



DIGBY WELLS  
ENVIRONMENTAL



---

## Environmental Management Plan for the Approved Lambda Substation and Associated 400/765kV Transmission Lines

### Heritage Walk-Down Report

---

**SAHRIS Case ID:** 8650

**Project Number:**

ESK3420

**Prepared for:**

Eskom Holdings SOC Limited

October 2015

---

Digby Wells and Associates (South Africa) (Pty) Ltd  
(Subsidiary of Digby Wells & Associates (Pty) Ltd). Co. Reg. No. 2010/008577/07. Turnberry Office Park, 48  
Grosvenor Road, Bryanston, 2191. Private Bag X10046, Randburg, 2125, South Africa  
Tel: +27 11 789 9495, Fax: +27 11 789 9498, info@digbywells.com, www.digbywells.com

---

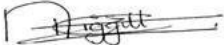


Directors: DJ Otto, GB Beringer, LF Koeslag, AJ Reynolds (Chairman) (British)\*, J Leaver\*, GE Trusler  
(C.E.O)  
\*Non-Executive

---



This document has been prepared by Digby Wells Environmental.

<b>Report Type:</b>	<b>Heritage Walk-Down Report</b>
<b>Project Name:</b>	<b>Environmental Management Plan for the Approved Lambda Substation and Associated 400/765kV Transmission Lines</b>
<b>Project Code:</b>	<b>ESK3420</b>

<b>Name</b>	<b>Responsibility</b>	<b>Signature</b>	<b>Date</b>
<b>Natasha Higgitt</b> Assistant Heritage Consultant ASAPA Member No.335	Overall Report Compiler and site visit		29 October 2015
<b>Justin du Piesanie</b> Heritage Management Consultant ASAPA Member No 270	1 <sup>st</sup> Review		14 September 2015
<b>Johan Nel</b> Manager: HRM unit ASAPA Member No. 095	2 <sup>nd</sup> Review		30 September 2015

*This report is provided solely for the purposes set out in it and may not, in whole or in part, be used for any other purpose without Digby Wells Environmental prior written consent.*



## Digby Wells and Associates (Pty) Ltd

### Contact person: Natasha Higgitt

Turnberry Office Park, Digby Wells House  
48 Grosvenor Road  
Bryanston  
2191

Tel: 011 789 9495

Fax: 011 789 9498

E-mail: natasha.higgitt@digbywells.com

I, Natasha Higgitt as duly authorised representative of Digby Wells and Associates (South Africa) (Pty) Ltd., hereby confirm my independence (as well as that of Digby Wells and Associates (South Africa) (Pty) Ltd.) and declare that neither I nor Digby Wells and Associates (South Africa) (Pty) Ltd. have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of Eskom Holdings SOC Limited, other than fair remuneration for work performed, specifically in connection with the Heritage Resources Management (HRM) Process for the approved Lambda Substation and Associated 400/765kV Transmission Lines, Mpumalanga Province.

---

Full name: Natasha Higgitt

Title/ Position: Assistant Heritage Management Consultant: Archaeology Specialist

Qualification(s): BA Honours in Archaeology (University of Pretoria – 2010)

Experience (years): 5 years' experience

Registration: Association of Southern African Professional Archaeologists (ASAPA)  
South African Museums Association (SAMA)

## EXECUTIVE SUMMARY

Digby Wells Environmental (DWE) was appointed by Eskom Holdings SOC Limited (Eskom) to compile a final Environmental Management Programme (EMP) (as per the issued Environmental Authorisation (EA) Reg. No. 12/12/20/2068) and compile a Water Use Licence Application (WULA) for the approved Lambda Substation and its associated transmission lines.

The final EMP was compiled in accordance with the Environmental Impact Assessment (EIA) Regulations of December 2014 (GN R982) which were promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended. The WULA was compiled in line with the National Water Act, 1998 (Act No. 36 of 1998) (NWA).

Eskom has received an EA to commence with the construction of the proposed Lambda 400 Kilovolt (kV) / 765 kV Substation and the associated 400 kV and 765 kV transmission lines in the Mpumalanga Province. The EIA process, undertaken in 2013, focused on the proposed alternatives in terms of the placement of the Lambda Substation and a 1 km wide corridor (at desktop level) for the placement of the transmission lines prior to pegging the specific tower locations. The approved EMP stated that the document was a draft for submission purposes and that a final EMP should be resubmitted once the final route of the lines has been decided. This would ensure that mitigation measures would be site specific, based on the location of the line and the towers.

This report constitutes a Heritage Walk-Down Report (HWR) to incorporate findings and final mitigation measures into the EMP. The HWR used information contained within the 2012 Heritage Impact Assessment (HIA) (Fourie, 2012). The 2012 HIA was not submitted to the South African Heritage Resources Agency (SAHRA) during the initial EIA phase. The HIA identified eight heritage resources within the project area.

Following the walk-down, an additional five heritage resources were identified within the approved transmission line route. In total, six heritage sites are located within the approved transmission routes, of which one was found in the 2012 HIA. The identified sites are protected in terms of section 35 and 36 of the National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA). These include two stone walled settlements, three burial grounds and one stone walled structure. The two stone walled settlements (St-002 and St-003) will be directly impacted during construction of towers TUT/LAM 0010 and TUT/LAM 0011.

Tower number	Aspect	Identified potential impact	Action to be taken / mitigation measures	Relevant legislation
TUT/LAM 0010 & 0011	BGG-001 – Burial ground located below the transmission line between TUT/LAM 0010 & 0011	A potential impact has been identified if the activity (stringing) is not managed. The transmission cables will be strung across BGG-001 which may result in a direct impact if, for instance, the cable is dropped during stringing, or dragged across BGG-001.	<p>BGG-001 is to be conserved in situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ Fencing off of burial ground;</li> <li>▪ Establishing a 50 m buffer around the burial ground; and</li> <li>▪ Where applicable, construct temporary protective scaffolds over burial grounds to shield from accidental damage during construction and repairs and maintenance during the operational phase.</li> </ul> <p>■ A Watching Brief must be undertaken for the burial ground during construction.</p>	Section 36 of the NHRA and Chapter 9 of the NHRA Regulations
TUT/LAM 0011	St-002 – Stone walled settlement located at proposed location for TUT/LAM 0011	Direct impact to stone walled settlement. Digging the foundation for the pylon tower will damage the settlement and possible burials located sub-surface	<p>St-002 is to be conserved in-situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ A 50 m buffer must be maintained from the edge of the settlement;</li> <li>▪ A Watching Brief to be implemented during construction</li> </ul> <p>■ Should this not be possible, a Watching Brief must be conducted during the construction phase to monitor the earthworks for the tower foundations.</p>	Section 35 of the NHRA and Chapter 2 and 3 of the NHRA Regulations
TUT/LAM 0056	St-003 – Stone walled settlement located at proposed location for TUT/LAM 0056	Direct impact to stone walled settlement. Digging the foundation for the pylon tower will damage the settlement and possible burials located sub-surface	<p>St-003 is to be conserved in-situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ A 50 m buffer must be maintained from the edge of the settlement.</li> </ul> <p>■ Should this not be possible, a Watching Brief must be conducted during the construction phase to monitor the earthworks for the tower foundations.</p>	Section 35 of the NHRA and Chapter 2 and 3 of the NHRA Regulations
MAJ/LAM 032	BGG-004 – Burial ground located 65 m from proposed location of MAJ/LAM 032	Potential impact to burial ground due to possible vandalism of burial ground by workers.	<p>BGG-004 is to be conserved in situ. Mitigation measures include the following pre-construction actions as a minimum requirement</p> <ul style="list-style-type: none"> <li>▪ Fencing off of burial ground; and</li> <li>▪ Establishing a 50 m buffer around the burial ground.</li> </ul> <p>■ A Watching Brief must be undertaken for the burial ground during construction.</p>	Section 36 of the NHRA and Chapter 9 of the NHRA Regulations

Tower number	Aspect	Identified potential impact	Action to be taken / mitigation measures	Relevant legislation
MAJ/LAM 023 & 024	St-005 – Stone-walled feature located below the transmission line between MAJ/LAM 023 & 024	A potential impact has been identified if the activity (stringing) is not managed. The transmission cables will be strung across St-005 which may result in a direct impact if, for instance, the cable is dropped during stringing, or dragged across St-005.	<p>St-005 is to be conserved in-situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ Fencing off the site;</li> <li>▪ Establishing a 50 m buffer around the site; and</li> <li>▪ Where applicable, construct temporary protective scaffolds over the site to shield from accidental damage during construction and repairs and maintenance during the operational phase.</li> </ul> <p>■ A Watching Brief must be undertaken for the burial ground during construction.</p>	Section 35 of the NHRA and Chapter 2 and 3 of the NHRA Regulations
TUT/LAM 0047 & 0048	BGG-006 – Burial ground located below the transmission line between TUT/LAM 0047 & 0048	A potential impact has been identified if the activity (stringing) is not managed. The transmission cables will be strung across burial ground BGG-006 which may result in a direct impact if, for instance, the cable is dropped during stringing, or dragged across BGG-006.	<p>BGG-004 is to be conserved in situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ Fencing off of burial ground;</li> <li>▪ Establishing a 50 m buffer around the burial ground; and</li> <li>▪ Where applicable, construct temporary protective scaffolds over burial grounds to shield from accidental damage during construction and repairs and maintenance during the operational phase.</li> </ul> <p>■ A Watching Brief must be undertaken for the burial ground during construction.</p>	Section 36 of the NHRA and Chapter 9 of the NHRA Regulations



Potential risks include accidental damage to burial grounds (BGG-001; 004 and 006) and the stone-walled structure (St-005) during the construction of towers TUT/LAM 0010 & 0011, MAJ/LAM 032; MAJ/LAM 023 & 024 and TUT/LAM 0047 & 0048.

Additional risks / unplanned events can include the accidental exposure of unidentified heritage resources and the subsequent damage and/or destruction of these heritage resources.

Based on the findings of this report, DWE recommends the following mitigation and management plans:

- All identified heritage resources are to be conserved in-situ. The following mitigation measures must be implemented as minimum requirements:
  - Fencing off of burial grounds and heritage sites;
  - Establishing a 50 m buffer around the burial grounds and heritage sites ; and
  - Where applicable, construct temporary protective scaffolds over burial grounds and archaeological sites to shield from accidental damage during construction, and repairs and maintenance during the operational phase; and
  - Heritage sites must be monitored during the construction phase.
- A Watching Brief must be conducted for all sites. The Watching Brief will include the following:
  - The Watching Brief must be conducted by an accredited qualified Archaeologist;
  - It will entail the on-site supervision of earthworks by the archaeologist at sites St-002, St-003 and BGG-004;
  - On-site supervision of the stringing of the electrical cables over sites BGG-001, St-005 and BGG-006;
  - Should any sub-surface heritage resources be uncovered, the archaeologist will assess the find and recommend further mitigation measures.
- Should damage occur to sites below the transmission lines during construction, SAHRA is to be informed and corrective measures are to be implemented such as repair and rehabilitation.

Chance Finds Procedures (CFPs) must be developed and implemented for the construction phase of the project as part of the EMP that clearly describe the CFP process and appropriate management of the exposure of previously unidentified heritage resources.



## TABLE OF CONTENTS

1	Introduction .....	1
1.1	Terms of Reference.....	1
1.2	Scope of Work.....	1
1.3	Policy and Legal Framework .....	1
1.3.1	<i>National Legislation and Policies .....</i>	<i>1</i>
1.3.1.1	The National Heritage Resources Act, 1999 .....	1
1.3.1.2	The National Environmental Management Act. 1998 .....	2
1.4	Constraints and Limitations .....	2
1.5	Expertise of the Specialists .....	3
2	Project Background.....	4
2.1	General Project overview .....	4
2.1.1	<i>Construction Phase .....</i>	<i>9</i>
2.1.2	<i>Operational Phase.....</i>	<i>9</i>
2.1.3	<i>Decommissioning Phase .....</i>	<i>9</i>
3	Methodology.....	9
3.1	Walk-down .....	9
3.2	Site Naming.....	10
4	Results of Heritage Walk-down and identified heritage resources.....	10
4.1	General Project Area Landscape.....	10
4.2	Identified Heritage Resources .....	12
4.2.1	<i>ESK3420/2729BA/BGG-001 – Burial ground.....</i>	<i>12</i>
4.2.2	<i>ESK3420/2729BA/St-002 – Stone walled settlement.....</i>	<i>13</i>
4.2.3	<i>ESK3420/2729BB/St-003 (LAM8) – Stone walled settlement .....</i>	<i>15</i>
4.2.4	<i>ESK3420/2729BB/BGG-004 – Burial ground.....</i>	<i>16</i>
4.2.5	<i>ESK3420/2729BB/St-005 – Stone wall feature .....</i>	<i>19</i>
4.2.6	<i>ESK3420/2729BB/BGG-006 – Burial ground.....</i>	<i>20</i>
4.3	Heritage Impacts .....	22
4.3.1	<i>Direct impacts to Heritage Resources during the Construction Phase .....</i>	<i>22</i>
4.3.2	<i>Unplanned Events and Low Risks to the project.....</i>	<i>22</i>





5	Environmental Management Plan .....	23
5.1	Mitigation and management measures .....	23
5.2	Chance Find Procedures .....	26
5.3	General Awareness Training .....	26
6	Conclusion and Recommendations .....	26
7	References .....	28

## LIST OF FIGURES

Figure 2-1:	Regional setting of the Lambda Project.....	6
Figure 2-2:	Local setting of the Lambda Project .....	7
Figure 2-3:	Site specific study area for the Lambda Project.....	8
Figure 4-1:	Typical cultural landscape within which the Lambda Project will be situated .....	10
Figure 4-2:	Results of the Heritage Walk-down .....	11
Figure 4-3:	Burial ground at BGG-001.....	12
Figure 4-4:	Stone walled settlement located at St-002 .....	13
Figure 4-5:	Location of BGG-001 and St-002 in relation to the approved transmission line (red line).....	14
Figure 4-6:	Top row of photos depict the stone-walled units identified in the 2012 HIA. The bottom row shows a cattle kraal and rectangular structure identified during the walk-down at St-003.....	15
Figure 4-7:	1957 aerial photograph of St-003.....	16
Figure 4-8:	Burial ground at BGG-004.....	17
Figure 4-9:	Location of St-003 (LAM8) and BGG-004 in relation to the approved transmission line (red line).....	18
Figure 4-10:	Stone feature located at St-005.....	19
Figure 4-11:	Burial ground at BGG-006.....	20
Figure 4-12:	Location of St-005 and BGG-006 in relation to the approved transmission lines (red lines).....	21

---

## LIST OF TABLES

Table 2-1: Location of the Lambda Project.....	4
Table 4-1: Unplanned events and their management measures .....	22
Table 5-1: Mitigation measures .....	24

## LIST OF APPENDICES

Appendix A: Specialist CV



## LIST OF ACRONYMS, ABBREVIATIONS AND TERMS

Abbreviation	Meaning
<b>ASAPA</b>	Association of Southern African Professional Archaeologists
<b>BA</b>	Bachelor of Arts
<b>BGG</b>	Burial Ground and Graves
<b>DWE</b>	Digby Wells Environmental
<b>EIA</b>	Environmental Impact Assessment
<b>EMP</b>	Environmental Management Programme
<b>GPS</b>	Global Positioning System
<b>HIA</b>	Heritage Impact Assessment
<b>Hons</b>	Honours degree
<b>HRM</b>	Heritage Resources Management
<b>HWR</b>	Heritage Walk-down Report
<b>ICOMOS</b>	International Council on Monuments and Sites
<b>IFC</b>	International Finance Corporation
<b>kV</b>	Kilovolt
<b>MA</b>	Master of Arts
<b>MPRHA</b>	Mpumalanga Provincial Heritage Resources Authority
<b>Msc</b>	Master of Science
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NHRA</b>	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
<b>NWA</b>	National Water Act, 1998 (Act No. 36 of 1998)
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SAHRIS</b>	South African Heritage Resources Information System
<b>SAMA</b>	South African Museum Association
<b>SoW</b>	Scope of Work
<b>ToR</b>	Terms of Reference
<b>UNESCO</b>	United Nations Education, Scientific and Cultural Organisation
<b>UP</b>	University of Pretoria
<b>Wits</b>	University of the Witwatersrand
<b>WULA</b>	Water Use Licence Application



## GLOSSARY

Term	Definition
<b>Archaeological</b>	Material remains resulting from human activity that are in a state of disuse and older than 100 years, including artefacts, human and hominid remains and artificial features and structures. Rock art created through human agency older than 100 years, including any area within 10 m of such representation. Wrecks older than 60 years - either vessels or aircraft - or any part thereof that was wrecked in South Africa on land, internal or territorial waters, and any cargo, debris or artefacts found or associated therewith. Features, structures and artefacts associated with military history that are older than 75 years and the sites on which they are found, e.g. battlefields.
<b>Archaeologist</b>	A trained professional who uses scientific methods to excavate record and study archaeological sites and deposits.
<b>Artefact</b>	Any object manufactured or modified by human beings.
<b>Development</b>	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: <ul style="list-style-type: none"> <li>-Construction, alteration, demolition, removal or change of use of a place or a structure at a place.</li> <li>-Carrying out any works on or over or under a place.</li> <li>-Subdivision or consolidation of land comprising, a place, including the structures or airspace of a place.</li> <li>-Constructing or putting up for display signs or hoardings.</li> <li>-Any change to the natural or existing condition or topography of land.</li> <li>-Any removal or destruction of trees, or removal of vegetation or topsoil.</li> </ul>
<b>Excavation</b>	The scientific excavation, recording and retrieval of archaeological deposit and objects through the use of accepted archaeological procedures and methods, and excavate has a corresponding meaning.
<b>Formal protection</b>	Places with qualities so exceptional that they are of special national significance as national heritage sites or that have special qualities as provincial heritage sites.
<b>General protection</b>	General protections are afforded to: <ul style="list-style-type: none"> <li>-Objects protected in terms of laws of foreign states.</li> <li>-Structures older than 60 years.</li> <li>-Archaeological and palaeontological sites and material and meteorites.</li> <li>-Burial grounds and graves.</li> <li>-Public monuments and memorials.</li> </ul>
<b>Grave</b>	A place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with



Term	Definition
	such place.
<b>Heritage Impact Assessment (HIA)</b>	An assessment of the cultural significance of, and possible impacts on, diverse heritage resources that may be affected by a proposed development. A HIA may include several specialist elements such as archaeological, built environment and palaeontological studies. The HIA must supply the heritage authority with sufficient information about the sites to assess, with confidence, whether or not it has any objection to a development, indicate the conditions upon which such development might proceed and assess which sites require permits for destruction, which sites require mitigation and what measures should be put in place to protect sites that should be conserved. The content of HIA reports are clearly outlined in Section 38(3) of the NHRA and SAHRA Minimum Standards.
<b>Heritage resource</b>	Any place or object of cultural significance.
<b>Heritage resources management</b>	Process required when development is intended categorised as: -Any linear development that exceeds 300m in length. -Construction of a bridge or similar structure exceeding 50 m in length. -Any activity which will change the character of a site exceeding 0.5 hectares in extent or involving three or more existing erven or subdivisions thereof or that have been consolidated within the past five years or costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority. -Re-zoning of a site exceeding one hectare in extent. -Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.
<b>Heritage site</b>	Any 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.
<b>Management</b>	In relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of the NHRA.
<b>Pedestrian survey</b>	A method of examining a site in which surveyors, spaced at regular intervals, systematically walk over the area being investigated.
<b>Phase 2 Archaeological Impact Assessment (AIA)</b>	Phase 2 AIAs are primarily based on salvage or mitigation excavations preceding development that will destroy or impact on a site. This may involve collecting of artefacts from the surface and / or excavation of representative samples of the artefactual material to allow characterisation of the site and the collection of suitable materials for dating the sites. Phase 2 AIAs aim to obtain a general idea of the age, significance and meaning of the site that is to be lost and to store a sample that can be consulted at a later date for research purposes. Phase 2 excavations can only be done under a permit issued by SAHRA, or other appropriate heritage agency, to the appointed archaeologist.



---

Term	Definition
<b>Provisional protection</b>	A protected area or heritage resource provisionally protected by SAHRA or a provincial heritage resources authority by a notice in the Gazette or Provincial Gazette.
<b>Structure</b>	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.

## 1 Introduction

Digby Wells Environmental (DWE) was appointed by Eskom Holdings SOC Limited (Eskom) to update and finalise the Environmental Management Plan (EMP) (as per the issued Environmental Authorisation (EA) Reg. No. 12/12/20/2068) and compile a Water Use License Application (WULA) for the approved Lambda Substation and its associated transmission lines.

The final EMP was compiled in accordance with the Environmental Impact Assessment (EIA) Regulations of December 2014 (GN R982) which were promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended. The WULA was compiled in line with the National Water Act, 1998 (Act No. 36 of 1998) (NWA).

This report constitutes a Heritage Walk-Down Report (HWR) to incorporate findings and final mitigation measures into the EMP. The HWR used information contained within a Heritage Impact Assessment (HIA) completed in 2012 (Fourie, 2012) in support of the 2013 EIA.

It must be noted that DWE was appointed to complete the EMP for the construction phase only, and the recommended mitigation measures reflect that; however, operational activities were taken into account in this report.

### 1.1 Terms of Reference

The Terms of Reference (ToR) issued by Eskom for the heritage component of the EMP was to conduct a Heritage Walk-Down of the approved transmission route for the Lambda Substation for inclusion into the final EMP in accordance with NEMA and section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA).

### 1.2 Scope of Work

The Scope of Work (SoW) for the HWR included:

- Site walk-down of the approved transmission routes for the Lambda Substation; and
- Recommend appropriate mitigation measures.

### 1.3 Policy and Legal Framework

#### 1.3.1 National Legislation and Policies

##### **1.3.1.1 The National Heritage Resources Act, 1999**

The NHRA is the overarching legislation that protects and regulates the management of heritage resources in South Africa. This NHRA considers various heritage resources as forming part of the national estate, contemplated in Section 3. In addition, certain other categories are afforded automatic formal or general protection.

Sections considered relevant to this Project are outlined below:



- Formal protection:
  - National and provincial heritage sites, Section 27;
  - Certain types of protected areas, Section 28; and
  - Heritage areas, Section 32.
- General protection:
  - Certain structures with demonstrable cultural significance or that are older than 60 years, Section 34;
  - Archaeological and palaeontological resources, Section 35;
  - Burial grounds and graves, Section 36; and
  - All public monuments and memorials, Section 37.

This HWR was completed to comply with sections 38 of the NHRA and will be submitted to the South African Heritage Resources Agency (SAHRA) and the Mpumalanga Provincial Heritage Resources Authority (MPHRA) via the South African Heritage Resources Information System (SAHRIS) for Statutory Comment.

#### **1.3.1.2 The National Environmental Management Act. 1998**

The NEMA stipulated 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.

The NEMA stipulated under Section 23 (2) (b) that the general objective of Integrated Environmental Management is to identify, predict and evaluate the actual and potential impact on cultural heritage. The risks, consequences, alternatives and options for mitigation must be identified and implemented to minimize negative impacts and promote compliance with the principles of environmental management set out in section 2.

## **1.4 Constraints and Limitations**

The following constraints and limitations influenced the findings contained in this report:

- The HIA (Fourie, 2012) was not submitted to SAHRA during the EIA phase of the project, therefore no Statutory Comments were received. The ToR for this report was based on the proposal submitted to Eskom for approval, taking into account the recommendations made within the HIA where relevant. SAHRA may have recommended different ToR if they had commented on the 2012 HIA and this would have influenced the ToR for this study; and
- Many tangible heritage resources, specifically archaeological resources, commonly occur below the surface. These may not be identified, documented and assessed without intrusive and destructive methods. Intrusive archaeological assessments



require permits issued as per section 35 of the NHRA, however, these are not issued as part of Authorisation Application Phase of project. Therefore, the findings are limited to surface observations only.

## 1.5 Expertise of the Specialists<sup>1</sup>

**Natasha Higgitt conducted the walk-down and compiled the overall HWR.** She obtained her Bachelor of Arts (BA) Honours degree in Archaeology in 2010 from the University of Pretoria. She currently holds the position of Assistant Heritage Consultant: Archaeology Specialist at DWE. She has more than 4 years' experience in archaeological survey and gained further generalist heritage experience since her appointment at DWE in South Africa and Liberia.

Natasha is a professional member of the Association of Southern African Archaeologists (ASAPA) (*Member No. 335*).

**Justin du Piesanie undertook the technical review of this HWR.** He obtained his Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. Justin also attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. He currently holds the position of Heritage Management Consultant: Archaeologist at DWE. He has over 6 years combined experience in Heritage Resources Management (HRM) in South Africa, including heritage assessments, archaeological mitigation and grave relocation. Justin has gained further generalist experience since his appointment at DWE in Burkina Faso, the Democratic Republic of Congo, Liberia and Mali on projects that have required compliance with International Finance Corporation (IFC) requirements such as Performance Standard 8: Cultural Heritage.

Justin is a professional member of ASAPA (*Member No. 270*) and the International Council on Monuments and Sites (ICOMOS) South Africa (*Member No. 14274*).

**Johan Nel undertook the second technical review of this HWR.** He has more than 13 years of combined experience in the field of HRM including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. He has gained experience both within urban settings and remote rural landscapes. Since 2010 he has been actively involved in environmental management that has allowed Johan to investigate and implement the integration of heritage resources management into EIA's. Many of the projects since have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. This exposure has allowed Johan to develop and implement a HRM approach that is founded on international best practice, leading international conservation bodies such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and ICOMOS and aligned to the South African legislation.

---

<sup>1</sup> Detailed curricula vitae of the specialists are attached as Appendix A

Johan has worked in most South African Provinces, as well as Swaziland, the Democratic Republic of the Congo, Liberia and Sierra Leone.

Johan is a professional member of ASAPA (*Member No. 095*), accredited CRM practitioner, and a member of ICOMOS South Africa (*Member No. 13839*).

## 2 Project Background

This section summarises the basic project information for the Lambda Project based on information supplied by Eskom.

### 2.1 General Project overview

Eskom received EA to commence with the construction of the proposed Lambda 400/765 Kilovolt (kV) Substation and the associated 400 kV and 765 kV transmission lines in the Mpumalanga Province. The EIA process, undertaken in 2013, focused on the proposed alternatives for the placement of the substation and a 1 km wide corridor for each proposed alternative to accommodate the transmission line routes. This corridor was assessed at a desktop level during the EIA process and specific tower locations were not yet included in the designs.

The approved EMP (compiled by EIMS Consulting and contained in the final EIA) stated that the document was a draft for submission purposes and that a final EMP should be resubmitted once the final route of the lines had been approved. The EIA committed to a Heritage Specialist conducting a walk-down of the approved transmission line route and Lambda Substation. This included four approved routes i.e. Tutaka/Lambda; Majuba/Lambda; Isundu/Lambda and Lambda/Mbewu. The length of the transmission lines totalled 31.5 km.

The approved transmission lines and substation are located within the Seme Local Municipal region, Mpumalanga Province (see Table 2-1).

**Table 2-1: Location of the Lambda Project**

<b>Province</b>	Mpumalanga Province
<b>Magisterial District / Local Authority</b>	Volkruis and Amersfoort Magisterial Districts
<b>District Municipality</b>	Gert Sibande District Municipality
<b>Local Municipality</b>	Seme Local Municipality
<b>Nearest Town</b>	Amersfoort (15 km north-east)
<b>Property Name and Number</b>	Palmietspruit 68
	Mezig 79
	Witkoppie 81

	Rietpoort 83
	Werde 116
<b>1: 50 000 Map Sheet</b>	2729BA Perdekop
	2729BB Amersfoort

The regional, local and site specific study area are depicted in Figure 2-1 to Figure 2-3 below.

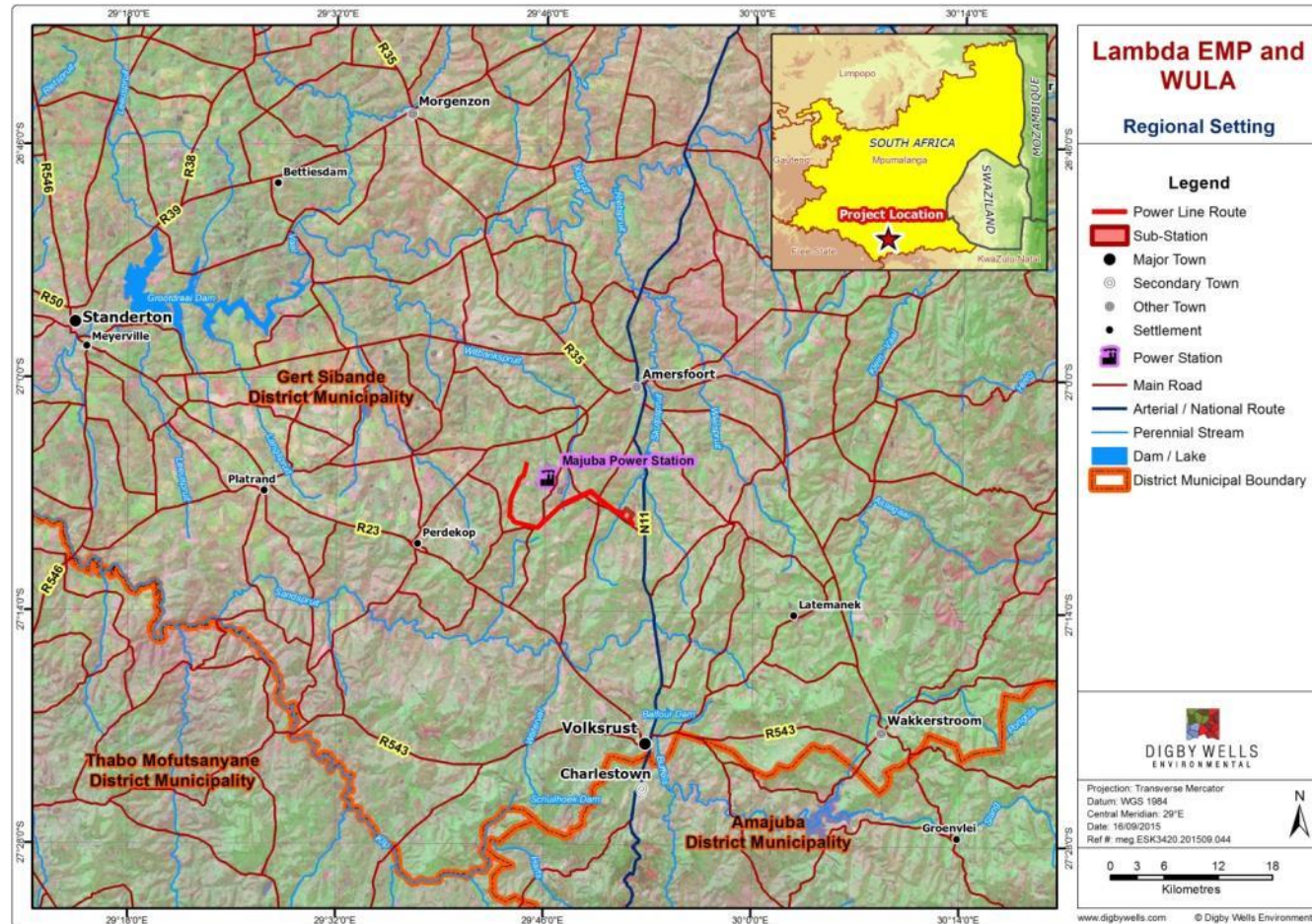
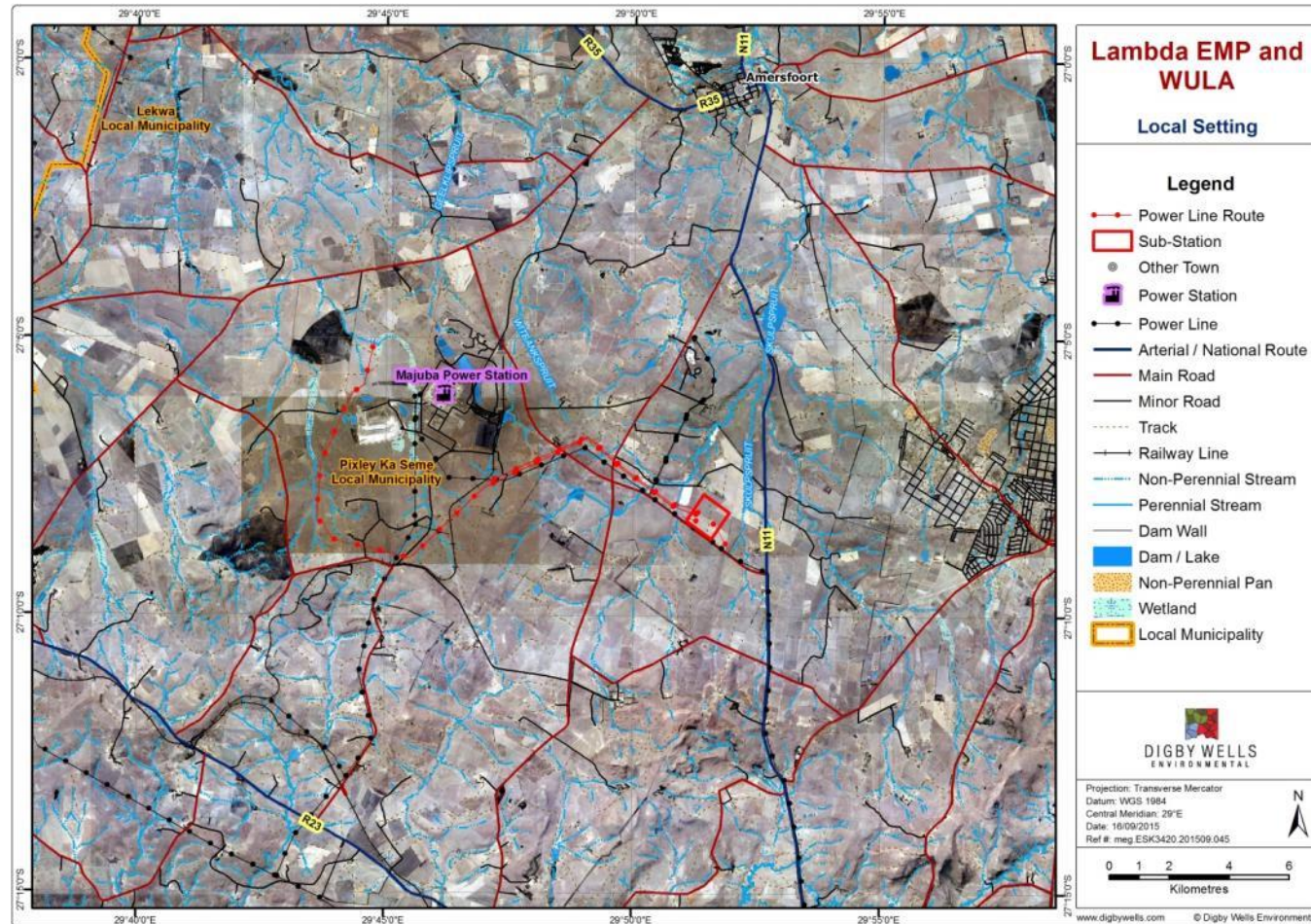


Figure 2-1: Regional setting of the Lambda Project





**Figure 2-2: Local setting of the Lambda Project**

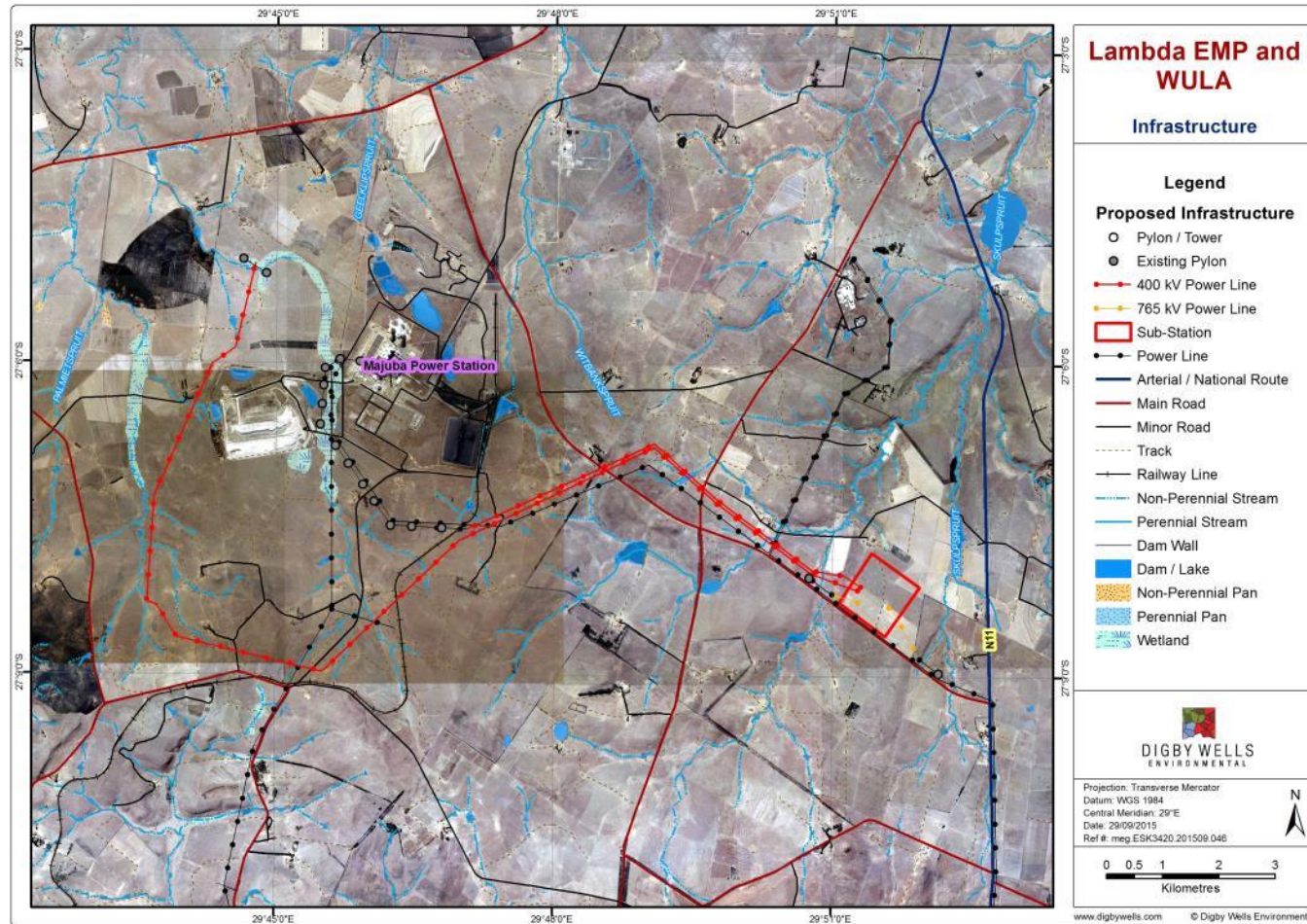


Figure 2-3: Site specific study area for the Lambda Project



### 2.1.1 Construction Phase

The following activities will occur during the construction phase:

- Establishment of construction camps;
- Construction of access roads;
- Site clearing for the substation and tower foundations;
- Excavations for tower foundations; and
- Assembling and erecting of towers.

### 2.1.2 Operational Phase

The following activities will occur during the operational phase:

- Management and maintenance of fire breaks;
- Veld management along the transmission line route; and
- Routine monitoring and maintenance.

### 2.1.3 Decommissioning Phase

At present, there is no intention to decommission the substation or transmission lines. However, should decommissioning take place, the following activities will occur:

- Dismantling and demolition of structures;
- Re-instatement of disturbed areas; and
- Rehabilitation and monitoring.

## 3 Methodology

### 3.1 Walk-down

Field based data collection was undertaken by Natasha Higgitt, a qualified and accredited archaeologist on 4 - 5 August 2015. The approved transmission routes were surveyed through vehicular and pedestrian methods. Each proposed tower location was inspected for heritage resources. This would ensure that mitigation measures would be site specific, based on the location of the lines and the towers. The survey was recorded as a GPS track log. Identified heritage resources were mapped as GPS waypoints and documented through photographic and written records.



## 3.2 Site Naming

Sites identified during the field survey are prefixed by the DWE Project code, followed by the map sheet number, relevant period / feature code and site number, e.g. **ESK3420/2729BA/BGG-001**.

This number may be shortened on any plans or maps to the period / feature code with the site number used in that report. For example: **BGG-001**

## 4 Results of Heritage Walk-down and identified heritage resources

### 4.1 General Project Area Landscape

The Lambda Project is located in Highveld grasslands south and east of the Majuba Power Station. There are several agricultural fields in the project area and existing transmission lines associated with the approved transmission routes assessed in this report (See Figure 4-1 below). No significant rocky outcrops were identified within the transmission line routes.



**Figure 4-1: Typical cultural landscape within which the Lambda Project will be situated**

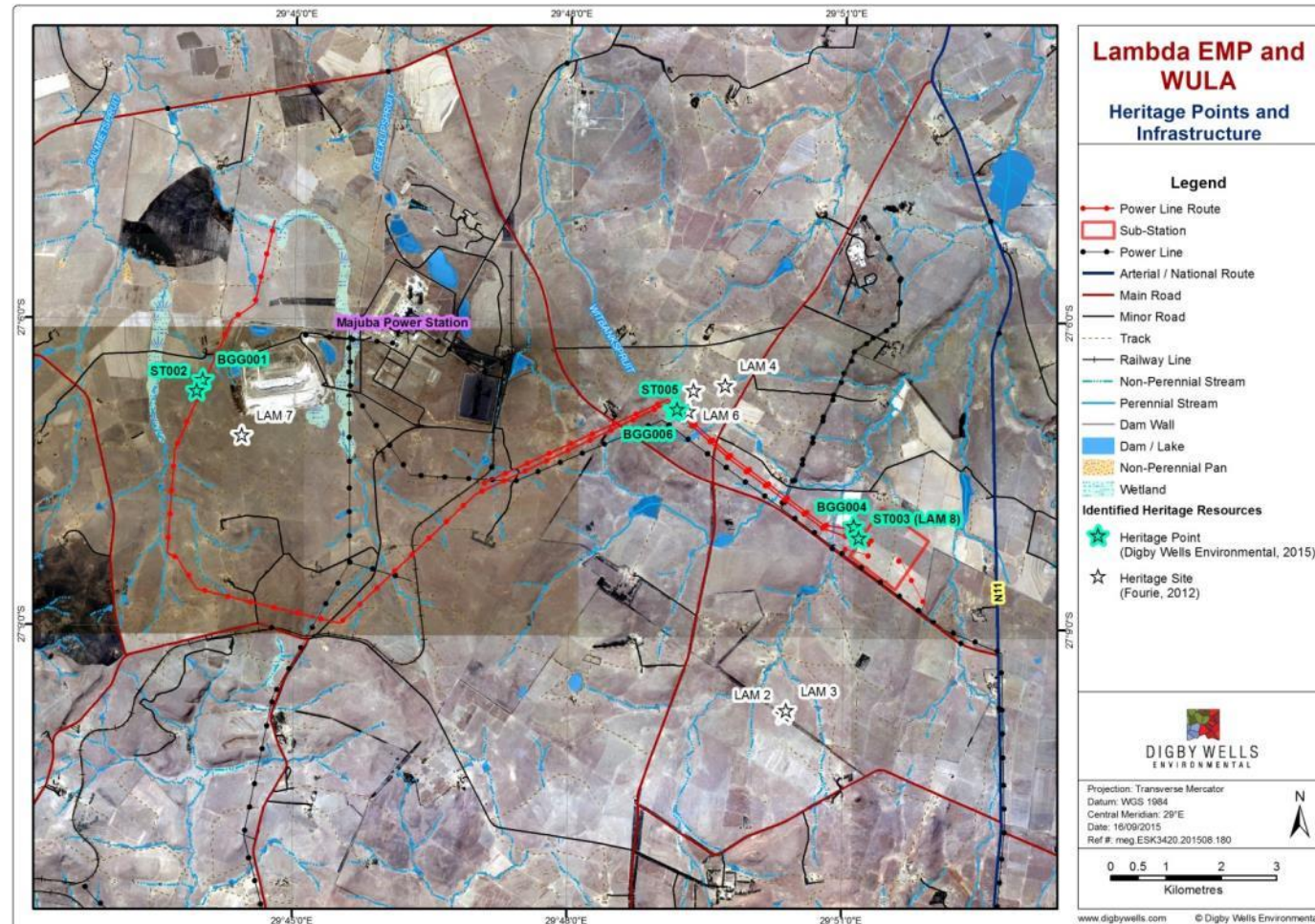


Figure 4-2: Results of the Heritage Walk-down



## 4.2 Identified Heritage Resources

### 4.2.1 ESK3420/2729BA/BGG-001 – Burial ground

<b>General Protection NHRA section 36</b>	<b>Co-ordinates</b>	
	-27.109922	29.733216

An unregistered burial ground containing approximately 12 burials was identified below the approved transmission line route and 170 m from tower TUT/LAM 0010 (See Figure 4-3 below). The burial ground is unfenced and unkempt, and next to a farm access road.

No features to date the graves were noted, however, the site is assumed to be older than 60 years and therefore under general protection in accordance with section 36 of the NHRA.



**Figure 4-3: Burial ground at BGG-001**



#### 4.2.2 ESK3420/2729BA/St-002 – Stone walled settlement

<b>General Protection NHRA section 34 and 35</b>	<b>Co-ordinates</b>	
	-27.111767	29.7321

A stone-walled settlement approximately 140 m x 190 m in extent, located at pylon tower TUT/LAM0011 (See Figure 4-4 below). The settlement consists of several circular structures that may represent housing units or stock enclosures, located on a low kopie.

No material culture was identified to provide a relative date and it does not appear to be associated with any historical farmsteads. A similar site (St-003) is visible on DATE aerial imagery, indicating a relative age older than 60 years. In general, these types of sites are associated with Late Farming Communities (LFC) or early historical periods and under general protection in terms of sections 34 (historical resources older than 60 years) and 35 (archaeological resources older than 100 years).



**Figure 4-4: Stone walled settlement located at St-002**



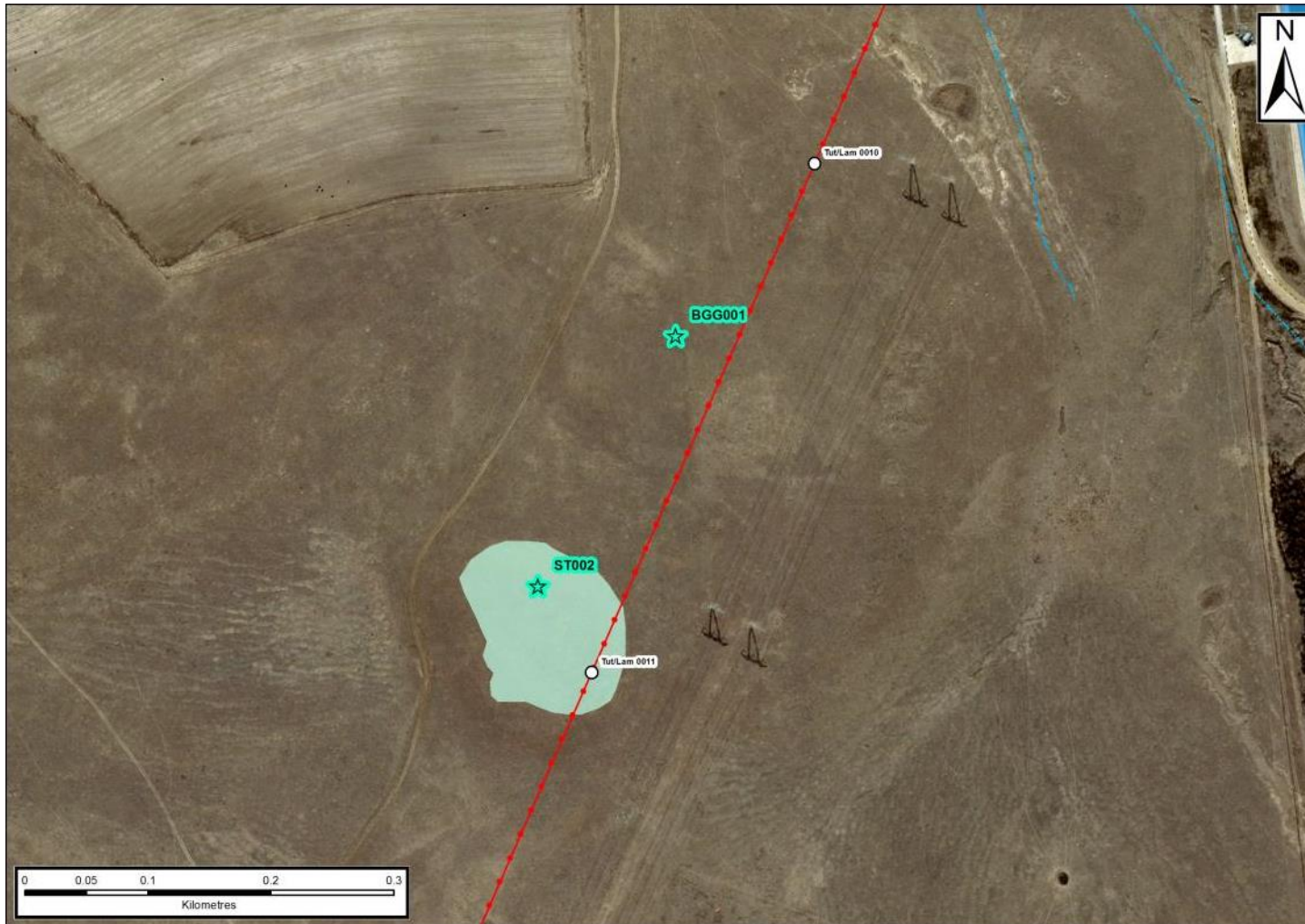


Figure 4-5: Location of BGG-001 and St-002 in relation to the approved transmission line (red line)



### 4.2.3 ESK3420/2729BB/St-003 (LAM8) – Stone walled settlement

<b>General Protection NHRA section 34 and 35</b>	<b>Co-ordinates</b>	
	-27.135167	29.852778

A large stone-walled settlement measuring approximately 380 m x 180 m is located at pylon TUT/LAM 0056. This stone-walled settlement was identified as part of the 2012 HIA. The 2012 HIA mentions two stone-walled units, however, under further investigation, several additional stonewalled units were identified on a slope to the west of the two previously identified units. Other features included cattle kraals and small rectangular stone walled features. In the 2012 HIA, this site was estimated to be less than 60 years old, however aerial photographs from 1957 show St-003 as an established site. The site must therefore be considered to be older than 60 years and consequently under general protection in terms of either section 34 or 35 of the NHRA (See Figure 4-7).



**Figure 4-6: Top row of photos depict the stone-walled units identified in the 2012 HIA. The bottom row shows a cattle kraal and rectangular structure identified during the walk-down at St-003.**





**Figure 4-7: 1957 aerial photograph of St-003**

#### 4.2.4 ESK3420/2729BB/BGG-004 – Burial ground

<b>General Protection NHRA section 36</b>	<b>Co-ordinates</b>	
	-27.133251	29.85186

A burial ground containing at least 15 graves was identified approximately 65 m from the proposed position of pylon MAJ/LAM 032 (See Figure 4-8 below). The burial ground is unfenced and unkempt. This burial could possibly be associated with the stone walled settlement at St-003 as it is only 190 m from the settlement.

No features to date the graves were noted, however, the site is assumed to be older than 60 years and therefore under general protection in accordance with section 36 of the NHRA.



**Figure 4-8: Burial ground at BGG-004**



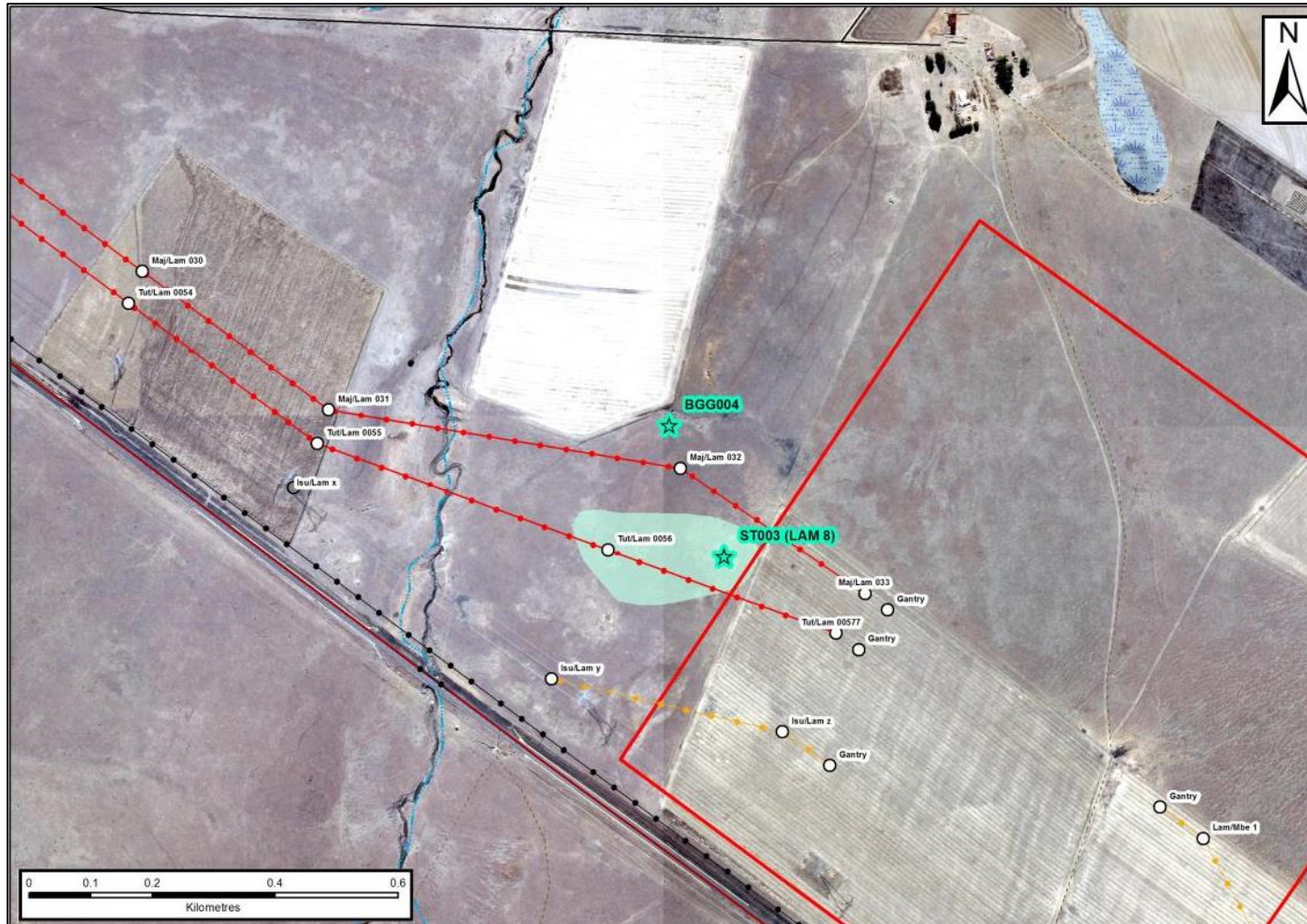


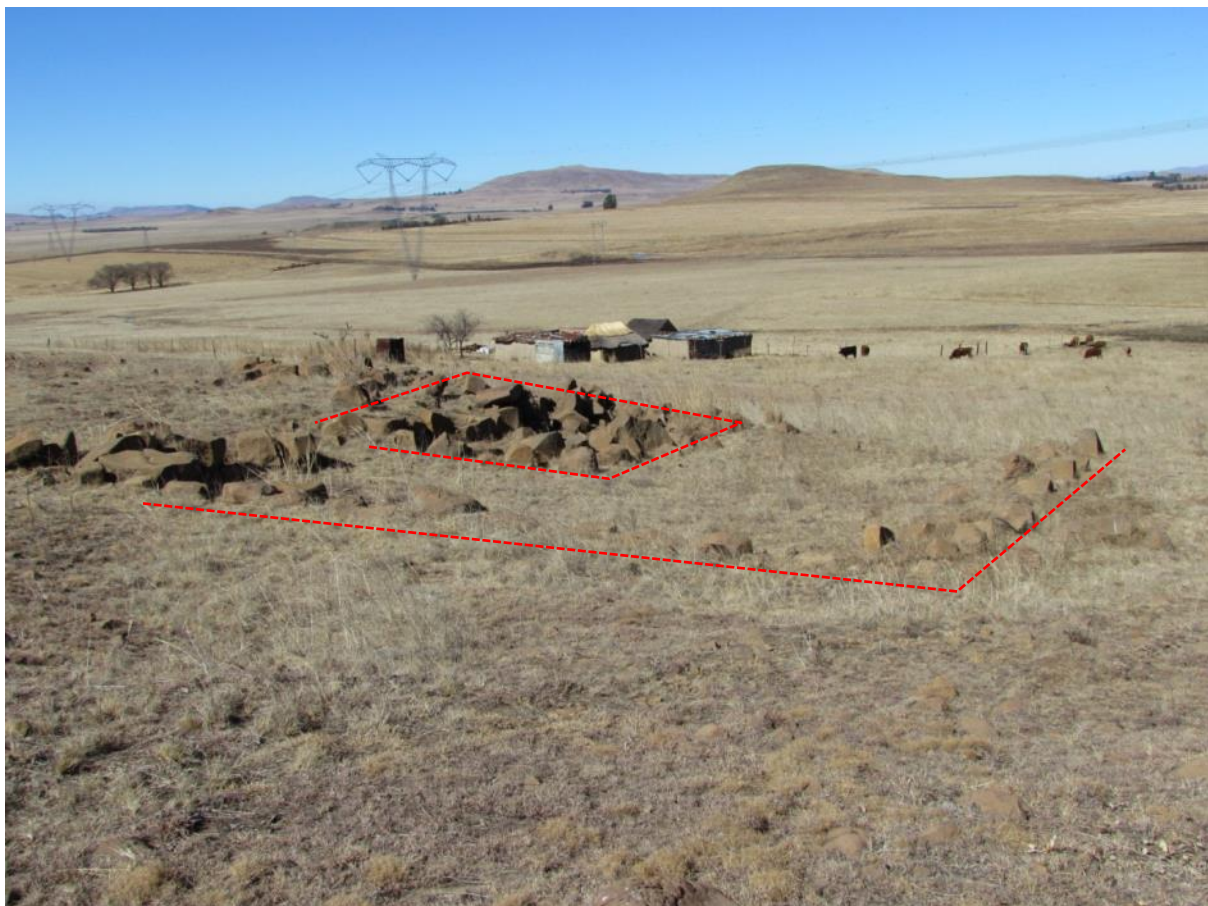
Figure 4-9: Location of St-003 (LAM8) and BGG-004 in relation to the approved transmission line (red line)



#### 4.2.5 ESK3420/2729BB/St-005 – Stone wall feature

<b>General Protection NHRA section 34</b>	<b>Co-ordinates</b>	
	-27.114346	29.819571

A rectangular stone feature was identified between the pylons MAJ/LAM 023 & 024 (See Figure 4-10 below). The feature's extent is 10 m x 12 m. Given the rectangular construction, the feature is probably historical and not archaeological and therefore under general protection in terms of section 34 of the NHRA.



**Figure 4-10: Stone feature located at St-005**





#### 4.2.6 ESK3420/2729BB/BGG-006 – Burial ground

<b>General Protection NHRA section 36</b>	<b>Co-ordinates</b>	
	-27.114359	29.85186

A burial ground containing seven graves located between pylon towers TUT/LAM 0047 & 0048 (See Figure 4-11 below). The graves are characterised by stone cairns, surrounded by a rectangular low stone wall. No features to date the graves were noted, however, the site is assumed to be older than 60 years and therefore under general protection in accordance with section 36 of the NHRA.

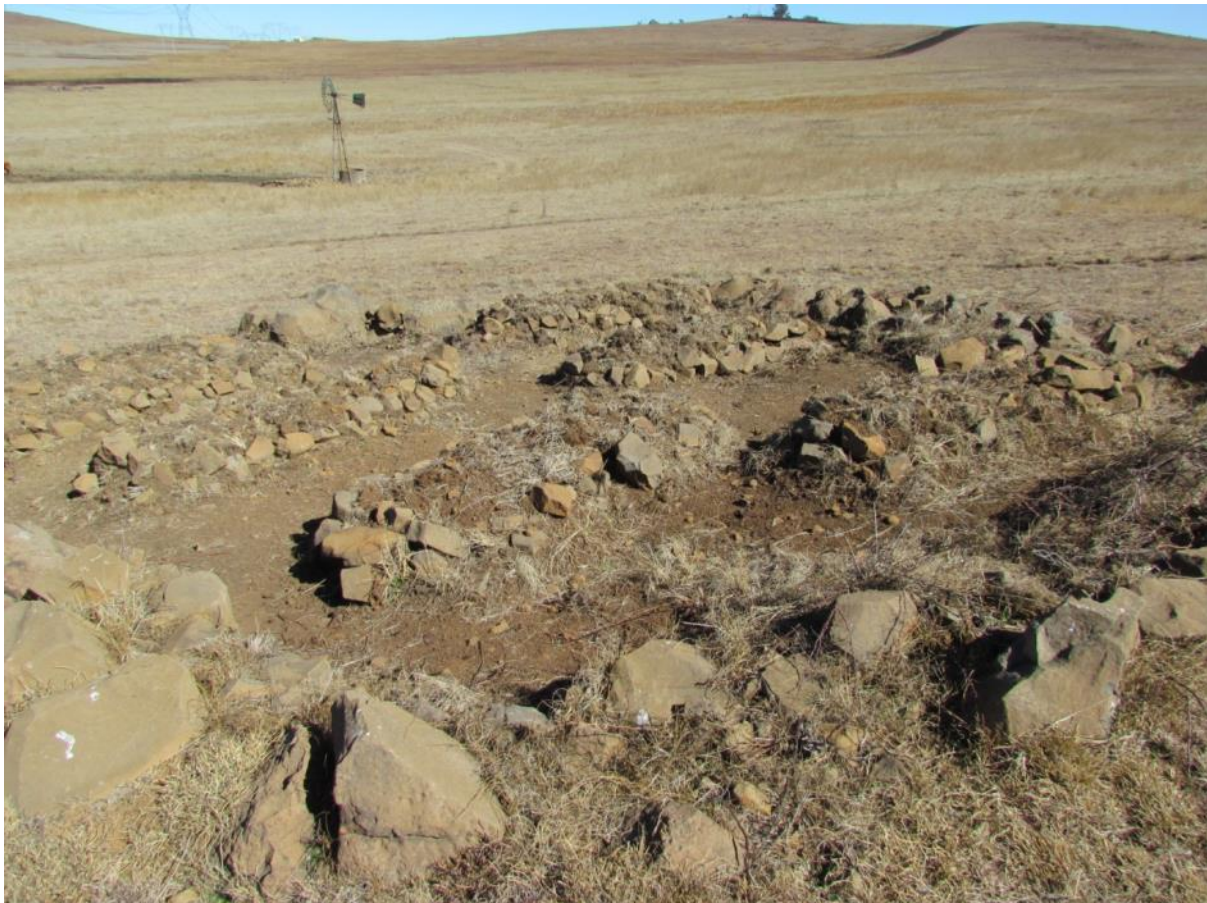


Figure 4-11: Burial ground at BGG-006

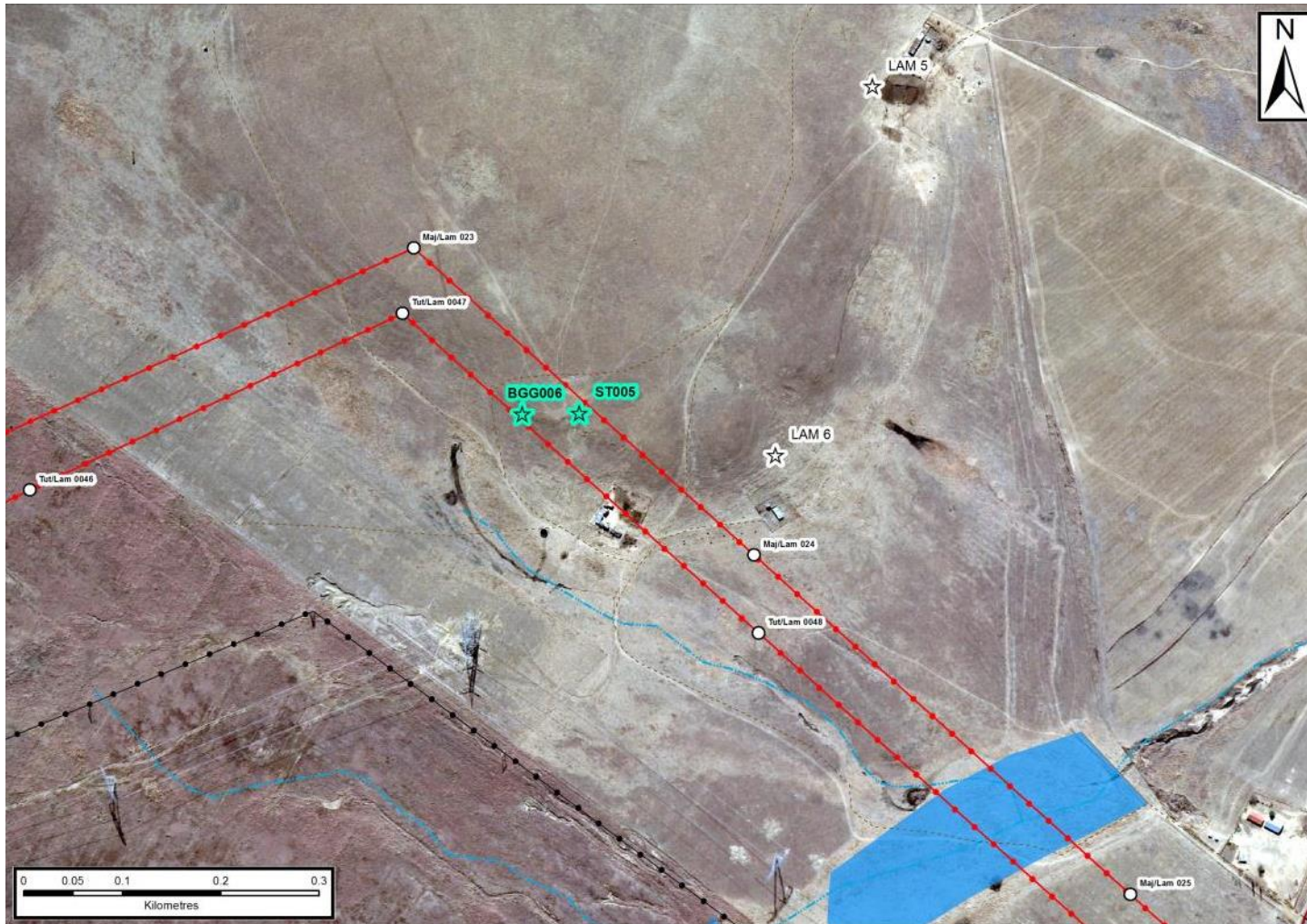


Figure 4-12: Location of St-005 and BGG-006 in relation to the approved transmission lines (red lines)





## 4.3 Heritage Impacts

### 4.3.1 Direct impacts to Heritage Resources during the Construction Phase

Six heritage sites were identified within the approved transmission line route. Two of these sites– St-002 and St-003 – will be directly impacted on during construction of the tower foundations. Although these sites represent common representations site types, they are afforded general protection in terms of either section 34 or 35 of the NHRA (depending on age). As a result, any changes to these sites may require permits issued by either MPHRA (in the case of section 34 requirements) or SAHRA (in the case of section 35 requirements). In addition, burials that cannot be identified through surface observations may likely exist within these sites.

The construction phase activities, i.e. site clearance and tower foundation excavation has the highest likelihood for negative impacts on these heritage resources such as destruction or damage of the heritage resources.

### 4.3.2 Unplanned Events and Low Risks to the project

Unplanned events may occur on any project at any time. Based on the proposed project activities, identified heritage resources BGG-001, BGG-004; St-005 and BGG-006 may potentially be indirectly impacted. These potential unplanned events and the associated impacts for the remaining 4 heritage sites i.e. and management measures have been identified and summarised in Table 4-1 below.

**Table 4-1: Unplanned events and their management measures**

Unplanned event	Potential impact	Mitigation/ Management/ Monitoring
Accidental damage to heritage resources i.e. BGG-001, St-005 and BGG-006, located below the transmission lines while stringing of the electrical cables and during operational activities.	Damage and/or destruction of heritage resources generally protected under section 35 and 36 of the NHRA	<ul style="list-style-type: none"> <li>■ Fencing off of burial ground and stone walled site;</li> <li>■ Establish 50 m around heritage resources;</li> <li>■ Construct temporary protective scaffolds over burial grounds to shield from accidental damage during construction and repairs and maintenance during the operational phase;</li> <li>■ Monitoring of the heritage resources must be conducted during the construction phase, and</li> <li>■ Should damage occur during construction, SAHRA is to be informed and corrective measures are to be implemented such as repair and rehabilitation.</li> </ul>



Unplanned event	Potential impact	Mitigation/ Management/ Monitoring
Accidental damage to burial ground BGG-004 located near tower Maj/Lam 032	Damage and/or destruction of heritage resources generally protected under section 36 of the NHRA	<ul style="list-style-type: none"> <li>■ Fencing off of burial ground;</li> <li>■ Establish 50 m around the burial ground;</li> <li>■ Monitoring of the heritage resources must be conducted during the construction phase, and</li> <li>■ Should damage occur during construction, SAHRA is to be informed and corrective measures are to be implemented such as repair and rehabilitation.</li> </ul>
Accidental exposure of unidentified heritage resources	Damage and/or destruction of heritage resources generally protected under section 34, 35 and 36 of the NHRA	Chance Finds Procedures (CFPs) must be included as a condition of authorisation that clearly describes the reporting process and appropriate management of the exposure of previously unidentified heritage resources. The established and defined CFPs must be implemented prior to any construction/development taking place.

## 5 Environmental Management Plan

The objective of an EMP is (a) to manage undue or reasonably avoidable adverse impacts associated with the development of a project and (b) to enhance potential positives.

Mitigation measures will sometimes be built into the base of a project and should be considered as part of the “pre-mitigation” scenario. This EMP must consider each activity and its potential (significant) impacts during the construction phase only.

### 5.1 Mitigation and management measures

This section provides a summary of the proposed mitigation and management measures as relevant to the identified heritage resources within the Lambda transmission line route. Information on the relevant legal requirements, recommended management plans, and timing of implementation are also provided.



Table 5-1: Mitigation measures

Tower number	Aspect	Identified potential impact	Action to be taken / mitigation measures	Relevant legislation
TUT/LAM 0010 & 0011	BGG-001 – Burial ground located below the transmission line between TUT/LAM 0010 & 0011	A potential impact has been identified if the activity (stringing) is not managed. The transmission cables will be strung across BGG-001 which may result in a direct impact if, for instance, the cable is dropped during stringing, or dragged across BGG-001.	<p>BGG-001 is to be conserved in situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ Fencing off of burial ground;</li> <li>▪ Establishing a 50 m buffer around the burial ground; and</li> <li>▪ Where applicable, construct temporary protective scaffolds over burial grounds to shield from accidental damage during construction and repairs and maintenance during the operational phase.</li> </ul> <p>■ A Watching Brief must be undertaken for the burial ground during construction.</p>	Section 36 of the NHRA and Chapter 9 of the NHRA Regulations
TUT/LAM 0011	St-002 – Stone walled settlement located at proposed location for TUT/LAM 0011	Direct impact to stone walled settlement. Digging the foundation for the pylon tower will damage the settlement and possible burials located sub-surface	<p>St-002 is to be conserved in-situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ A 50 m buffer must be maintained from the edge of the settlement;</li> <li>▪ A Watching Brief to be implemented during construction</li> </ul> <p>■ Should this not be possible, a Watching Brief must be conducted during the construction phase to monitor the earthworks for the tower foundations.</p>	Section 35 of the NHRA and Chapter 2 and 3 of the NHRA Regulations
TUT/LAM 0056	St-003 – Stone walled settlement located at proposed location for TUT/LAM 0056	Direct impact to stone walled settlement. Digging the foundation for the pylon tower will damage the settlement and possible burials located sub-surface	<p>St-003 is to be conserved in-situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ A 50 m buffer must be maintained from the edge of the settlement.</li> </ul> <p>■ Should this not be possible, a Watching Brief must be conducted during the construction phase to monitor the earthworks for the tower foundations.</p>	Section 35 of the NHRA and Chapter 2 and 3 of the NHRA Regulations
MAJ/LAM 032	BGG-004 – Burial ground located 65 m from proposed location of MAJ/LAM 032	Potential impact to burial ground due to possible vandalism of burial ground by workers.	<p>BGG-004 is to be conserved in situ. Mitigation measures include the following pre-construction actions as a minimum requirement:</p> <ul style="list-style-type: none"> <li>▪ Fencing off of burial ground; and</li> <li>▪ Establishing a 50 m buffer around the burial ground.</li> </ul> <p>■ A Watching Brief must be undertaken for the burial ground during construction.</p>	Section 36 of the NHRA and Chapter 9 of the NHRA Regulations



Tower number	Aspect	Identified potential impact	Action to be taken / mitigation measures	Relevant legislation
MAJ/LAM 023 & 024	St-005 – Stone-walled feature located below the transmission line between MAJ/LAM 023 & 024	A potential impact has been identified if the activity (stringing) is not managed. The transmission cables will be strung across St-005 which may result in a direct impact if, for instance, the cable is dropped during stringing, or dragged across St-005.	St-005 is to be conserved in-situ. Mitigation measures include the following pre-construction actions as a minimum requirement: <ul style="list-style-type: none"> <li>▪ Fencing off the site;</li> <li>▪ Establishing a 50 m buffer around the site; and</li> <li>▪ Where applicable, construct temporary protective scaffolds over the site to shield from accidental damage during construction and repairs and maintenance during the operational phase.</li> </ul> <ul style="list-style-type: none"> <li>■ A Watching Brief must be undertaken for the burial ground during construction.</li> </ul>	Section 35 of the NHRA and Chapter 2 and 3 of the NHRA Regulations
TUT/LAM 0047 & 0048	BGG-006 – Burial ground located below the transmission line between TUT/LAM 0047 & 0048	A potential impact has been identified if the activity (stringing) is not managed. The transmission cables will be strung across burial ground BGG-006 which may result in a direct impact if, for instance, the cable is dropped during stringing, or dragged across BGG-006.	BGG-006 is to be conserved in situ. Mitigation measures include the following pre-construction actions as a minimum requirement: <ul style="list-style-type: none"> <li>▪ Fencing off of burial ground;</li> <li>▪ Establishing a 50 m buffer around the burial ground; and</li> <li>▪ Where applicable, construct temporary protective scaffolds over burial grounds to shield from accidental damage during construction and repairs and maintenance during the operational phase.</li> </ul> <ul style="list-style-type: none"> <li>■ A Watching Brief must be undertaken for the burial ground during construction.</li> </ul>	Section 36 of the NHRA and Chapter 9 of the NHRA Regulations

## 5.2 Chance Find Procedures

The following CFP in terms of sections 34 to 36 of the NHRA should be implemented as part of the final EMP in the event of the discovery of unidentified heritage resources within the Lambda Project Area:

- The Environmental Control Officer (ECO)/ contractors must inspect earthworks during site clearance;
- Should any heritage resources be uncovered during site clearance, all construction in the vicinity should halt immediately;
- The find must be stabilised and the site must be secured to protect it from further damage;
- The find must be reported to SAHRA and a qualified specialist must be contacted to assess the find;
- Should the find be significant, the specialist is to compile and submit a report to SAHRA including recommended mitigation measures and possible additional specialist assessments, or recommend exemption from any further work.

## 5.3 General Awareness Training

Workers must be sensitised towards heritage resources and their significance. The ECO/ contractors must be trained to identify various types of heritage resources that are likely to be found within the project area. The following list typical chance finds that may be exposed during development:

- Palaeontological remains such as plant fossils;
- Human remains, possibly with associated material culture such as pottery and stone tools;
- Animal bones, possible indication of midden deposits;
- Pieces of brick-like burnt or baked clay, indicating possible hut remains;
- Historical artefacts such as porcelain, metal fragments, glass bottles and buttons; and
- Distinct, localized changes in soil colour and texture.

## 6 Conclusion and Recommendations

DWE was appointed by Eskom to conduct a final walk-down of the approved Lambda transmission line route to include mitigation measures into the final EMP. The Lambda Project is located within the Seme Local Municipality, Mpumalanga Province, 15 km south of Amersfoort.

Six heritage resources were identified during the final walk-down. These include two stone walled settlements, three burial grounds and one stone walled structure. The two stone walled settlements (St-002 and St-003) will be directly impacted during construction of towers TUT/LAM 0011 and TUT/LAM 0056.

Potential risks include accidental damage to burial grounds (BGG-001; 004 and 006) and stone-walled structure (St-005) during the construction of towers TUT/LAM 0010 & 0011, MAJ/LAM 032; MAJ/LAM 023 & 024 and TUT/LAM 0047 & 0048.

Additional risks can include the accidental exposure of unidentified heritage resources and the subsequent damage and/or destruction of these heritage resources.

Based on the findings of this report, DWE recommends the following mitigation and management plans:

- All identified heritage resources are to be conserved in-situ. The following mitigation measures must be implemented as minimum requirements:
  - Fencing off of burial grounds and heritage sites;
  - Establishing a 50 m buffer around the burial grounds and heritage sites ; and
  - Where applicable, construct temporary protective scaffolds over burial grounds and archaeological sites to shield from accidental damage during construction, and repairs and maintenance during the operational phase; and
  - Heritage sites must be monitored during the construction phase.
- A Watching Brief must be conducted for all sites. The Watching Brief will include the following:
  - The Watching Brief must be conducted by an accredited qualified Archaeologist;
  - It will entail the on-site supervision of earthworks by the archaeologist at sites St-002, St-003 and BGG-004;
  - On-site supervision of the stringing of the electrical cables over sites BGG-001, St-005 and BGG-006;
  - Should any sub-surface heritage resources be uncovered, the archaeologist will assess the find and recommend further mitigation measures.
- Should damage occur to sites below the transmission lines during construction, SAHRA is to be informed and corrective measures are to be implemented such as repair and rehabilitation.

Chance Finds Procedures (CFPs) must be developed and implemented for the construction phase of the project as part of the EMP that clearly describe the CFP process and appropriate management of the exposure of previously unidentified heritage resources.





## 7 References

Adendorff, R., McLoughlin, S. & Bamford, M. K., 2002. A new genus of Ovulferous Glossopterid Fructification from South Africa. *Palaeo*, Volume 38, pp. 1-17.

du Piesanie, J. & Nel, J., 2012. *Phase 2 Archaeological Impact Assessment Mitigation for the Boikarabelo Coal Mine (SAHRA PERMIT NO 80/11/07/015/51)*, Randburg: Digby Wells Environmental.

Fourie, W., 2009. *Archaeological Impact Assessment for the Koert Louw Zyn Pan Project for Resources Generation on the farm Koert Louw Zyn Pan 234 LQ and portions of the farm Klaarwater 231 LQ, District Lephale, Limpopo*, Pretoria: Professional Grave Solutions (Pty) Ltd.

Fourie, W., 2010. *Archaeological Impact Assessment: Res Gen SA Boikarabelo Coal Mine Project on portions of the farms Orsono 700 LQ, Zeekoevley 421 LQ, Vischpan 274 LQ, Kruishout 271 LQ, Kalkpan 243 LQ, Witkopje 237 LQ and Diepspruit 386 LQ, District Lephale, Limpopo*, s.l.: Professional Grave Solutions (Pty) Ltd.

Fourie, W., 2012. *Heritage Impact Assessment: Lambda 400/765kV Substation and Associated 400kV and 765kV lines*, s.l.: Professional Grave Solutions (Pty) Ltd.

Huffman, T. N. & Van der Walt, J., 2011. *A field study prepared for Environmental Resources Management, Sasol Technology, Mafutha Project*, s.l.: s.n.

Johnson, M. R., Anhaeusser, C. R. & Thomas, R. J. eds., 2006. *The Geology of South Africa*. Johannesburg: Council for Geoscience.

Karodia, S., 2013. *Heritage Impact Assessment for hte Vedanta IPP Project, Klaarwater 231LQ & Dalyslope 232LQ, Lephale, Limpopo Province*, Randburg: Digby Wells Environmental.

Karodia, S. & Higgitt, N., 2013. *Heritage Impact Assessment for the Dalyslope Phase 1 Coal Mine, Lephale, Limpopo Province*, Randburg: Digby Wells Environmental.

Lephale Municipality, 2013. *Lephale Municipality - Limpopo Province, South Africa*. [Online]

Available at: <http://www.lephale.com/?item=40&MenuID=43>  
[Accessed 15 July 2013].

Nel, J., 2011a. *Phase 1 Archaeological Impact Assessment for the Proposed Temo Coal Mine, Lephale Local Municipality, Waterberg District, Limpopo Province*, Randburg: Digby Wells Environmental.

Nel, J., 2011b. *Addendum to the Phase 1 AIA for the Boikarabelo Coal Mine*, Randburg: Digby Wells Environmental.

Pistorius, J. C. C., 2010. *A Phase 1 Heritage Impact Assessment Study for Exxaro's Proposed New Thaba Metsi Open Cast Coal Mine near Lephale in the Limpopo Province of South Africa*, s.l.: Archaeology and Heritage Management Consultants.

---

Prevec, R., 2012. *Palaeontological Impact Assessment: Desktop scoping level report for the Paardeplaats Coal Mining Project, Belfast, Mpumalanga*. Grahamstown: Rhodes University.

SAHRIS, 2014. *PalaeoSensitivity Map*. [Online]  
Available at: <http://www.sahra.org.za/map/palaeo>  
[Accessed 10 November 2014].

South African History Online, 2014. *The Natives Land Act of 1913*. [Online]  
Available at: <http://www.sahistory.org.za/topic/natives-land-act-1913>  
[Accessed 11 November 2014].

Heritage Walk-Down Report

Environmental Management Plan for the Approved Lambda Substation and Associated  
400/765kV Transmission Lines

ESK3420



DIGBY WELLS  
ENVIRONMENTAL

---

## Appendix A: Specialist CV



DIGBY WELLS  
ENVIRONMENTAL

## NATASHA HIGGITT

Ms Natasha Higgitt  
Assistant Heritage Consultant  
Social Department  
Digby Wells Environmental

### 1 EDUCATION

- University of Pretoria
- BA Degree (2008)
- Archaeology Honours (2010)
- Title of Dissertation- Pass the Salt: An Archaeological analysis of lithics and ceramics from Salt Pan Ledge, Soutpansberg, for evidence of salt working and interaction.

### 2 LANGUAGE SKILLS

- English - Excellent (read, write and speak)
- Afrikaans - Fair (read, write and speak)
- Italian – Poor (Speaking only)

### 3 EMPLOYMENT

- July 2011 to Present: Assistant Heritage Consultant at Digby Wells Environmental
- April 2011 to June 2011: Lab assistant at the Albany Museum Archaeology Department, Grahamstown, Eastern Cape
- April 2010 to March 2011: Intern at the Archaeology Department, Albany Museum, Grahamstown, Eastern Cape under the Department of Sports, Recreation, Arts and Culture, Eastern Cape Government, South Africa (DSRAC)

### 4 FIELD EXPERIENCE

- Human remains rescue excavation at St Francis Bay, Eastern Cape
- Human remains rescue excavation at Wolwefontein, Eastern Cape
- Recorded two rock art sites at Blaauwbosch Private Game Reserve, Eastern Cape

Digby Wells and Associates (South Africa) (Pty) Ltd (Subsidiary of Digby Wells & Associates (Pty) Ltd). Co. Reg. No. 2010/008577/07. Fern Isle, Section 10, 359 Pretoria  
Ave Randburg Private Bag X10046, Randburg, 2125, South Africa  
Tel: +27 11 789 9495, Fax: +27 11 789 9498, [info@digbywells.com](mailto:info@digbywells.com), [www.digbywells.com](http://www.digbywells.com)

Directors: A Sing\*, AR Wilke, DJ Otto, GB Beringer, LF Koeslag, AJ Reynolds (Chairman) (British)\*, J Leaver\*, GE Trusler (C.E.O)  
\*Non-Executive



- Attended a 2 week excavation/study tour in the Friuli Region in Italy, organised by the *Società Friulana di Archeologia*, sponsored by *Ente Friuli nel Mondo*, and excavated a 12th century medieval castle
- Attended a 2 week excavation in Limpopo, Waterpoort Archaeological Project organised by Xander Antonites (Yale PhD Candidate)
- A total of 5 University of Pretoria Archaeology field schools in Limpopo and Gauteng spanning over 4 years

## 5 PROJECT EXPERIENCE

- Notification of Intent to Develop for the Doornkloof Flood Remedial Measures Project, Centurion, Gauteng Province for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Notification of Intent to Develop for the Oakleaf Open Cast Coal Mine, Bronkhorstspuit, Gauteng Province for Oakleaf Resources (Digby Wells Environmental)
- Notification of Intent to Develop for the Rietfontein 101IS Prospecting Project for Rustenburg Platinum (Digby Wells Environmental)
- Heritage Impact Assessment for the Weltevreden Open Cast Coal Mine, Belfast, Mpumalanga for Northern Coal (Pty) Ltd (Digby Wells Environmental)
- Notification of Intent to Develop for the Grootegeeluk Expansion Project, Lephalale, Limpopo Province for Exxaro Resources (Pty) Ltd (Digby Wells Environmental)
- Notification of Intent to Develop and Heritage Statement for the London Road Petrol Station, Alexandria, Gauteng for ERM Southern Africa (Pty) Ltd (Digby Wells Environmental)
- Heritage Impact Assessment for the Roodepoort Strengthening Project, Roodepoort, Gauteng for Fourth Element (Digby Wells Environmental)
- Heritage Statement for the Stoffel Park Bridge Upgrade, Mamelodi, Gauteng for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Heritage Statement for the Witrand Prospecting EMP, Bethal, Mpumalanga for Rustenburg Platinum (Digby Wells Environmental)
- Heritage Statement for the Onverwacht Prospecting EMP, Kinross, Mpumalanga for Rustenburg Platinum (Digby Wells Environmental)
- Heritage Statement for a Proposed Acetylene Gas Production Facility, located near Witkopdorp, Daleside, south of Johannesburg, Gauteng Province for Erm Southern Africa (Pty) Ltd (Digby Wells Environmental)
- Heritage Impact Assessment for the Platreef Platinum Project, Mokopane, Limpopo for Platreef Resources (Digby Wells Environmental)
- Heritage Statement for ATCOM and Tweefontein Dragline Relocation Project, near Witbank, Mpumalanga Province for Jones and Wagner Consulting Civil Engineers (Digby Wells Environmental)



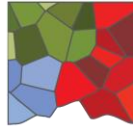
- Heritage Statement Report for the Wilgespruit Bridge Upgrade, Pretoria, Gauteng Province for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Heritage Statement Report for the Kosmosdal sewer pipe bridge upgrade, Pretoria, Gauteng Province for Iliso Consulting (Pty) Ltd (Digby Wells Environmental)
- Phase 1 Heritage Impact Assessment for the Thabametsi Coal Mine, Lephalale, Limpopo for Exxaro Coal (Digby Wells Environmental)
- Heritage Statement for the Zandbaken Coal Mine Project, Zandbaken 585 IR, Sandbaken 363 IR and Bosmans Spruit 364 IS, Standerton, Mpumalanga for Xtrata Coal South Africa (Digby Wells Environmental)
- Phase 1 Heritage Impact Assessment for the Brakfontein Thermal Coal Mine, Mpumalanga for Universal Coal (Digby Wells Environmental)
- Development of a RAP for Aureus Mining for the New Liberty Gold Mine Project, Liberia (Digby Wells Environmental)
- Phase 1 Archaeological Impact Assessment for the MBET Pipeline, Steenbokpan, Limpopo (Digby Wells Environmental)
- Notice of Intent to Develop and Cultural Resources Pre-Assessment for Orlight SA (PTY) Ltd Solar PV Project. 2012. (Digby Wells Environmental)
- Agricultural Survey for Platreef ESIA, Mokopane, Limpopo. 2011. (Digby Wells Environmental)
- Cultural Resources Pre-Assessment for the Proposed Sylvania Everest North Mining Development in Mpumalanga, near Lydenburg. 2011. (Digby Wells Environmental)
- Phase 2 Mitigation of Archaeological sites at Boikarabelo Coal Mine, Steenbokpan, Limpopo. 2011. (Digby Wells Environmental)
- Cultural Resources Pre-Assessment for Proposed Platinum Mine Prospecting in Mpumalanga, near Bethal for Anglo Platinum. 2011. (Digby Wells Environmental)
- Cultural Resources Pre-Assessment for proposed Platinum Mine at Mokopane, Limpopo for Ivanhoe Platinum. 2011. (Digby Wells Environmental)
- Phase 1 AIA Mixed-use housing Development, Kwanobuhle, Extension 11, Uitenhage, Eastern Cape. 2011.
- Phase 1 AIA Centane to Qholora and Kei River mouth road upgrade survey, Mnquma Municipality, Eastern Cape. 2011. (SRK Consulting)
- Phase 1 AIA Clidet Data Cable survey, Western Cape, Northern Cape, Free State and Eastern Cape. 2011. (SRK Consulting)
- Phase 1 AIA Karoo Renewable Energy Facility, Victoria West, Northern Cape. 2011. (Savannah Environmental)
- Phase 1 AIA Windfarm survey in Hamburg, Eastern Cape. 2010. (Savannah Environmental)



- Phase 1 AIA Windfarm survey in Molteno, Eastern Cape. 2010. (Savannah Environmental)
- Phase 1 AIA Housing Development at Motherwell, P.E. 2010. (SRK Consulting)
- Phase 1 AIA Sand quarry survey in Paterson, Eastern Cape. 2010. (SRK Consulting)
- Phase 1 AIA Quarry Survey at Victoria West. 2010. (Acer [Africa] Environmental Management Consultants)
- Phase 1 AIA Quarry Survey at Port Elizabeth. 2010. (E.P Brickfields)

## **6 PROFESSIONAL AFFILIATIONS**

- Association of Southern African Professional Archaeologists (ASAPA): Professional member
- Association of Southern African Professional Archaeologists (ASAPA): CRM Practitioner (Field Supervisor: Stone Age, Iron Age and Rock Art)
- South African Museums Association (SAMA): Member



# DIGBY WELLS

## ENVIRONMENTAL

Mr. Justin du Piesanie  
Heritage Management Consultant: Archaeologist  
Social Sciences Department  
Digby Wells Environmental

### 1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

### 2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

### 3 Employment

Period	Company	Title/position
08/2011 to present	Digby Wells Environmental	Heritage Management Consultant: Archaeologist

Digby Wells and Associates (South Africa) (Pty) Ltd (Subsidiary of Digby Wells & Associates (Pty) Ltd). Co. Reg. No. 2010/008577/07. Fern Isle, Section 10, 359 Pretoria Ave Randburg Private Bag X10046, Randburg, 2125, South Africa  
Tel: +27 11 789 9495, Fax: +27 11 789 9498, [info@digbywells.com](mailto:info@digbywells.com), [www.digbywells.com](http://www.digbywells.com)

Directors: A Sing\*, AR Wilke, DJ Otto, GB Beringer, LF Koeslag, AJ Reynolds (Chairman) (British)\*, J Leaver\*, GE Trusler (C.E.O)  
\*Non-Executive



Period	Company	Title/position
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

#### 4 Professional Affiliations

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	270
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A

#### 5 Publications

- Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. *Journal of African Archaeology* 9(2): 189-206

#### 6 Experience

I have 5 years experiences in the field of heritage resources management (HRM) including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. During my studies I was involved in academic research projects associated with the Stone Age, Iron Age, and Rock Art. These are summarised below:

- Wits Fieldschool - Excavation at Meyersdal, Klipriviersberg Johannesburg (Late Iron Age Settlement).
- Wits Fieldschool - Phase 1 Survey of Prentjiesberg in Ugie / Maclear area, Eastern Cape.
- Wits Fieldschool – Excavation at Kudu Kopje, Mapungubwe National Park Limpopo Province.

- Wits Fieldschool – Excavation of Weipe 508 (2229 AB 508) on farm Weipe, Limpopo Province.
- Survey at Meyerdal, Klipriviersberg Johannesburg.
- Mapping of Rock Art Engravings at Klipbak 1 & 2, Kalahari.
- Survey at Sonop Mines, Windsorton Northern Cape (Vaal Archaeological Research Unit).
- Excavation of Kudu Kopje, Mapungubwe National Park Limpopo Province.
- Excavation of KK (2229 AD 110), VK (2229 AD 109), VK2 (2229 AD 108) & Weipe 508 (2229 AB 508) (Origins of Mapungubwe Project)
- Phase 1 Survey of farms Venetia, Hamilton, Den Staat and Little Muck, Limpopo Province (Origins of Mapungubwe Project)
- Excavation of Canteen Kopje Stone Age site, Barkley West, Northern Cape
- Excavation of Khami Period site AB32 (2229 AB 32), Den Staat Farm, Limpopo Province

Since 2011 I have been actively involved in environmental management throughout Africa, focusing on heritage assessments in compliance with International Finance Corporation (IFC) Performance Standards and other World Bank Standards and Equator Principles. This exposure to environmental, and specifically heritage management has allowed me to work to international best practice standards in accordance with international conservation bodies such as UNESCO and ICOMOS. In addition, I have also been involved in the collection of quantitative data for a Relocation Action Plan (RAP) in Burkina Faso. The exposure to this aspect of environmental management has afforded me the opportunity to understand the significance of integration of various studies in the assessment of heritage resources and recommendations for feasible mitigation measures. I have worked throughout South Africa, as well as Burkina Faso, the Democratic Republic of Congo, Liberia and Mali.

## 7 Project Experience

Please see the following table for relevant project experience:



Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Klipriviersberg Archaeological Survey	Meyersdal, Gauteng, South Africa	2005 2006	Survey of residential development in Meyersdal. This included the recording of identified stone walled settlements through detailed mapping and photographs. Included was the Phase 2 Mitigation of two stone walled settlements	Archaeological Impact Assessments	Researcher, Archaeological Assistant	2 months		Completed survey, excavations and reporting	Archaeological Resource Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Sun City Archaeological Site Mapping	Sun City, Pilanesberg, North West Province, South Africa	2006 2006	Recording of an identified Late Iron Age stonewalled settlement through detailed mapping	Mapping	Archaeological Assistant, Mapper	1 month	Sun City	Completed mapping	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Witbank Dam Archaeological Impact Assessment	Witbank, Mpumalanga, South Africa	2007 2007	Archaeological survey for proposed residential development at the Witbank dam	Archaeological Impact Assessment	Archaeological Assistant	1 week		Completed Archaeological Impact Assessment report	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Archaeological Assessment of Modderfontein AH Holdings	Johannesburg, Gauteng, South Africa	2008 2008	Archaeological survey and basic assessment of Modderfontein Holdings	Archaeological Impact Assessment	Archaeologist	1 month		Completed the assessment of 13 properties	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Heritage Assessment of Rhino Mines	Thabazimbi, Limpopo Province, South Africa	2008 2008	Heritage Assessment for expansion of mining area at Rhino Mines	Heritage Impact Assessment	Archaeologist	2 weeks	Rhino Mines	Completed the assessment	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Cronimet Project	Thabazimbi, Limpopo Province, South Africa	2008 2008	Archaeological survey of Moddergat 389 KQ, Schilpadnest 385 KQ, and Swartkop 369 KQ,	Archaeological Impact Assessment	Archaeologist	1 weeks	Cronimet	Completed field survey and reporting	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com



Eskom Thohoyadou SEA Project	Limpopo Province, South Africa	2008 2008	Heritage Statement defining the cultural landscape of the Limpopo Province to assist in establishing sensitive receptors for the Eskom Thohoyadou SEA Project	Heritage Statement	Archaeologist	2 months	Eskom	Completed Heritage Statement	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Wenzelrust Excavations	Shoshanguve, Gauteng, South Africa	2009 2009	Contracted by the Heritage Contracts Unit to help facilitate the Phase 2 excavations of a Late Iron Age / historical site identified in Shoshanguve	Excavation and Mapping	Archaeologist	1 week	Heritage Contracts Unit	Completed excavations	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
University of the Witwatersrand Parys LIA Shelter Project	Parys, Free State, South Africa	2009 2009	Mapping of a Late Iron Age rock shelter being studied by the Archaeology Department of the University of the Witwatersrand	Mapping	Archaeologist	1 day	University of the Witwatersrand	Completed mapping of the shelter	University of the Witwatersrand Karim Sadr karim.sadr@wits.ac.za
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010 2010	Heritage Survey of the Anglo-Boer War Vaalkrans Battlefield where the servitude of the NMP pipeline	Heritage Impact Assessment	Archaeologist	1 week	Umlando Consultants	Completed survey	Umlando Consultants Gavin Anderson umlando@gmail.com
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010 2010	Heritage survey of Witpoortjie 254 IQ, Mindale Ext 7 and Nooitgedacht 534 IQ for residential development project	Archaeological Impact Assessment	Archaeologist	1 week	ARM	Completed survey for the AIA	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010 2010	Phase 2 archaeological excavations of Late Iron Age Site	Archaeological Excavation	Archaeologist	2 weeks	Heritage Contracts Unit	Completed excavations	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
De Brochen and Booyensdal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010 2010	Mapping of archaeological sites 23, 26, 27, 28a & b on the Anglo Platinum Mines De Brochen and Booyensdal	Mapping	Archaeologist	1 week	Heritage Contracts Unit	Completed Mapping	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com





Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010 2010	Desktop study to identify heritage sensitivity of the Limpopo Province	Desktop Study	Archaeologist	1 Month	Strategic Environmental Focus	Completed Report	Strategic Environmental Focus (SEF) Vici Napier vici@sefsa.co.za
Bathhako Mine Expansion	North-West Province, South Africa	2010 2010	Mapping of historical sites located within the Bathhako Mine Expansion Area	Mapping	Archaeologist	1 week	Heritage Contracts Unit	Completed Mapping	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Kibali Gold Project Grave Relocation Plan	Oriental Province, Democratic Republic of Congo	2011 2013	Implementation of the Grave Relocation Project for the Randgold Kibali Gold Project	Grave Relocation	Archaeologist	2 years	Randgold Resources	Successful relocation of approximately 3000 graves	Kibali Gold Mine Cyrille Mutombo Cyrille.c.mutombo@kibaligold.com
Kibali Gold Hydro-Power Project	Oriental Province, Democratic Republic of Congo	2012 2014	Assessment of 7 proposed hydro-power stations along the Kibali River	Heritage Impact Assessment	Heritage Consultant	2 years	Randgold Resources	Completed Heritage Impact Assessment	Randgold Resources Charles Wells Charles.wells@randgoldresources.com
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012 2012	Heritage Impact Assessment on the farm Vygenhoek	Heritage Impact Assessment	Heritage Consultant	6 months	Aquarius Resources	Completed Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012 2012	Heritage impact Assessment for the proposed TSF and Pipeline of Geluksdal Mine	Heritage Impact Assessment	Heritage Consultant	4 months	Gold One International	Completed Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012 2012	Survey for Burial Grounds and Graves	Burial Grounds and Graves Management Plan	Heritage Consultant	4 months	Platreef Resources	Project closed by client due to safety risks	Platreef Resources Gerick Mouton
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012 2012	Archaeological Excavation of identified sites	Archaeological Excavation	Heritage Consultant	4 months	Resources Generation	Completed excavation and reporting, destruction permits approved	Resources Generation Louise Nicolai
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012 2012	Watching brief for construction of new road	Watching Brief	Heritage Consultant	1 week	Bokoni Platinum Mine	Completed watching brief, reviewed report	Bokoni Platinum Mines (Pty) Ltd



SEGA Gold Mining Project	Burkina Faso	2012 2013	Socio Economic and Asset Survey	RAP	Social Consultant	3 months	Cluff Gold PLC	Completed field survey and data collection	Cluff Gold PLC
SEGA Gold Mining Project	Burkina Faso	2013 2013	Specialist Review of Heritage Impact Assessment	Reviewer	Heritage Consultant	1 week	Cluff Gold PLC	Reviewed specialist report and made appropriate recommendations	Cluff Gold PLC
Consbrey and Harwar Collieries Project	Breyton, Mpumalanga, South Africa	2013 2013	Heritage Impact Assessment for the proposed Consbrey and Harwar Collieries	Heritage Impact Assessment	Heritage Consultant	2 months	Msobo	Completed Heritage Impact Assessments	Msobo
New Liberty Gold Project	Liberia	2013 2014	Implementation of the Grave Relocation Project for the New Liberty Gold Project	Grave Relocation	Heritage Consultant	On-going	Aureus Mining	Project is on-going	Aureus Mining
Falea Uranium Mine Environmental Assessment	Falea, Mali	2013 2013	Heritage Scoping for the proposed Falea Uranium Mine	Heritage Scoping	Heritage Consultant	2 months	Rockgate Capital	Completed scoping report and recommended further studies	Rockgate Capital
Putu Iron Ore Mine Project	Petroken, Liberia	2013 2014	Heritage impact Assessment for the proposed Putu Iron Ore Mine, road extension and railway line	Heritage Impact Assessment	Heritage Consultant	6 months	Atkins Limited	Completed Heritage Impact Assessment and provided recommendations for further studies	Atkins Limited Irene Bopp Irene.Bopp@atkinglobal.com
Sasol Twistdraai Project	Secunda, Mpumalanga, South Africa	2013 2014	Notification of intent to Develop and Heritage Statement for the Sasol Twistdraai Expansion	NID	Heritage Consultant	2 months	ERM Southern Africa	Completed NID and Heritage Statement	ERM Southern Africa Alan Cochran Alan.Cochran@erm.com
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013 2013	Project Management of the heritage study	NID	Project Manager	3 months	ERM Southern Africa	Project completed	ERM Southern Africa Kasantha Moodley Kasantha.Moodley@erm.com
Exxaro Belfast, Paardeplaats and Eerstelingsfontein GRP	Belfast, Mpumalanga, South Africa	2013 2014	Grave Relocation Plan for the Belfast, Paardeplaats and Eerstelingsfontein GRP	GRP	Project Manager, Heritage Consultant	On-going	Exxaro	Project is on-going	Exxaro Johan van der Bijl Johan.vanderbijl@exxaro.com



Nzoro 2 Hydro Power Project	Oriental Province, Democratic Republic of Congo	2014 2014	Social consultation for the Relocation Action Plan component of the Nzoro 2 Hydro Power Station	RAP	Social Consultant	On-going	Randgold Resources	Completed introductory meetings – project on-going	Kibali Gold Mine Cyrille Mutombo Cyrille.c.mutombo@kibaligold.com
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014 2014	Heritage Impact Assessment for the proposed new sludge storage facility and pipeline	Heritage Impact Assessment	Heritage Consultant	On-going	AECOM	Project is on-going	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014 2014	Heritage Impact Assessment for reclamation activities associated with the Soweto Cluster Dumps	Heritage Impact Assessment	Heritage Consultant	On-going	ERGO	Project is on-going	ERGO Greg Ovens Greg.ovens@drdgold.com
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014 2014	NID and Heritage Statement for the Section 102 Amendment of the Klipspruit Mine EMP	NID	Heritage Consultant	On-going	BHP Billiton	Project is on-going	BHP Billiton
Klipspruit Extension: Weltevreden Project	Ogies, Mpumalanga, South Africa	2014 2014	NID and Heritage Statement for the expansion of the Klipspruit Mine	NID	Heritage Consultant	On-going	BHP Billiton	Project is on-going	BHP Billiton
Ergo Rondebult Pipeline Basic Assessment	Johannesburg, South Africa	2014 2014	NID and Heritage Statement for the construction of the Rondebult Pipeline	NID	Heritage Consultant	1 Week	ERGO	Completed screening assessment and NID	ERGO
Kibali ESIA Update Project	Oriental Province, Democratic Republic of Congo	2014 2014	Update of the Kibali ESIA for the inclusion of new open-cast pit areas	Heritage Impact Assessment	Heritage Consultant	On-going	Randgold Resources	Project is on-going	Randgold Resources Charles Wells Charles.wells@randgoldresources.com
GoldOne EMP Consolidation	Westonaria, Gauteng, South Africa	2014 2014	Gap analysis for the EMP consolidation of operations west of Johannesburg	Gap Analysis	Heritage Consultant	On-going	Gold One International	Project is on-going	Gold One International

## JOHAN NEL

Mr Johan Nel

Unit manager: Heritage Resources Management

Social Sciences

Digby Wells Environmental

### 1 EDUCATION

Date	Degree(s) or Diploma(s) obtained	Institution
2014	Integrated Heritage Resources Management Certificate, NQF Level 6	Rhodes University
2002	BA (Honours) (Archaeology)	University of Pretoria
2001	BA	University of Pretoria
1997	Matric with exemption	Brandwag Hoërskool

### 2 LANGUAGE SKILLS

Language	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

### 3 EMPLOYMENT

Period	Company	Title/position
09/2011 to present	Digby Wells Environmental	Manager: Heritage Resources Management unit
05/2010-2011	Digby Wells Environmental	Archaeologist
10/2005-05/2010	Archaic Heritage Project Management	Manager and co-owner
2003-2007	Rock Art Mapping Project	Freelance archaeologist Resident archaeologist





2002-2003	Department of Anatomy, University of Pretoria	Special assistant: Anthropology
2001-2002	Department of Anatomy, University of Pretoria	Technical assistant
1999-2001	National Cultural History Museum & Department of Anthropology and Archaeology, UP	Assistant: Mapungubwe Project,

#### 4 EXPERIENCE

Johan Nel has 13 years of combined experience in the field of cultural heritage resources management (HRM) including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. I have gained experience both within urban settings and remote rural landscapes. Since 2010 I have been actively involved in environmental management that has allowed me to investigate and implement the integration of heritage resources management into environmental impact assessments (EIA). Many of the projects since have required compliance with International Finance Corporation (IFC) requirements and other World Bank standards. This exposure has allowed me to develop and implement a HRM approach that is founded on international best practice and leading international conservation bodies such as UNESCO and ICOMOS. I have worked in most South African Provinces, as well as Swaziland, the Democratic Republic of the Congo, Liberia and Sierra Leone. I am fluent in English and Afrikaans, with excellent writing and research skills.

#### 5 PROFESSIONAL REGISTRATION

Position	Professional Body	Registration Number
Council member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	095
Member	International Association of Impact Assessors (IAIA)	N/A
Member	International Council on Monuments and Sites (ICOMOS)	
Member	Society for Africanist Archaeologists (SAfA)	N/A



## 6 PUBLICATIONS AND CONFERENCE PAPERS

<b>Authors and Year</b>	<b>Title</b>	<b>Published in/presented at</b>
Nel, J. (2001)	Cycles of Initiation in Traditional South African Cultures.	South African Encyclopaedia (MWEB).
Nel, J. 2001.	Social Consultation: Networking Human Remains and a Social Consultation Case Study	Research poster presentations at the. Bi-annual Conference (SA3) Association of Southern African Professional Archaeologists the National Museum, Cape Town
Nel, J. 2002.	Collections policy for the WG de Haas Anatomy museum and associated Collections.	Unpublished. Department of Anatomy, School of Medicine: University of Pretoria.
Nel, J. 2004.	Research and design of exhibition for Eloff Belting and Equipment CC	Institute of Quarrying 35th Conference and Exhibition on 24 – 27 March 2004
Nel, J. 2004.	Ritual and Symbolism in Archaeology, Does it exist?	Research paper presented at the Bi-annual Conference (SA3) Association of Southern African Professional Archaeologists: Kimberley
Nel, J & Tiley, S. 2004.	The Archaeology of Mapungubwe: a World Heritage Site in the Central Limpopo Valley, Republic of South Africa.	Archaeology World Report, (1) United Kingdom p.14-22.
Nel, J. 2007.	The Railway Code: Gautrain, NZASM and Heritage.	Public lecture for the South African Archaeological Society, Transvaal Branch: Roedean School, Parktown.
Nel, J. 2009.	Un-archaeologically speaking: the use, abuse and misuse of archaeology in popular culture.	The Digging Stick. April 2009. 26(1): 11-13: Johannesburg: The South African Archaeological Society.
Nel, J. 2011.	'Gods, Graves and Scholars' returning Mapungubwe human remains to their resting place.' In: Mapungubwe Remembered.	University of Pretoria commemorative publication: Johannesburg: Chris van Rensburg Publishers.



---

Nel, J. 2012	HIAs for EAPs.	. Paper presented at IAIA annual conference: Somerset West.
Nel, J. 2013.	The Matrix: A proposed method to evaluate significance of, and change to, heritage resources.	Paper presented at the 2013 ASAPA Biennial conference: Gaborone, Botswana.
Nel, J. 2013	HRM and EMS: Uncomfortable fit or separate process.	. Paper presented at the 2013 ASAPA Biennial conference: Gaborone, Botswana.

## 7 PROJECT EXPERIENCE

### 7.1 Archaeological Surveys and Impact Assessments

- 2003-2004. Freelance consulting archaeologist. Roodt & Roodt CC. RSA. Archaeological surveys. Specialist.
- 2004-2005. Resident archaeologist Rock Art Mapping Project. University of KwaZulu-Natal. Kwazulu-Natal, RSA. Rock art mapping & recording. Specialist.

### 7.2 Archaeological Mitigation

- 2007. Archaeological investigation of Old Johannesburg Fort. Johannesburg Development Agency. Gauteng, RSA. Archaeological mitigation. Project manager.
- 2008. Final consolidated report: Watching Brief on Soutpansberg Road Site for the new Head Offices of the Department of Foreign Affairs, Pretoria Gauteng. Imbumba-Aganang D & C Joint Venture. Gauteng, RSA. Watching Brief. Project manager.
- 2011. Sessenge archaeological site mitigation. Randgold Resources. Doko, DRC. Archaeological mitigation. Specialist.
- 2011. Mitigation of three sites, Koidu Kimberlite Project. Koidu Holdings SA. Koidu, Sierra Leone. Archaeological mitigation. Project manager.
- 2012. Boikarabelo Phase 2 Mitigation of Archaeological Sites. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Archaeological permitting and mitigation. Project manager.
- 2012. Additional Archaeology Mitigation of Sites. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Archaeological permitting and mitigation. Project manager.
- 2013. Archaeological Excavations of Old Well, Rhodes University, Grahamstown. Rhodes University. Eastern Cape, RSA. Archaeological mitigation. Specialist.
- 2014. Archaeological Site Destruction. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Archaeological permitting and mitigation. Project manager.

### 7.3 Heritage Impact Assessments

- 2005. Final consolidated Heritage Impact Assessment report: Proposed development of high-cost housing and filling station, Portion of the farm Mooiplaats 147 JT. Go-Enviroscience. Mpumalanga, RSA. Heritage Impact Assessment. Project manager.
- 2006. Final report: Heritage resources Scoping survey and preliminary assessment for the Transnet Freight Line EIA, Eastern Cape and Northern Cape. ERM Southern Africa (Pty) Ltd. Northern & Eastern Cape, RSA. Heritage Scoping Assessment. Project manager.
- 2007. Proposed road upgrade of existing, and construction of new roads in Burgersfort, Limpopo Province. AGES South Africa (Polokwane). Limpopo, RSA. Heritage Impact Assessment. Project manager.
- 2007. Recommendation of Exemption: Above-ground SASOL fuel storage tanks located at grain silos in localities in the Eastern Free State. Sasol Group Services (Pty) Ltd. Free State, RSA. Letter of Exemption. Project manager.
- 2008. Summary report: Old dump on premises of the new Head Offices, Department of Foreign Affairs, Pretoria, Gauteng. Imbumba-Aganang D & C Joint Venture. Gauteng, RSA. Archaeological Impact Assessment. Project manager.
- 2008. Van Reenen Eco-Agri Development Project. Go-Enviroscience. Kwazulu-Natal & Free State, RSA. Heritage Impact Assessment. Project manager.
- 2008. Heritage Impact Assessment for proposed water pipeline routes, Mogalakwena District, Limpopo Province. AGES South Africa (Polokwane). Limpopo, RSA. Heritage Impact Assessment. Project manager.
- 2008. Phase 1 Heritage and Archaeological Impact Assessment: Proposed establishment of an access road between Sapekoe Drive and Koedoe Street, Erf 3366 (Extension 22) and the Remainder of Erf 430 (Extension 4). AGES South Africa (Polokwane). Limpopo, RSA. Heritage Impact Assessment. Project manager.
- 2008. Heritage resources scoping survey and preliminary assessment: Proposed establishment of township on Portion 28 of the farm Kennedy's Vale 362 KT, Steelpoort, Limpopo Province. AGES South Africa (Polokwane). Limpopo, RSA. Heritage Scoping Assessment. Project manager.
- 2008. Randwater Vlakfontein-Mamelodi water pipeline survey. Archaeology Africa CC. Gauteng, RSA. Heritage Impact Assessment. Specialist.
- 2010. Heritage Impact Assessment for conversion of PR to MRA. Georock Environmental. Northwest, RSA. Heritage Impact Assessment. Project manager.
- 2010. Temo Coal Project. Namane Commodities (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2011. Marapong Treatment Works. Ceenex (Pty) Ltd. Limpopo, RSA. Archaeological Impact Assessment. Project manager.



- 2011. Complete Environmental Authorisation. Rhodium Reefs Ltd. Limpopo, RSA. Archaeological Impact Assessment. Specialist.
- 2011. Big 5 PV Solar Plants. Orlight (Pty) Ltd. Western and Northern Cape, RSA. Heritage Impact Assessment. Specialist.
- 2011. Heritage Impact Assessment for Koidu Diamond Mine. Koidu Holdings SA. Koidu, Sierra Leone. Heritage Impact Assessment. Specialist.
- 2012. TSF and Pipeline. Gold One. Gauteng, RSA. Heritage Impact Assessment. Project manager.
- 2012. Kangra Coal Heritage Screening Assessment. ERM Southern Africa (Pty) Ltd. Mpumalanga, RSA. Heritage Screening Assessment. Project manager.
- 2012. Environmental and Social Studies. Platreef Resources (Pty) Ltd. Limpopo, RSA. Heritage specialist advice. Project manager.
- 2012. ESKOM Powerline EIA. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Notification of Intent to Develop. Project manager.
- 2012. Falea Project ESIA. Denison Mines Corp. (Rockgate Capital Corp). Falea, Mali. Heritage Impact Assessment. Specialist.
- 2012. EIA for Proposed Emergency Measures to Pump and Treat. AECOM SA (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Specialist.
- 2012. Tonguma Baseline Studies. Koidu Holdings SA. Tonguma, Sierra Leone. Heritage Impact Assessment. Specialist.
- 2012. Vedanta IPP. Black Mountain Mining (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2012. Boikarabelo Railway Realignment. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2012. Platreef ESIA. Platreef Resources (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2012. Roodekop EIA. Universal Coal Development 4 (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.
- 2012. Kangala HIA. Universal Coal Development 1 (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment and permitting. Specialist.
- 2012. Roodepoort Strengthening. Eskom Holdings SOC Ltd. Gauteng, RSA. Notification of Intent to Develop. Specialist.
- 2012. Trichardtsfontein EIA / EMP. Xstrata Coal South Africa. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2012. Zandbaken EIA/EMPR. Xstrata Coal South Africa. Limpopo, RSA. Heritage Impact Assessment. Specialist.



- 2013. ATCOM Tweefontein NID. Jones & Wagener (Pty) Ltd. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.
- 2013. Roodepoort Heritage Impact Assessment. Fourth Element Consulting (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Project manager.
- 2013. JHB BRT Phase 2 Heritage Impact Assessment. Iliso Consulting (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Project manager.
- 2013. Kangra Coal HIA. ERM Southern Africa (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Project manager.
- 2013. Slypsteen Bulk Sample Application. Summer Season Trading (Pty) Limited. Northern Cape, RSA. Heritage Impact Assessment. Project manager.
- 2013. Kempton Park Heritage Statement and NID. ERM Southern Africa (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Project manager.
- 2013. Sasol Twistdraai CFD. ERM Southern Africa (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Project manager.
- 2013. HRS & NID - River Crossings Upgrade. Iliso Consulting (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Project manager.
- 2013. Waterberg Prospecting Right Applications. Platinum Group Metals (Pty) Ltd. Limpopo, RSA. Notification of Intent to Develop. Project manager.
- 2013. Landau Waste Licence Application. Anglo Operations (Pty) Limited. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2013. Prospecting Right Consultation Report. Rustenburg Platinum Mines Limited. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2013. Witrand Prospecting EMP. Rustenburg Platinum Mines Limited. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2013. EMP Amendment for CST. Copper Sunset Trading (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2013. Maseve IFC ESHIA. Maseve Investment (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2013. Dalyshope ESIA. Anglo Operations (Pty) Limited. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2013. Klipfontein Opencast Project. Bokoni Platinum Mines (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2013. Consbrey and Harwar MPRDA EIA/EMP. Msobo Coal (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.
- 2013. Slypsteen 102 EMP Amendment. Summer Season Trading (Pty) Limited. Northern Cape, RSA. Heritage Impact Assessment. Specialist.

- 2013. Putu Iron Ore ESIA. Atkins Limited Incorporated. Putu, Liberia. Heritage Impact Assessment. Specialist.
- 2013. Ash backfilling at Sigma Colliery. Sasol Mining (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Specialist.
- 2013. Syferfontein Block 4 - Underground Coal Mining for Sasol. Sasol Mining (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Specialist.
- 2013. Prospecting Right Amendment to Include Bulk Sampling. Sikhuliso Resources (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Specialist.
- 2013. Nooitgedacht EIA, EMP Amendment & Gap Analysis. Xstrata Coal South Africa. Limpopo, RSA. Heritage Impact Assessment. Specialist.
- 2014. Gold One EMP Consolidation Phase 0. Gold One. Gauteng, RSA. Heritage Impact Assessment. Reviewer / specialist.
- 2014. Kilbarchan Audit and EIA. Eskom Holdings SOC Ltd. Kwazulu-Natal, RSA. Heritage Impact Assessment. Reviewer / specialist.
- 2014. Klipspruit Extension Environmental Assessment. BHP Billiton Energy Coal South Africa Limited. Mpumalanga, RSA. Heritage Impact Assessment. Reviewer / specialist.
- 2014. Klipspruit South BECSA EIA. BHP Billiton Energy Coal South Africa Limited. Mpumalanga, RSA. Heritage Impact Assessment. Reviewer / specialist.
- 2014. EIA/EMP Soweto Cluster. DRD GOLD ERGO (Ergo Mining (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2014. London Road Heritage Statement. ERM Southern Africa (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2014. Grootegeluk MPRDA, NEMA and IWULA. Exxaro Coal (Pty) Ltd. Limpopo, RSA. Notification of Intent to Develop. Reviewer / specialist.
- 2014. Kibali ESIA & EMP Update. Randgold Resources. Doko, DRC. Heritage Impact Assessment. Specialist.
- 2014. Nokuhle Colliery NEMA Process. HCI Coal (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.
- 2014. HRM Process for Hendrina Wet Ashing. Lidwala Consulting Engineers (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.
- 2014. Weltevreden NEMA. Northern Coal (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.
- 2014. Sasol Sigma Mooikraal Pipeline BA. Sasol Mining (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Specialist.



## 7.4 Burial Grounds and Graves Consultation and Relocation

- 2005. Report on exhumation, relocation and re-internment of 49 graves on Portion 10 of the farm Tygervallei 334 JR, Kungwini Municipality, Gauteng D Georgiades East Farm (Pty) Ltd. Gauteng, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.
- 2005. Southstock Collieries Grave Relocation. Doves Funerals, Witbank. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.
- 2005. Social consultation for Smoky Hills Platinum Mine Grave Relocation. PGS (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.
- 2005. Social consultation for Elawini Lifestyle Estate Grave Relocation. PGS (Pty) Ltd. Mpumalanga, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.
- 2006. Social consultation for Zonkezizwe Grave Relocation. PGS (Pty) Ltd. Gauteng, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.
- 2006. Social consultation for Motaganeng Residential Development Grave Relocation. PGS (Pty) Ltd. Mpumalanga, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.
- 2006. Social consultation for Zondagskraal Coal Mine Grave (Pty) Ltd. Mpumalanga, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.
- 2007. Exploratory excavation of an unknown cemetery at Du Preezhoek, Fountains Valley, Portion 383 of the farm Elandspoort 357 JR, Pretoria, Gauteng. Bombela Civil Joint Venture. Gauteng, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.
- 2007. Final consolidated report: Phase 2 test excavations ascertaining the existence of alleged mass graves, Tlhabane West, Extension 2, Rustenburg, Northwest Province. Bigen Africa Consulting Engineers. Northwest, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.
- 2007. Repatriation of Mapungubwe Human Remains. Department of Environmental Affairs and Tourism. Limpopo, RSA. Repatriation. Project manager.
- 2008. Report on skeletal material found at Pier 30, R21 Jones Street off-ramp, Kempton Park. Bombela Civil Joint Venture. Gauteng, RSA. Heritage Scoping Assessment. Project manager.
- 2011. Kibali Grave Relocation. Randgold Resources. Doko, DRC. International grave relocation. Specialist.
- 2012. Platreef Platinum Mine Burial Grounds and Graves Census. Platreef Resources (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Project manager.



- 2013. New Liberty Grave Relocation Process. Aureus Mining Inc. Kinjor, Liberia. International grave relocation. Project manager.
- 2013. Bokoni Burial Grounds and Grave Census and Grave Relocation Plan. Bokoni Platinum Mines (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Project manager.
- 2014. Arnot Colliery Grave Relocation Project. Exxaro Coal (Pty) Ltd. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.
- 2014. Paardeplaats and Belfast RAPs. Exxaro Coal (Pty) Ltd. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Reviewer / specialist.
- 2014. Thabametsi EIA, EMP, IWULA, IWWMP and PPP. Exxaro Coal (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Specialist.

## **7.5 Research Reports and Reviews**

- 2007. Research report on cultural symbols. Ministry of Intelligence Services. RSA. Research report. Project manager.
- 2007. Research report on the remains of kings Mampuru I and Nyabela. National Department of Arts and Culture. RSA. Research report. Project manager.
- 2012. Baseline Scoping and Pre-feasibility Songwe Rare Earth Element Project. Mkango Resources Limited. Songwe, Malawi. Heritage Impact Assessment. Reviewer / specialist.
- 2013. Fatal Flaw Analysis and EIA Process for AMD Man in Eastern Basin. AECOM SA (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Reviewer / specialist.