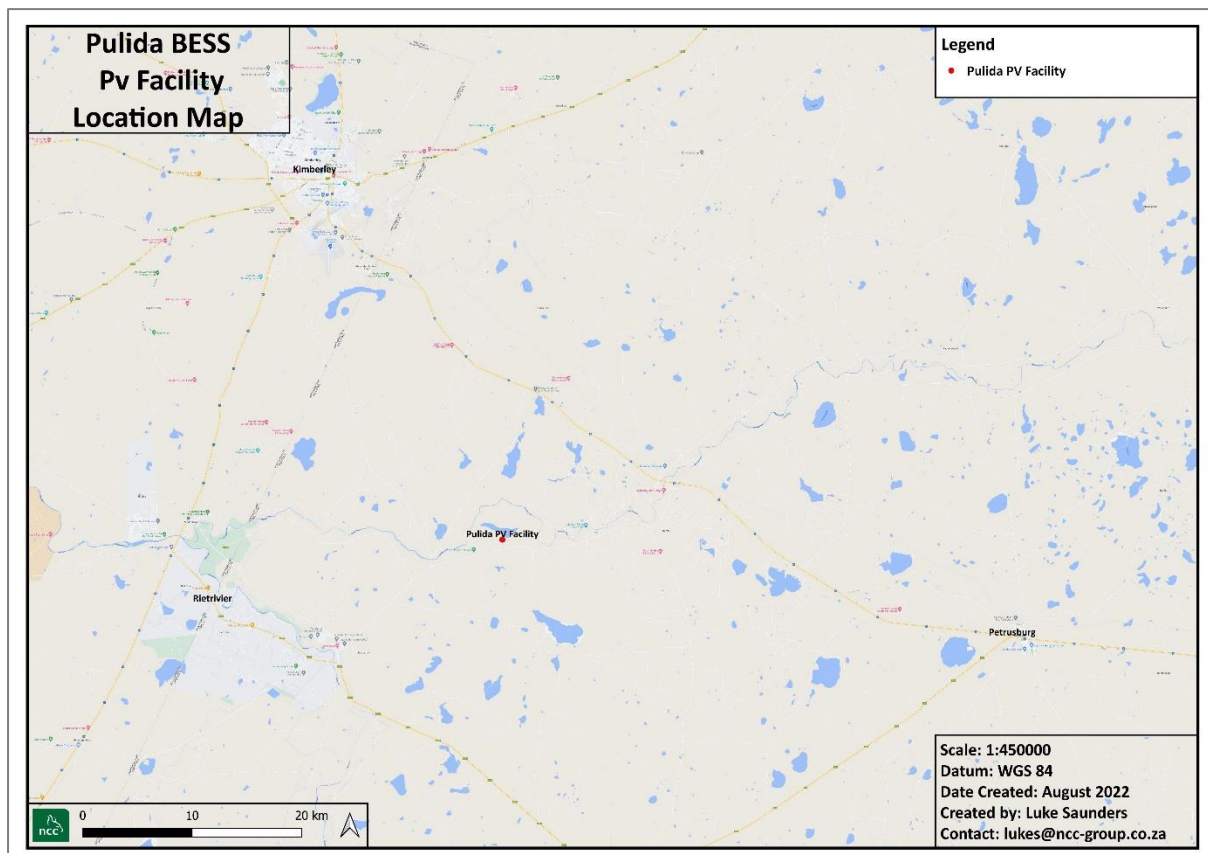
The proposed Battery Energy Storage System (BESS) will be housed inside containers or similar structures with a total footprint of up to 4ha in extent. Both Lithium-ion and Redox-flow technology are being considered for the project, depending on which is most feasible at the time of implementation. Possible associated infrastructure includes:

- A Substation with a maximum height of - HV busbar up to 10 m max and an HV Building up to 4 m max.
- Access road to the BESS (6m wide road surface with side ditch drainage on each side of the road) branching off the existing roads, and internal roads (up to 8m wide) within the footprint of the BESS, as needed. The length of the road will not exceed 700m.
- MV Cabling (underground or overhead) between the BESS and the HV/MV BESS substation.
- HV Cabling (underground or overhead) between the HV/MV BESS substation and the existing HV substation.
- Fencing around the BESS and the substation for increased security measures.
- Temporary laydown area within the 4ha footprint of the BESS.
- Possible firebreak around the BESS facility which is to be located within the 4ha BESS footprint.

## 2. Project location

The project is in the Letsemeng Local Municipality in the Free State province about 50 km south east from Kimberley.

- Co-ordinates: 29°02'16.3"S 24°55'35.1"E



**Figure 1: Project location**

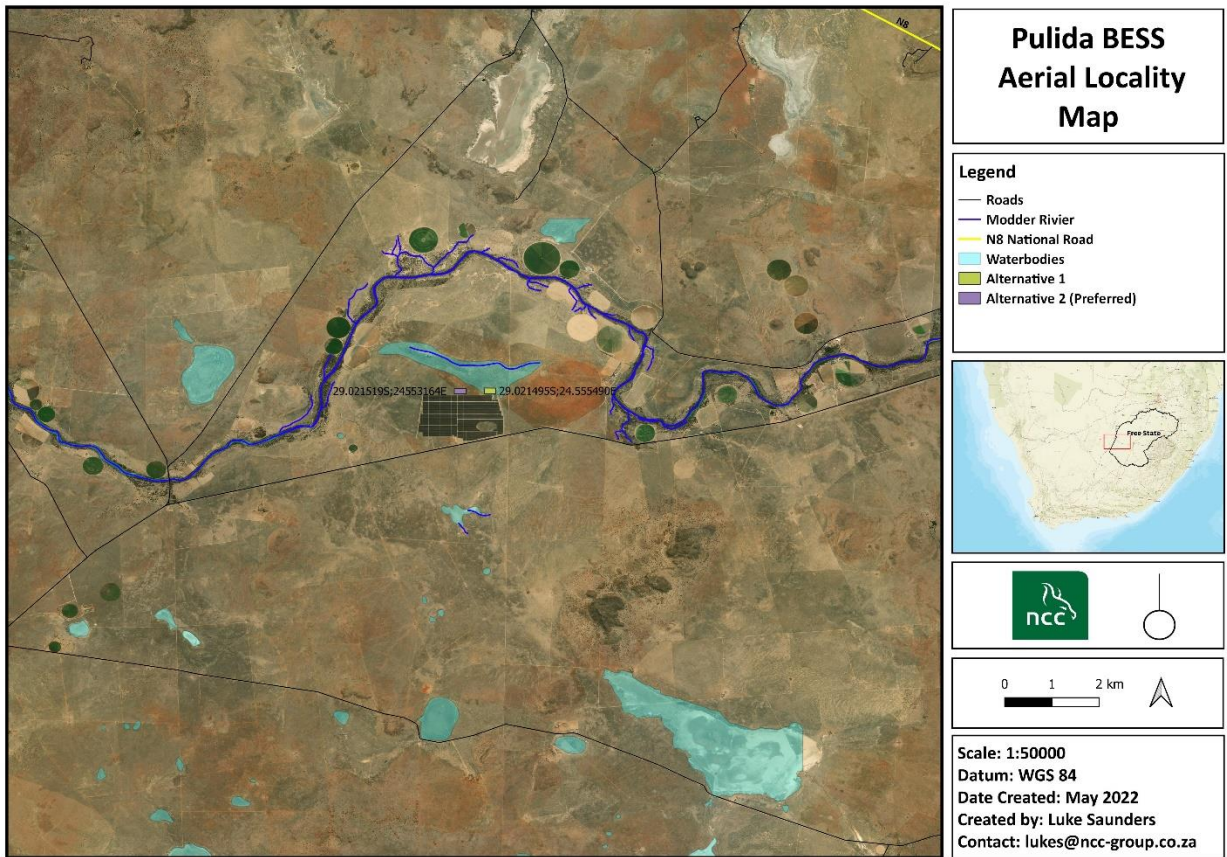


Figure 2: Preferred option indicated as Alternative 2

### 3. Photographs



Photograph 1: Site characteristics preferred option



**Photograph 2: Site characteristics preferred option**

#### **4. Discussion**

1. In 2012 Prof Bruce Rubidge conducted a desktop paleontological study for the now existing solar park. The proposed extension of the said solar park is to the north of the existing facility.
2. The study was focused not only on the remainder portion of the Farm Klipdrift 20, located 40 km south-east from Kimberley, Letsemeng Local Municipality, Xhariep District Municipality Free State Province, but Prof Rubidge used the 1:250 000 Geological Map (1992 Map Sheet 2924 Koffiefontein) and found the farm Klipdrift 20 is underlain by mudrocks of the Permian Prince Albert, Whitehill and Tierberg Formations of the Eccca Group of the Karoo Supergroup which in turn are overlain by Quaternary calcretes. Jurassic aged Karoo dolerites which are of igneous origin are present on the western and southern side of the property.
3. Prof Rubidge further remarked that the northern part of the study area is mostly overlaid by Quaternary calcretes, and possibly some outcrops of lower Eccca mudrocks, while the southwestern site is situated mostly on dolerite and mudrocks of the Tierberg Formation. The corridor comprises mainly Quaternary calcretes. Following a Google Earth survey it appeared that the study area is extremely flat, most of the area is covered by savannah vegetation, and there are very few rock outcrops.
4. Prof Rubidge further remarked in the above study that there is no possibility that the Karoo dolerites will contain any fossils. There is a possibility that the mudrocks of the lower Eccca Group which were deposited in a marine environment during

the Permian Period, and the Quaternary alluvial deposits could contain fossil plants, invertebrates and/or vertebrate bones.

5. Prof Rubidge's professional opinion regarding the subject property (from previous experience and fieldwork in the area), concluded that the previous development will not negatively affect palaeontological heritage and suggest that, from a paleontological perspective, this development and thus the current proposed project should proceed.
6. The developer must note that in the case of the unlikely event that fossilized plants or animals are exposed from the mudrocks of the Eccca Group and the Quaternary alluvial deposits in the process of development activities, it will create a unique opportunity to explore the area for fossils. It is thus recommended that, should outcrops of the Eccca Group be exposed during development, a qualified palaeontologist be contacted to assess the exposure for fossils so that the necessary rescue operations are implemented. Depending on the nature of the fossils discovered, this could entail excavation and removal to a registered palaeontological museum collection.
7. It is the opinion of the specialist, and in agreement with Prof Rubidge previous findings, that the current proposed site was included in the original desktop study and that a Paleontological Impact Assessment (PIA) is not necessary.

**Yours sincerely**

A handwritten signature in black ink on a light-colored background. The signature is cursive and appears to read 'L. Marais'.

**Leonie Marais**  
**Heritage Practitioner**  
**Post Grad Dip (Heritage)**

*SA Society for Cultural History (SASCH) (Treasurer and Chairperson), Gauteng Provincial Heritage Authority (PHRA-G) (member of the Built Environment and Permit Committee (2009-2012) (2012-2015) (2015-2018), Convenor of the Heritage Impact Adjudication Committee (2009-2012))*