



DIGBY WELLS
ENVIRONMENTAL

Exxaro Matla Coal: Grave Management Plan for Matla Mine 2

Heritage Site Management Plan

Project Number:

EXX4610

Prepared for:

Exxaro Coal Mpumalanga (Pty) Ltd

April 2017




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EXECUTIVE SUMMARY

Exxaro Coal Mpumalanga (Pty) Ltd (hereinafter Exxaro) intends to undertake short wall underground mining along coal seam 2 (Panel 20) at the Exxaro Matla Coal Mine's Shaft Number 2 operations. The mining method that is being used consists of a total extraction method with a consequence being the occurrence of subsidence. Recently, it has been recognised that a previously unrecorded grave of Helena Booyens is located in proximity to planned underground mining activities, and may be at risk of being impacted upon by possible subsidence.

This document serves as a Heritage Site Management Plan (HSMP) for the grave. The objective, purpose and aim of the HSMP is summarised as follows:

| | |
|------------------|--|
| Objective | Define management and mitigation measures for <i>in situ</i> conservation that aims to remove/reduce the risk to the heritage resource |
| Purpose | <p>The purpose of the HSMP is to:</p> <ol style="list-style-type: none"> 1. Recognise the cultural significance of the identified burial ground; 2. Acknowledge the sensitivities of the heritage resource; 3. Understand the potential risks to the resource from the organisations mining and mining related activities; and <p>Ensure the potential risks or manifested impacts to the resource are assessed, prioritised and controlled to a level that is acceptable to the various management structures.</p> |
| Scope | Applies to all Exxaro Matla Coal Mine employees, organisational units under Exxaro Matla Coal Mine's management control, as well as service providers and business partners. |

The heritage site location details are presented in the following table:

| | |
|--|--|
| Province | Mpumalanga Province |
| District Municipality | Gert Sibande District Municipality (GSDM) / Nkangala District Municipality (NDM) |
| Local Municipality | Emalahleni Local Municipality (ELM) |
| Nearest town | Rietspuit |
| Name of property/ies | The farm Rietvlei 62 IS Portion 3 |
| Maximum extent of heritage site | P1 Lat: -26.210360°, Long: 29.054419° P2 Lat: -26.210368°, Long: 29.054416° P3 Lat: -26.210374°, Long: 29.054438° P4 Lat: -26.210367°, Long: 29.054440° |
| Current use | Mining and agriculture |

Exxaro, as the custodian of the heritage site are responsible for the implementation of this HSMP. The various responsibilities and competencies include:

| Positions | Responsibility |
|--|---|
| Business Unit (BU) Manager | Ultimately responsible for the implementation of this HSMP in accordance with the legislative requirements, Exxaro policies, and defined scope of this HSMP. |
| Section Managers | Responsible for identifying risks ¹ applicable to their area of responsibility as it may relate to the grave and this HSMP. |
| | Ensuring identified risks for their area of responsibility as it may relate to the grave and this HSMP are mitigated and updated on a continuous basis. |
| | Ensuring this HSMP as it may be relevant to their area of responsibility is implemented and adhered to. |
| Manager: Mine 2 | Communication of the scope and procedures contained within this HSMP to support units within Exxaro Matla Coal Shaft 2 operations. |
| | Ensuring identified risks to the grave are captured and recorded in the SHE Risk/Impact Register. |
| | Ensuring this HSMP is implemented and adhered to at all time. |
| | Progress reporting as defined in this HSMP for submission to the relevant competent authorities. |
| Manager: Head, Wall Surface Infrastructure | Communication of the scope and procedures contained within this HSMP to support staff. |
| | Ensuring this HSMP is implemented and adhered to at all time. |
| | Responsible for identifying risks applicable to the grave and this HSMP that may manifest during short-wall mining activities. |
| Manager: Sustainability (Safety, Health and Environment) | Provide assistance to all managers regarding the compilation and maintenance of risk assessments in accordance with SP01 and as they may relate to the grave and this HSMP. |
| | Ensuring monitoring of the grave in accordance with the scope and procedures contained within this HSMP is implemented through auditing and visual inspections. |
| Environmental Rehabilitation Superintendent | Monitoring of the grave in accordance with the scope and procedures contained within this HSMP. |

¹ Please refer to the Exxaro Matla Coal SHEQ Risk Management Procedure (SP01)

| Positions | Responsibility |
|-----------|--|
| | Updating the “Measuring and Monitoring the Performance of Environmental” matrix to adhere to the scope and procedures in this HSMP. |
| | Ensuring progress reporting as defined in this HSMP for submission to the relevant competent authorities is completed and submitted on time. |

The preservation mechanism defined in this HSMP for implementation include:

| | |
|--------------------------------|---|
| Preventative protection | Clearly determine extent of the heritage site and delineate boundaries. |
| | Establish fencing with access gate to provide physical barrier. |
| | Place signage along access routes and adjacent to heritage site to warn of presence. |
| | Establish berms a minimum distance of 20 m surrounding the extent of the heritage site. |
| | Record baseline conditions for the effective monitoring of the potential effects subsidence from short wall mining methodologies. |
| | Establish monitoring procedure in line with the Exxaro “Measuring and Monitoring the Performance of Environmental” matrix. Monitoring must be measured against baseline conditions. |
| | Identify alternative routings to the heritage site. |
| | Place signage along access routes to inform heritage site users of alternative routing options and relevant contact information. |
| | Complete monthly maintenance to remove overgrowth and reduce intensity of natural degradation processes. |
| Monitoring² | Daily monitoring during earth moving activities. |
| | Weekly monitoring during short-wall mining activities. |
| | Monthly monitoring post mining activities for the first year and yearly there after |
| Progress Reporting | Completed on a monthly basis and distributed to the various management structures via the SAHRIS portal |

² Refer to Section 5.3 on page 20 for detailed procedures for recording of monitoring activities.

ACRONYMS AND GLOSSARY OF TERMS

| Abbreviation | Description |
|---------------|--|
| BGG | Burial Grounds and Graves |
| BU | Business Unit |
| CS | Cultural Significance |
| ELM | Emalahleni Local Municipality |
| ExCo | Executive Committee |
| Exxaro | Exxaro Coal Mpumalanga (Pty) Ltd |
| GSDM | Gert Sibande District Municipality |
| HSMP | Heritage Site Management Plan |
| MCCEBA | Mpumalanga Cemeteries, Crematoria and Exhumation of Bodies Act, 2005 (Act No. 8 of 2005) |
| MPRHA | Mpumalanga Provincial Heritage Resources Authority |
| NDM | Nkangala District Municipality |
| NHRA | National Heritage Resources Act, 1999 (Act No. 25 of 1999) |
| NoK | Next-of-Kin |
| SAHRA | South African Heritage Resources Agency |
| SAHRIS | South African Heritage Resources Information System |

| Term | Definition |
|-----------------------|---|
| Alter | Any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means. |
| Archaeological | 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 |

| Term | Definition |
|-----------------------------------|---|
| | 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. |
| Archaeologist | A trained professional who uses scientific methods to excavate record and study archaeological sites and deposits. |
| Conservation | In relation to heritage resources includes the protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance. |
| Cultural significance (CS) | <p>The aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. A heritage may have cultural significance or other special value because of its:</p> <ul style="list-style-type: none"> ▪ Importance in the community, or pattern of South Africa's history; ▪ Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage; ▪ Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; ▪ Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects; ▪ Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; ▪ Importance in demonstrating a high degree of creative or technical achievement at a particular period; ▪ Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; ▪ Strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and ▪ Significance relating to the history of slavery in South Africa. |
| Development | <p>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:</p> <ul style="list-style-type: none"> ▪ Construction, alteration, demolition, removal or change of use of a place or a structure at a place; ▪ Carrying out any works on or over or under a place; ▪ Subdivision or consolidation of land comprising, a place, including the structures or airspace of a place; ▪ Constructing or putting up for display signs or hoardings; ▪ Any change to the natural or existing condition or topography of land; and ▪ Any removal or destruction of trees, or removal of vegetation or topsoil. |
| Excavation | 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. |
| Field Rating | SAHRA requires heritage resources to be provisionally rated in accordance with Section 7 of the NHRA that provides a three tier grading system of resources |

| Term | Definition |
|-------------------------------------|--|
| | <p>that form part of the national estate. The rating system distinguishes between four categories:</p> <ul style="list-style-type: none"> Grade I: Heritage resources with qualities so exceptional that they are of special national significance; Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; Grade III: Other heritage resources worthy of conservation; and General Protected: i.e. generally protected in terms of Sections 33 to 37 of the NHRA. |
| General protection | <p>General protections are afforded to:</p> <ul style="list-style-type: none"> Objects protected in terms of laws of foreign states; Structures older than 60 years; Archaeological and palaeontological sites and material and meteorites; Burial grounds and graves; and Public monuments and memorials. |
| Grave | A place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. |
| Heritage resource | Any place or object of cultural significance. |
| Heritage site | 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. |
| Living / intangible heritage | The intangible aspects of inherited culture that could include cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems, the holistic approach to nature, society and social relationships. |
| Management | In relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of the NHRA. |
| National estate | <p>The national estate as defined in Section 3 of the NHRA, i.e. heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations. The national estate may include:</p> <ul style="list-style-type: none"> Places, buildings, structures and equipment of cultural significance; Places to which oral traditions are attached or which are associated with living heritage; Historical settlements and townscapes; Landscapes and natural features of cultural significance; Geological sites of scientific or cultural importance; Archaeological and palaeontological sites; Graves and burial grounds, including ancestral graves, royal graves and graves of traditional leaders, graves of victims of conflict, graves of individuals designated by the Minister by notice in the Gazette, historical graves and cemeteries, and other human remains which are not covered in terms of the National Health Act, 2003 (Act No. 61 of 2003) Sites of significance relating to the history of slavery in South Africa; Movable objects, including objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and |

| Term | Definition |
|---|--|
| | <p>material, meteorites and rare geological specimens; objects to which oral traditions are attached or which are associated with living heritage; ethnographic art and objects; military objects; objects of decorative or fine art; objects of scientific or technological interest; and</p> <ul style="list-style-type: none"> Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996). |
| Phase 3 Management Plan / Conservation Management Plan (CMP) | <p>On occasion, a site may require a Phase 3 programme involving the modification of the site or the incorporation of the site into the development itself as a site museum, a special conservation area or a display. Alternatively it is often possible to relocate or plan the development in such a way as to conserve the archaeological site or any other special heritage significance the place may have. For example, in a wilderness area or open space when sites are of public interest the development of interpretative material is recommended and adds value to the development. Permission for the development to proceed can be given only once the heritage resources authority is satisfied that measures are in place to ensure that the archaeological sites will not be damaged by the impact of the development or that they have been adequately recorded and sampled. Careful planning can minimise the impact of archaeological surveys on development projects by selecting options that cause the least amount of inconvenience and delay. The process as explained above allows the rescue and preservation of information relating to our past heritage for future generations. It balances the requirements of developers and the conservation and protection of our cultural heritage as required of SAHRA and the provincial heritage resources authorities (ASAPA).</p> |
| Place | <p>A place includes: a site, area or region; a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure; a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures; an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.</p> |
| Presentation | <p>In relation to a heritage resource, site or place includes: the exhibition or display of; the provision of access and guidance to; the provision, publication or display of information in relation to; and performances or oral presentations related to, heritage resources protected in terms of the NHRA.</p> |
| Provisional protection | <p>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.</p> |
| Site | <p>Any area of land, including land covered by water, and including any structures or objects thereon.</p> |
| Stop work order | <p>An order served on a person by the Minister on advice of SAHRA or MEC to immediately cease all work in and around a heritage site for a period not exceeding 10 years. The order attaches to land is binding on the current owner and any future owner.</p> |

| Term | Definition |
|--------------------------|--|
| Tangible heritage | Physical heritage resources such as archaeological sites, historical buildings, burial grounds and graves, fossils, etc. Tangible heritage may be associated with intangible elements, e.g. the living cultural traditions, rituals and performances associated with burial grounds and graves and deceased persons. |

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Appendix A: Specialist CV

1 Introduction

Exxaro Coal Mpumalanga (Pty) Ltd (hereinafter Exxaro) intends to undertake short wall underground mining along coal seam 2 (Panel 20) at the Exxaro Matla Coal Mine's Shaft Number 2 operations. The mining method that is being used consists of total extraction with a consequence of this mining method being subsidence. Subsidence has been recorded after mining of coal seam 4 and occurring within the other areas within Exxaro Matla Coal Mine's Mining Right Area (MRA) where short wall mining methodologies have been implemented.

Recently, it has been recognised that a previously unrecorded grave of Helena Booyens is located in proximity to planned underground mining activities, and may be at risk of being impacted upon by possible subsidence. The short-wall panel will be mined at ~250 m advance per month. At present, the grave is situated approximately 610 m from the current face position. Based on the mining schedule, underground mining activities adjacent to/beneath the grave are planned to commence in the second quarter of 2017.

1.1 Document objective

The objective of this document is to define management and mitigation measures for *in situ* conservation that aims to remove/reduce the risk to the heritage resource (Refer to Section 2 below), Exxaro, subsidiary companies and service providers.

1.2 Purpose

The purpose of the Heritage Site Management Plan (HSMP) is to:

4. Recognise the cultural significance of the identified burial ground;
5. Acknowledge the sensitivities of the heritage resource;
6. Understand the potential risks to the resource from the organisations mining and mining related activities; and
7. Ensure the potential risks or manifested impacts to the resource are assessed, prioritised and controlled to a level that is acceptable to the various management structures (Refer to Section 3 below).

1.3 Scope

The scope applies to all Exxaro Matla Coal Mine employees, organisational units under Exxaro Matla Coal Mine's management control, as well as service providers and business partners.

1.4 Principles

The principles of this document are informed by the draft Exxaro Grave Relocation Policy and Stakeholder Communication Policy (SCA-POL-02). Principles include *inter alia*:

- Exxaro acknowledges that graves are special places that serve as a bridge to the past, memorialising deceased and serves as sacred places to remember and celebrate their lives;

- Grave relocation is inherently sensitive and must be approached with due sensitivity and respect. Exxaro is therefore obliged to follow an approach that is balanced between its requirements, respect for the deceased, family directives, cultural considerations and compliance with National, Provincial and local applicable laws;
- Exxaro will not exhume, or cause to exhume any grave without consent from *bona fide* Next-of-Kin (NoK) obtained through extensive consultation, proof of which will be submitted in support of applicable permit applications;
- In the event that NoK do not consent to grave relocation, Exxaro will:
 - Conduct impact assessments on such graves to assess for example: effect of mining around graves or undermining graves; effect of mitigation measures such as fencing graves off;
 - Periodical inspect *in situ* graves to monitor any damage, which if occurs will be repaired immediately;
 - Should Exxaro's Executive Committee (ExCo) determine that mitigation measures will not sufficiently protect graves, it may decide to implement grave relocation without the consent of NoK. Exxaro will develop a communication plan to explain its actions (Refer to SCA-POL-02);
- Exxaro management, other employees, service providers and business partners acknowledge the strategic value of branding and communication, the role they play in enhancing and protecting corporate reputation, and will display commitment and support for these initiatives; and
- Exxaro will:
 - Keep all stakeholders informed of major developments within the Group;
 - Provide timeous, honest, transparent and accurate information; and
 - Treat all stakeholders with dignity and respect.

2 Site definition

2.1 Description and significance

Guidance Note

Site descriptions and the ensuing discussions of Cultural Significance (CS) drive the management of the heritage sites. Management plans must include clear descriptions to the character and extent of the site and define the cultural significance built upon by verifiable sources, robust criteria and motivations.

2.1.1 Description

The heritage site comprises a single grave associated with the Booyens family. The grave at the time of identification was unmaintained and overgrown by vegetation. No evidence of maintenance of the grave was noted.

Surface dressings included a weathered tombstone. Inscribed texts were partially illegible. Deciphered text is presented below:

HIER RUS
HELENA (*Illegible*) BOOYENS
20 OKT 1852
OOR (*Illegible*) OKT 1934
RUS VEILIG IN JESUS ARM
(*Illegible*) MOEDER



Figure 2-1: Photograph of tombstone and inscription



Figure 2-2: Location of grave in the landscape

2.1.2 Evaluation of Cultural Significance

The significance rating process is designed to provide a numerical rating of the cultural significance³ of identified heritage resources. This process considers heritage resources assessment criteria set out in subsection 3(3) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA), which determines the intrinsic, comparative and contextual significance of identified heritage resources. The rationale behind the heritage value matrix takes into account the fact that a heritage resource's value is a direct indication of its sensitivity to change.

The matrix rates the potential, or importance, of an identified resource relative to its contribution to certain values – aesthetic, historical, scientific and social. The significance of a resource is directly related to the potential risks/impacts on it that may result from project-related activities, as it provides the minimum accepted levels of change to the resource.

The weight assigned to the various parameters for significance in the formula, significance ratings and recommended mitigation are presented in Table 2-1.

| Dimension | Attributes considered | NHRA Ref. |
|--------------------------------------|--|-----------|
| Aesthetic & technical | 1 Importance in aesthetic characteristics | S.3(3)(e) |
| | 2 Degree of technical / creative skill at a particular period | S.3(3)(f) |
| Historical importance & associations | 3 Importance to community or pattern in country's history | S.3(3)(a) |
| | 4 Site of significance relating to history of slavery | S.3(3)(i) |
| | 5 Association with life or work of a person, group or organisation of importance in the history of the country | S.3(3)(h) |
| Information potential | 6 Possession of uncommon, rare or endangered natural or cultural heritage aspects | S.3(3)(b) |
| | 7 Information potential | S.3(3)(c) |
| | 8 Importance in demonstrating principle characteristics | S.3(3)(d) |
| Social | 9 Association to community or cultural group for social, cultural or spiritual reasons | S.3(3)(g) |

Value = Importance x Integrity
where
Importance = average sum
of
Aesthetic + Historic + Scientific + Social

Figure 2-3: NHRA Section 3 criteria and formula to determine CS

³ Cultural significance is defined in the NHRA as the intrinsic “aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance” of a heritage resource. These attributes are combined and reduced to four themes used in the Digby Wells significance matrix: aesthetic, historical, scientific and social.

Table 2-1: Ratings and descriptions used in determining CS

| Rating | IMPORTANCE <i>A heritage resource's contribution to aesthetic, historic, scientific and social value</i> | INTEGRITY <i>The undivided or unbroken state, material wholeness, completeness or entirety of a resource or site</i> |
|---------------|---|--|
| - | Not assessed - dimension and/or attribute not considered in determining value. | |
| 0 | The resource exhibits attributes that may be considered in a particular dimension, but it is so poorly represented that it cannot or does not contribute to the resource's overall value. | No information potential, complete loss of meaning, fabric completely degraded, original setting lost. |
| 1 | Common, well represented throughout diverse cultural landscapes. | Fabric poorly preserved, limited information, little meaning ascribed, extensive encroachment on setting. |
| 2 | Generally well represented but exhibits superior qualities in comparison to other similar examples. | Fabric is preserved, some information potential (quality questionable) and meaning evident, some encroachment on setting. |
| 3 | The resource exhibits attributes that are rare and uncommon within a region. It is important to specific communities. | Fabric well preserved good quality information and meaning evident, limited encroachment. |
| 4 | Rare and uncommon, value of national importance. | Excellent preservation of fabric, high information potential of high quality, meaning is well established, no encroachment on setting. |
| 5 | The resource exhibits attributes that are considered singular, unique and/or irreplaceable to the degree that its significance can be universally accepted. | |

In accordance with the aforementioned methodology, the grave of Helena Booyens was assessed against the criteria contained with Section 3 of the NHRA as presented in Figure 2-3 and weightings as per Table 2-1.

Table 2-2: CS assessment and motivation

| Aesthetic | Historic | Scientific | Social | INTEGRITY | Designation | Recommended Field Rating |
|--|---|---|---|--|-----------------------|--------------------------|
| - Burial grounds and graves were not assessed against aesthetic criteria as defined in Section 3(3) of the NHRA | - Burial grounds and graves were not assessed against historic criteria as defined in Section 3(3) of the NHRA | - Burial grounds and graves were not assessed against scientific criteria as defined in Section 3(3) of the NHRA | 5 Burial grounds and graves have specific connections to communities or groups for spiritual reasons. The significance is universally accepted | 4 The integrity of burial grounds is considered to be excellent with both tangible and intangible fabric preserved. | Very High (20) | Grade I |

The assigned designation of very high CS requires that the grave be conserved *in situ* and managed through this HSMP (Table 2-2).

2.2 Delimitation

Guidance Note

The precise position and delimitation of a site are important. They define where and to what extent actions and restrictions that are part of the management programme will be applicable and facilitated.

The heritage site is situated on the farm Rietvlei 62 IS Portion 3 within Emalahleni Local Municipality (ELM), Mpumalanga Province (Figure 2-4). A summary of the location details is presented in Table 2-3. The distance of the heritage site from current and planned infrastructures is presented in Table 2-4

Table 2-3: Heritage site location summary

| | |
|--|--|
| Province | Mpumalanga Province |
| District Municipality | Gert Sibande District Municipality (GSDM) / Nkangala District Municipality (NDM) |
| Local Municipality | Emalahleni Local Municipality (ELM) |
| Nearest town | Rietspuit |
| Name of property/ies | The farm Rietvlei 62 IS Portion 3 |
| Maximum extent of heritage site | P1 Lat: -26.210360°, Long: 29.054419° P2 Lat: -26.210368°, Long: 29.054416° P3 Lat: -26.210374°, Long: 29.054438° P4 Lat: -26.210367°, Long: 29.054440° |
| Current use | Mining and agriculture |

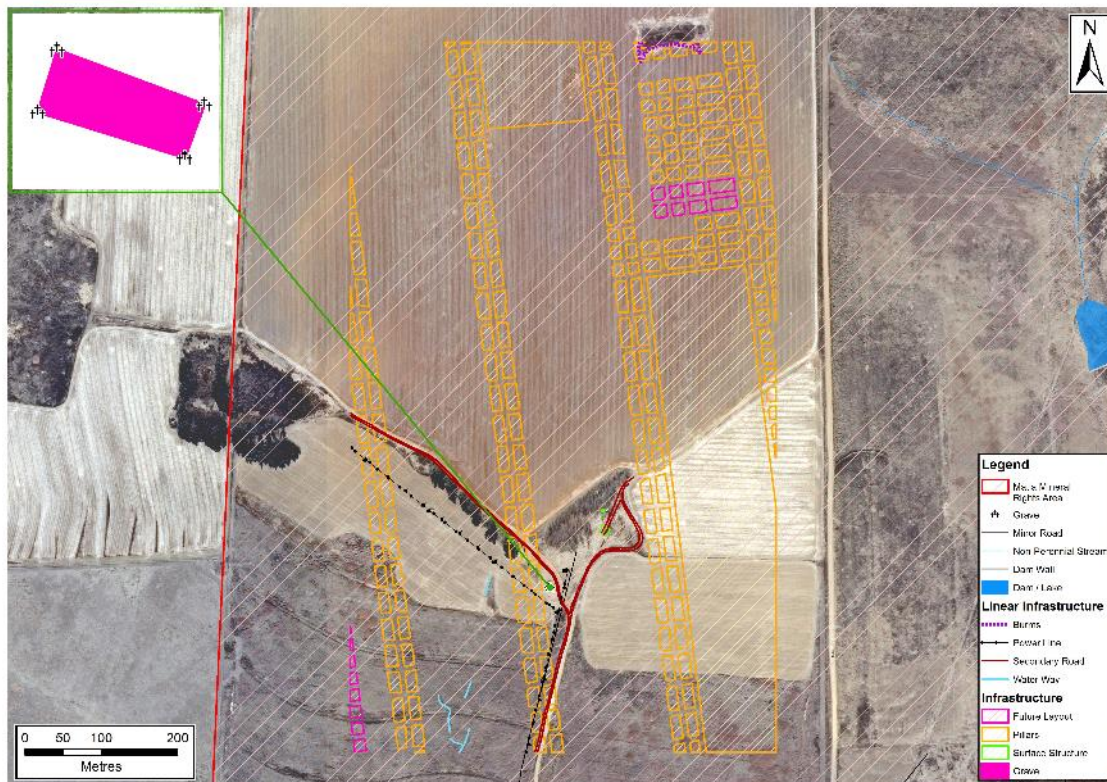
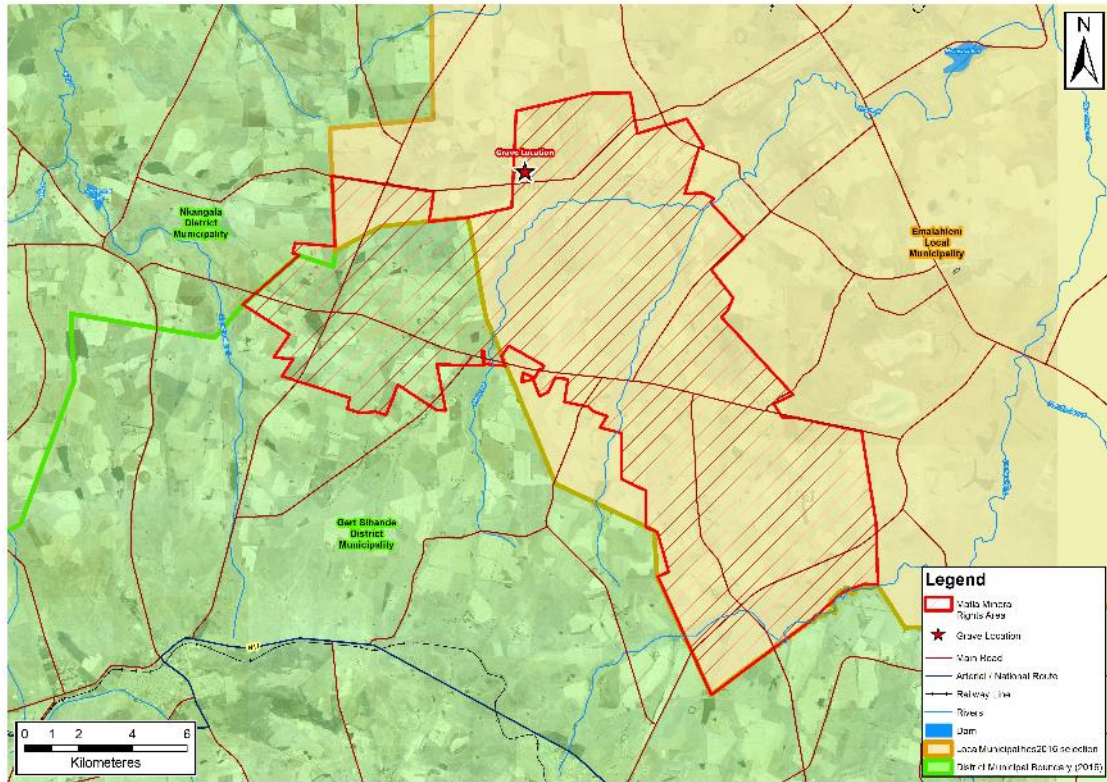


Figure 2-4: Heritage site location in relation to the Exxaro Matla Coal Mine MRA and immediate infrastructure

Table 2-4: Distance of heritage site from existing and future infrastructures

| Feature | Distance |
|-------------------------------|----------|
| Distance to Pillars | 10 m |
| Distance to Secondary Road | 8 m |
| Distance to Power Line | 17 m |
| Distance to Water Way | 81 m |
| Distance to Surface Structure | 97 m |
| Distance to Future Layout | 502 m |
| Distance to Berms | 700 m |

2.3 Ownership structures

Guidance Note

The ownership structure and organisational form of the operating entity must be explained with respect to proprietors and users.

Ownership of the graves resides with the *bona fide* NoK as defined in terms of Section 14(3)(e)(iii) of the Mpumalanga Cemeteries, Crematoria and Exhumation of Bodies Act, 2005 (Act No. 8 of 2005) (MCCEBA). These include in order of relevance:

1. The surviving spouse or partner of the deceased;
2. In the absences of a surviving spouse or partner, the eldest adult child of the deceased;
3. In the absence of an adult child, a parent of the deceased;
4. In the absence of a parent, an adult sibling of the deceased; and
5. In the absence of a sibling, the closest adult relative to the deceased.

In this instance, no *bona fide* NoK are known and Exxaro Matla Coal Mine as the landowners, are in consequence the custodians of the grave.

2.4 Access

Guidance Note

Access relates to the free movement of proprietors and users of the heritage site or the restriction of movement to the heritage site to manage identified risks and liabilities. The management plan must be developed to facilitate access to the best benefit of society.

The grave is situated adjacent to a freely accessible farm road off the regional R545 (Figure 2-4). During undermining activities the road will be diverted. Alternative routes to the heritage site must be defined or established to allow access (Potential alternative route presented in Figure 2-5). Furthermore, proactive fencing of the grave to minimise the potential for accidental

damage during earth moving activities includes a pedestrian gate to allow for free access to the heritage site.

Free movement of individuals to the grave is however, a concern in terms of the management of risks and liabilities to Exxaro. To give effect to the NHRA requirement to safeguard the CS of burial grounds and graves through sustainable use, Exxaro will implement remedial action that will enable access to the heritage site for living heritage purposes. Visitors to the heritage site will be obliged to adhere to Exxaro health and safety policies that are based on the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) (MHSA).

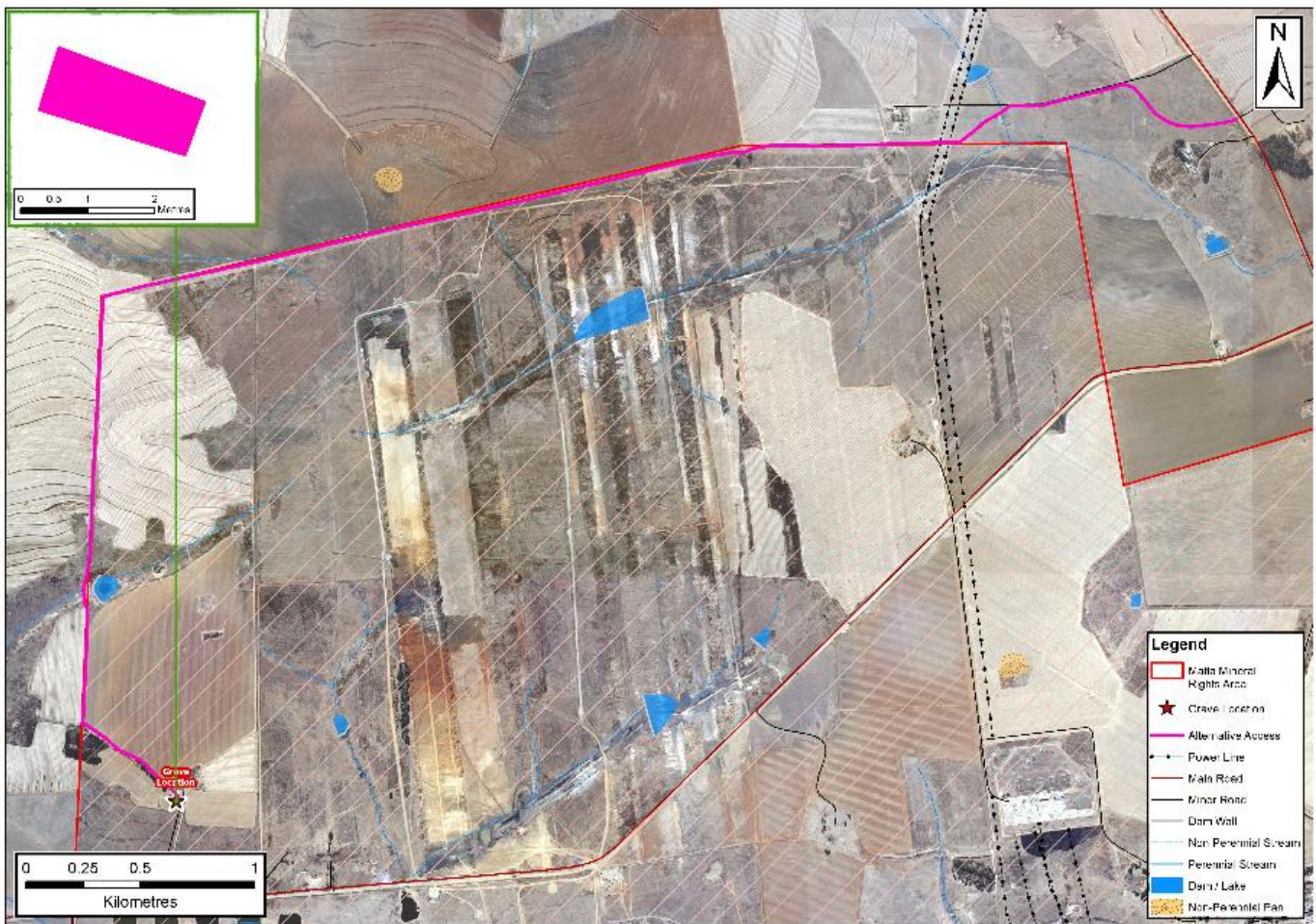


Figure 2-5: Potential alternative access route to the heritage site

3 Management structures

Guidance Note

Implementation of an HSMP requires co-operation between several entities that have bearing on the way various interests and policy objectives are implemented. These need to be captured in an HSMP to define competencies, responsibilities and modalities of co-ordination. The site management plan should contain a description of all these entities as well as a binding agreement of their competences and responsibilities in the context of the plan.

3.1 Legal status of entities

The entities applicable to the implementation of the HSMP are detailed in Table 3-1.

Table 3-1: Entities applicable to implementation

| Entity | Role | Competencies |
|--|-----------------------------------|-------------------------------------|
| NoK (Refer to 2.3 above) | Owner | N/A |
| Exxaro Matla Coal Mine | Implementation | N/A |
| Exxaro Coal Mpumalanga (Pty) Ltd | Custodian | N/A |
| South African Heritage Resources Agency (SAHRA) | Competent authority | NHRA NHRA Regulations (GN R 548) |
| Mpumalanga Provincial Heritage Resources Authority (MPRHA) | Commenting authority ⁴ | SAHRA Minimum Standards (2007) |

3.2 Competences and responsibilities

The *bona fide* NoK are ultimately responsible for the maintenance of the grave (Refer to 2.3 above). In their absence, Exxaro as the current landowner is the custodian, ultimately responsible for its conservation and ethical management of the grave. A representation of the hierarchical organisational structure of Exxaro Matla Coal Mine, as the implementer of the HSMP, is presented in Figure 3-1. The associated responsibilities are contained in Table 3-2.

SAHRA, specifically the Burial Grounds and Graves (BGG) Unit is the competent authority responsible for the regulation of the HSMP in terms of the national legislative framework. The NHRA states:

36(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make the necessary arrangement for their conservation as they see fit.

⁴ At the time of compilation of this HSMP, MPRHA has not been assessed as competent to manage NHRA Section 36 heritage resources, i.e. burial grounds and graves. The HSMP will be submitted to MPRHA for noting and comment only.

This HSMP, including all progress reporting, will be submitted to the SAHRA BGG Unit in accordance with the scope and procedures contained herein.

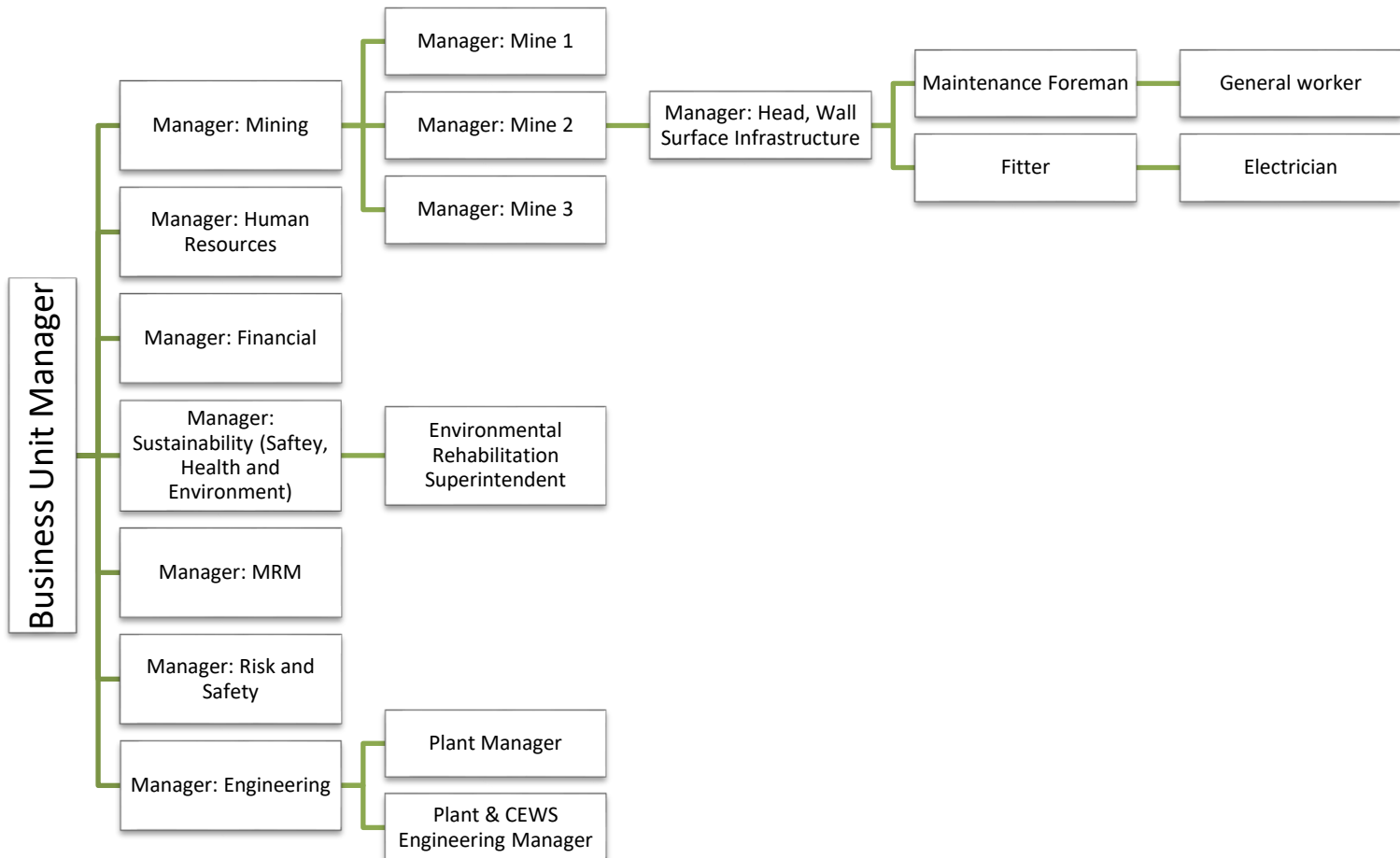


Figure 3-1: Exxaro Matla Coal Mine organisational structure

Table 3-2: Responsibilities of Exxaro Matla Coal Mine

| Positions | Responsibility |
|----------------------------|--|
| Business Unit (BU) Manager | Ultimately responsible for the implementation of this HSMP in accordance with the legislative requirements, Exxaro policies, and defined scope of this HSMP. |

| Positions | Responsibility |
|--|---|
| Section Managers | Responsible for identifying risks ⁵ applicable to their area of responsibility as it may relate to the grave and this HSMP. |
| | Ensuring identified risks for their area of responsibility as it may relate to the grave and this HSMP are mitigated and updated on a continuous basis. |
| | Ensuring this HSMP as it may be relevant to their area of responsibility is implemented and adhered to. |
| Manager: Mine 2 | Communication of the scope and procedures contained within this HSMP to support units within Exxaro Matla Coal Mine Shaft Number 2 operations. |
| | Ensuring identified risks to the grave are captured and recorded in the SHE Risk/Impact Register. |
| | Ensuring this HSMP is implemented and adhered to at all time. |
| | Progress reporting as defined in this HSMP for submission to the relevant competent authorities. |
| Manager: Head, Wall Surface Infrastructure | Communication of the scope and procedures contained within this HSMP to support staff. |
| | Ensuring this HSMP is implemented and adhered to at all time. |
| | Responsible for identifying risks applicable to the grave and this HSMP that may manifest during short-wall mining activities. |
| Manager: Sustainability (Safety, Health and Environment) | Provide assistance to all managers regarding the compilation and maintenance of risk assessments in accordance with SP01 and as they may relate to the grave and this HSMP. |
| | Ensuring monitoring of the grave in accordance with the scope and procedures contained within this HSMP is implemented through auditing and visual inspections. |
| Environmental Rehabilitation Superintendent | Monitoring of the grave in accordance with the scope and procedures contained within this HSMP. |
| | Updating the "Measuring and Monitoring the Performance of Environmental" matrix to adhere to the scope and procedures in this HSMP. |
| | Ensuring progress reporting as defined in this HSMP for submission to the relevant competent authorities is completed and submitted on time. |

⁵ Please refer to the Exxaro Matla Coal SHEQ Risk Management Procedure (SP01)

3.3 Coordination mechanism between entities

The South African Heritage Resources Information System (SAHRIS⁶) platform will be the primary co-ordination mechanism between the various entities. The SAHRIS platform is in the public domain and will allow for process transparency.

All documentation, including the HSMP, progress reporting and correspondence will be captured under the unique SAHRIS Case ID.

⁶ www.sahra.org.za/sahris/

4 Principles for planning and actions

4.1 Objectives, targets and strategies

Guidance Note

Principles for planning and actions are anchored in general strategies and policies. These will have specific targets that should be defined and met through the implementation of the HSMP. What is best for a heritage site considering the specific, defined CS and the opportunities is the main objective of any HSMP. Several aspects, such as preservation, access, provisions for science and research should be integrated with this objective, as well as a vision for the future and sustainable use.

The principles for planning and actions are directly correlated to and guided by defined objectives, targets and strategies. Commensurate to this HSMP, the following objectives, targets and strategies are applicable:

Table 4-1: Objectives, targets and strategies

| Objective | Target | Strategy |
|--|---|---|
| <p>To comply with the requirements of the national legislative framework, with specific reference to the NHRA in terms of Section 36(3) where no person may, without a permit issued by SAHRA</p> <ul style="list-style-type: none"> (b) destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. | <ul style="list-style-type: none"> <i>In situ</i> conservation of the grave; Identification of risks; Proactive management of identified risks; Monitoring of the grave; and Management of manifested risks. | <p>Develop an HSMP for approval by the competent authority.</p> |
| To safeguard tangible cultural heritage. | | <p>Implement scope and procedures defined in the HSMP (Refer to 5 below).</p> |
| To facilitate sustainable use of the heritage site. | | |

4.2 Masterplan of action

Guidance Note

All completed and planned actions should be listed in relation to the defined objectives to guide decision making processes of competent authorities. The masterplan is not static and should be continuously reviewed and updated to remain applicable to changes and developments.

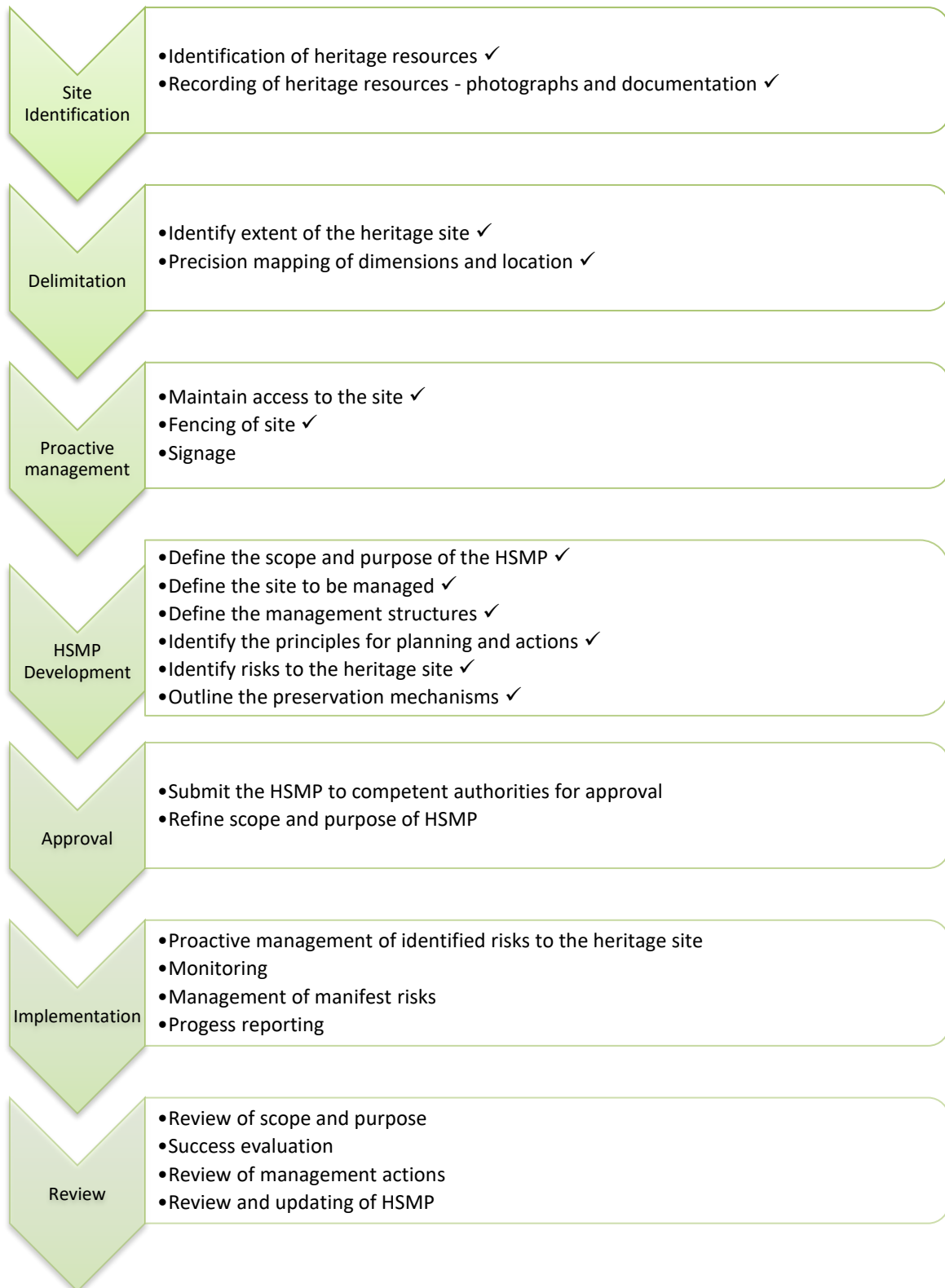


Figure 4-1: Masterplan of Action

5 Preservation mechanism

Guidance Note

Preservation, as the broadest objective of a site management plan, is undertaken for specific purposes that must consider all aspects. A site management plan must aim to balance the benefits of preservation with acceptable levels of degradation.

Commensurate to the objectives of this HSMP (Refer to 4.1 above) preservation mechanisms include *inter alia*:

- Preventative protection;
- Monitoring;
- Progress reporting; and
- Reactive management (*if identified risks manifest*).

To develop appropriate preservation mechanisms, potential current and future risks must be identified and recorded within the existing Exxaro instruments (Refer to 3.2 above and the Exxaro Matla Coal SHEQ Risk Management Procedure (SP01)).

5.1 Current and future risks⁷

Guidance Note

Current and future threats to heritage sites must be identified, defined and assessed. The site management plan must aim at balancing risks with preservation to ensure threats become opportunities.

This section describes the identified risks to the heritage site, and the potential impacts if manifested. A description and assessment of the potential impacts per identified risk, as well as the consequence of each is summarised in Table 5-1.

This HSMP aims at balancing the preservation of the heritage site *in situ* against the identified risks and potential impacts. Various preservation mechanisms are identified for implementation. These are discussed separately under Sections 5.2, 5.3 and 5.4 below.

⁷

Table 5-1: Identified and future risks, potential impacts and assessment

| Risk | Description | Potential Impact | Assessment |
|--------------------------------|---|------------------|---|
| Earth moving activities | Earth moving activities on the surface above short wall mining panels | Damage | Potential damage to the grave, highly unlikely when considering preventative protection measures (Refer to 5.2 below), will be short-term as it will be mitigated through the implementation of this HSMP. If manifested, it will require the involvement of SAHRA as the competent authority. |
| | | | Consequence ⁸ : Moderately detrimental. |
| | | Destruction | Potential destruction of the grave, highly unlikely when considering preventative protection measures (Refer to 5.2 below), will be permanent. If manifested, it will require the involvement of SAHRA as the competent authority and may have international reputational repercussions. |
| | | | Consequence: Extremely detrimental |
| Short wall mining – subsidence | Subsidence of undermined areas | Damage | Potential damage to the grave, unlikely when considering the location of the grave in relation to short wall mining activities, will be short-term as it will be mitigated through the implementation of this HSMP. If manifested, it will require the involvement of SAHRA as the competent authority. |
| | | | Consequence: Highly detrimental |
| | | Destruction | Potential destruction of the grave, unlikely when considering the location of the grave in relation to short wall mining activities, will be permanent. If manifested, it will |

⁸ The impact to a resource is directly related to the designated CS, as it provides minimum accepted levels of change to the resource.

| Risk | Description | Potential Impact | Assessment |
|-------------------|---|-------------------|--|
| | | | require the involvement of SAHRA as the competent authority and may have international reputational repercussions. |
| | | | Consequence: Extremely detrimental |
| Restricted access | Full restriction of access to the heritage site | Degradation of CS | Potential degradation of the intrinsic CS of the grave through full restricted access to the heritage site is highly unlikely when considering current and future planned access (Refer to 2.4 above). If manifested, it will be limited to the duration of the project and limited to the extent of the heritage site. This may however, require the involvement of SAHRA as the competent authority. |
| | | | Consequence: Moderately detrimental |

5.2 Preventative protection

Guidance Note

Preventative protection has important implications to the implementation of site management and future planning. These measures protectively cover the most vulnerable components to prevent degradation of the heritage site from identified risks. These measures must aim at improving the conditions for preservation that can be adapted and refined through time.

Preventative protection measures for implementation in line with the scope of this HSMP are presented in Table 5-2.

Table 5-2: Preventative protection measures⁹

| Objective | Action | Status |
|--|--|----------|
| Avoid accidental damage or destruction of the heritage site during earth moving activities | Clearly determine extent of the heritage site and delineate boundaries. | Complete |
| | Establish fencing with access gate to provide physical barrier. | Complete |
| | Place signage along access routes and adjacent to heritage site to warn of presence. | TBC |
| | Establish berms a minimum distance of 20 m surrounding the extent of the heritage site. | TBC |
| Avoid accidental damage or destruction of the heritage site during short wall mining | Record baseline conditions for the effective monitoring of the potential effects subsidence from short wall mining methodologies. | Complete |
| | Establish monitoring procedure in line with the Exxaro “Measuring and Monitoring the Performance of Environmental” matrix (Refer to 5.3 below). Monitoring must be measured against baseline conditions. | TBC |
| Avoid degradation of the intrinsic CS of the heritage site. | Identify alternative routings to the heritage site. | TBC |
| | Place signage along access routes to inform heritage site users of alternative routing options and relevant contact information. | TBC |
| | Complete monthly maintenance to remove overgrowth and reduce intensity of natural degradation processes. | TBC |

5.3 Monitoring

Guidance Note

A site management plan cannot be static and must be conceived in terms of a cycle. Defined measures must be implemented, evaluated, reviewed, and if necessary altered or withdrawn. Monitoring should target specific issues, measure specific parameters of change or react to specific events. Monitoring should be measured against recorded baseline conditions.

Monitoring measures in terms of this HSMP must be aligned with the Exxaro “Measuring and Monitoring the Performance of Environmental” matrix. An extract of the aforementioned matrix as relevant to the heritage site is presented in Table 5-3.

⁹ Cf SP01 and SP09. Planned controls to prevent occurrence will be prioritised and implement. In the prioritisation, the organisation will take into account the potential risk reduction of the planned controls.

Table 5-3: Heritage site monitoring

| ENVIRONMENTAL | | | | | |
|--------------------------|--|--|----------------------------------|-----------------------------------|--|
| Environmental aspect | Area / process / activity | Responsible for monitoring and measuring | Frequency | Proactive or reactive measurement | Method |
| Heritage – Heritage Site | Coal Seam 2 Panel 20 Earth moving activities | Environmental Rehabilitation Superintendent | Daily | Proactively | <ul style="list-style-type: none"> Environmental rehabilitation superintendent to supervise earth moving activities within 100 m of the extent of the heritage site; and Earth moving activities will be recorded through photographs. |
| Heritage – Heritage Site | Coal Seam 2 Panel 20 Earth moving activities | Environmental Rehabilitation Superintendent | Daily | Reactively | <ul style="list-style-type: none"> If risks are manifested: <ol style="list-style-type: none"> Cease all works immediately; Report incident to the Sustainability Manager; Contact an archaeologist to inspect the site; Report incident to the competent authority; and Employ reasonable mitigation measures in accordance with the requirements of the NHRA, NHRA Regulations and SAHRA Minimum Standards. Only recommence operations once impacts have been mitigated. |
| Heritage – Heritage Site | Coal Seam 2 Panel 20 Short Wall mining activities | Environmental Rehabilitation Superintendent / Chief Surveyor | Weekly | Proactively | <ul style="list-style-type: none"> Measure levels of subsidence and compare with recorded baseline conditions; Status quo will be recorded through photographs; Results will be maintained; and Results will be reported in the progress reporting. |
| | | Archaeologist | Monthly during mining activities | | <ul style="list-style-type: none"> Visually assess the status quo; Review monitoring results against baseline conditions. |

ENVIRONMENTAL

| Environmental aspect | Area / process / activity | Responsible for monitoring and measuring | Frequency | Proactive or reactive measurement | Method |
|--------------------------|---|--|---|-----------------------------------|---|
| Heritage – Heritage Site | Coal Seam 2 Panel 20 Short Wall mining activities | Environmental Rehabilitation Superintendent | Weekly | Reactively | <ul style="list-style-type: none"> If risks are manifested: <ol style="list-style-type: none"> Cease all works immediately; Report incident to the SHE Manager; Contact an archaeologist to inspect the site; Report incident to the competent authority; and Employ reasonable mitigation measures in accordance with the requirements of the NHRA, NHRA Regulations and SAHRA Minimum Standards. Only recommence operations once impacts have been mitigated. |
| Heritage – Heritage Site | Coal Seam 2 Panel 20 Post mining | Environmental Rehabilitation Superintendent / Chief Surveyor | Monthly – first year Yearly thereafter | Proactively | <ul style="list-style-type: none"> Measure levels of subsidence and compare with recorded baseline conditions; Status quo will be recorded through photographs; Results will be maintained; and Results will be reported in the progress reporting. |
| | | Archaeologist | Quarterly – first year Yearly thereafter | Proactively | <ul style="list-style-type: none"> Visually assess the status quo; Review monitoring results against baseline conditions. |
| Heritage – Heritage Site | Coal Seam 2 Panel 20 Post mining | Environmental Rehabilitation Superintendent | Monthly | Reactively | <ul style="list-style-type: none"> If risks are manifested: <ol style="list-style-type: none"> Report incident to the Sustainability Manager; Contact an archaeologist to inspect the site; Report incident to the competent authority; and Employ reasonable mitigation measures in accordance with the requirements of the NHRA, NHRA Regulations and SAHRA Minimum Standards. |

5.4 Progress reporting

Guidance Note

Progress reporting should present details to the status quo, state of degradation or stability to guide proactive management measures and competent authority decisions. Progress reporting is important as it correlates baseline conditions to the effectiveness of measures contained in the site management plan.

Progress reporting must be completed on a monthly basis and distributed to the various management structures via the SAHRIS portal (Refer to 3.3 above). Progress reporting will be undertaken in accordance with the competences and responsibilities as defined in 3.2.

6 Awareness

Guidance Note

The site management plan must make provision for the dissemination of information to the public. Means of communication may vary considerably across various platforms. Nonetheless, information pertaining to the heritage site and the proposed management thereof must be freely available.

The HSMP will be publically available via the SAHRIS portal (Refer to Section 3.3 above). Furthermore, awareness of the site will be created through appropriate signage along various access routes and at the heritage site (Table 5-2).

Stakeholder engagement will be completed in accordance with the principles and procedures contained in SCA-POL-02.

7 Resources

Guidance Note

A site management plan must detail the resources required for its implementation. Resources from other entities that promote the management objectives and actions should be listed.

The HSMP will be implemented by the employees of the Exxaro Matla Coal Mine's Shaft Number 2 operations and in line with the management structure presented in Figure 3-1 and competences and responsibilities defined in Table 3-2.

In accordance with the reactive measures defined in Table 5-3, in the event of risk manifesting, the services of a qualified and accredited archaeologist will be enlisted.

8 Sustainable use and vision for the future

Guidance Note

A site management plan must adapt through time to meet the specific requirements for the continued use of the heritage site and benefits for society.

Exxaro will endeavour to maintain *in situ* conservation of the heritage site throughout the project life, and promote the sustainable use thereof via the various measures contained in this HSMP (Refer to Section 5 above).

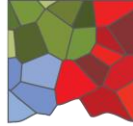
Heritage Site Management Plan

Exxaro Matla Coal Mine: Grave Management Plan Matla Mine 2

EXX4610



Appendix A: Specialist CV



DIGBY WELLS

ENVIRONMENTAL

Mr. Justin du Piesanie

Manager: Heritage Resources Management

Social and Heritage Services Department

Digby Wells Environmental

1 Education

| Date | Degree(s) or Diploma(s) obtained | Institution |
|------|--|---|
| 2015 | Continued Professional Development, Intermediate Project Management Course | PM.Ideas: A division of the Mindset Group |
| 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 |
|-----------------|--|---|
| 2016 to present | Digby Wells Environmental | Unit Manager: Heritage Resources Management |
| 2011-2016 | Digby Wells Environmental | Heritage Management Consultant: Archaeologist |
| 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 Experience

I joined the company in August 2011 as an archaeologist and was subsequently made unit manager in the Social and Heritage Services Department in 2016. I obtained my Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. I further 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. I am a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. I am also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. I have over 10 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, and NHRA Section 34 application processes. I gained further generalist experience since my appointment at Digby Wells in Botswana, Burkina Faso, the Democratic Republic of Congo, Liberia and Mali on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, I have acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. My current focus at Digby Wells is to develop the HRM process as an integrated discipline following international HRM principles and standards. This approach aims to provide clients with comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving strategic objectives.

5 Project Experience

Please see the following table for relevant project experience:

| Project Title | Project Location | Date: | Description of the Project | Name of Client |
|---|--|-----------|----------------------------------|---------------------------------|
| Klipriviersberg Archaeological Survey | Meyersdal, Gauteng, South Africa | 2005 2006 | Archaeological surveys | ARM |
| Sun City Archaeological Site Mapping | Sun City, Pilanesberg, North West Province, South Africa | 2006 2006 | Phase 2 Mapping | Sun International |
| Witbank Dam Archaeological Impact Assessment | Witbank, Mpumalanga, South Africa | 2007 2007 | Archaeological survey | ARM |
| Archaeological Assessment of Modderfontein AH Holdings | Johannesburg, Gauteng, South Africa | 2008 2008 | Heritage Basic Assessment | ARM |
| Heritage Assessment of Rhino Mines | Thabazimbi, Limpopo Province, South Africa | 2008 2008 | Heritage Impact Assessment | Rhino Mines |
| Cronimet Project | Thabazimbi, Limpopo Province, South Africa | 2008 2008 | Archaeological surveys | Cronimet |
| Eskom Thohoyandou SEA Project | Limpopo Province, South Africa | 2008 2008 | Heritage Statement | Eskom |
| Wenzelrust Excavations | Shoshanguve, Gauteng, South Africa | 2009 2009 | Phase 2 Excavations | Heritage Contracts Unit |
| University of the Witwatersrand Parys LIA Shelter Project | Parys, Free State, South Africa | 2009 2009 | Phase 2 Mapping | University of the Witwatersrand |
| Transnet NMPP Line | Kwa-Zulu Natal, South Africa | 2010 2010 | Heritage survey | Umlando Consultants |
| Archaeological Impact Assessment – Witpoortjie Project | Johannesburg, Gauteng, South Africa | 2010 2010 | Archaeological Impact Assessment | ARM |
| Der Brochen Archaeological Excavations | Steelpoort, Mpumalanga, South Africa | 2010 2010 | Phase 2 Excavations | Heritage Contracts Unit |
| De Brochen and Booyensdal Archaeology Project | Steelpoort, Mpumalanga, South Africa | 2010 2010 | Phase 2 Mapping | Heritage Contracts Unit |
| Eskom Thohoyandou Electricity Master Network | Limpopo Province, South Africa | 2010 2010 | Heritage Statement | Strategic Environmental Focus |
| Bathlako Mine Expansion | North-West Province, South Africa | 2010 2010 | Phase 2 Mapping | Heritage Contracts Unit |
| Kibali Gold Project Grave Relocation Plan | Oriental Province, Democratic Republic of Congo | 2011 2013 | Grave Relocation | Randgold Resources |
| Kibali Gold Hydro-Power Project | Oriental Province, Democratic Republic of Congo | 2012 2014 | Heritage Impact Assessment | Randgold Resources |
| Everest North Mining Project | Steelpoort, Mpumalanga, South Africa | 2012 2012 | Heritage Impact Assessment | Aquarius Resources |
| Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline | Gauteng, South Africa | 2012 2012 | Heritage Impact Assessment | Gold One International |
| Platreef Burial Grounds and Graves Survey | Mokopane, Limpopo Province, South Africa | 2012 2012 | Burial Grounds and Graves Survey | Platreef Resources |
| Resgen Boikarabelo Coal Mine | Limpopo Province, South Africa | 2012 2012 | Phase 2 Excavations | Resources Generation |
| Bokoni Platinum Road Watching Brief | Burgersfort, Limpopo Province, South Africa | 2012 2012 | Watching Brief | Bokoni Platinum Mine |

| Project Title | Project Location | Date: | Description of the Project | Name of Client |
|---|--|-----------|-----------------------------------|-----------------------------|
| SEGA Gold Mining Project | Burkina Faso | 2012 2013 | Socio Economic and Asset Survey | Cluff Gold PLC |
| SEGA Gold Mining Project | Burkina Faso | 2013 2013 | Technical Reviewer | Cluff Gold PLC |
| Consbrey and Harwar Collieries Project | Breyton, Mpumalanga, South Africa | 2013 2013 | Heritage Impact Assessment | Msobo |
| New Liberty Gold Project | Liberia | 2013 2014 | Grave Relocation | Aureus Mining |
| Falea Uranium Mine Environmental Assessment | Falea, Mali | 2013 2013 | Heritage Scoping | Rockgate Capital |
| Putu Iron Ore Mine Project | Petroken, Liberia | 2013 2014 | Heritage Impact Assessment | Atkins Limited |
| Sasol Twistdraai Project | Secunda, Mpumalanga, South Africa | 2013 2014 | Notification of Intent to Develop | ERM Southern Africa |
| Daleside Acetylene Gas Production Facility | Gauteng, South Africa | 2013 2013 | Heritage Impact Assessment | ERM Southern Africa |
| Nzoro 2 Hydro Power Project | Orientele Province, Democratic Republic of Congo | 2014 2014 | Social consultation | Randgold Resources |
| Eastern Basin AMD Project | Springs, Gauteng, South Africa | 2014 2014 | Heritage Impact Assessment | AECOM |
| Soweto Cluster Reclamation Project | Soweto, Gauteng, South Africa | 2014 2014 | Heritage Impact Assessment | Ergo (Pty) Ltd |
| Klipspruit South Project | Ogies, Mpumalanga, South Africa | 2014 2014 | Heritage Impact Assessment | BHP Billiton |
| Klipspruit Extension: Weltevreden Project | Ogies, Mpumalanga, South Africa | 2014 2014 | Heritage Impact Assessment | BHP Billiton |
| Ergo Rondebult Pipeline Basic Assessment | Johannesburg, South Africa | 2014 2014 | Heritage Basic Assessment | Ergo (Pty) Ltd |
| Kibali ESIA Update Project | Orientele Province, Democratic Republic of Congo | 2014 2014 | Heritage Impact Assessment | Randgold Resources |
| GoldOne EMP Consolidation | Westonaria, Gauteng, South Africa | 2014 2014 | Gap analysis | Gold One International |
| Yzermitte PIA | Wakkerstroom, Mpumalanga, South Africa | 2014 2014 | Palaeontological Assessment | EcoPartners |
| Sasol Mooikraal Basic Assessment | Sasolburg, Free State, South Africa | 2014 2014 | Heritage Basic Assessment | Sasol Mining |
| Everest North Mining Project | Steelpoort, Mpumalanga, South Africa | 2012 2015 | Heritage Impact Assessment | Aquarius Resources |
| Oakleaf ESIA Project | Bronkhorstspuit, Gauteng, South Africa | 2014 2015 | Heritage Impact Assessment | Oakleaf Investment Holdings |
| Rea Vaya Phase II C Project | Johannesburg, Gauteng, South Africa | 2014 2014 | Heritage Impact Assessment | ILISO Consulting |
| Imvula Project | Kriel, Mpumalanga, South Africa | 2014 2015 | Heritage Impact Assessment | Ixia Coal |
| Sibanye WRTRP | Gauteng, South Africa | 2014 2016 | Heritage Impact Assessment | Sibanye |
| VMIC Vanadium EIA Project | Mokopane, Limpopo, South Africa | 2014 2015 | Heritage Impact Assessment | VM Investment Company |



| Project Title | Project Location | Date: | Description of the Project | Name of Client |
|---|---|-----------|--|-----------------------------------|
| NLGM Constructed Wetlands Project | Liberia | 2015 2015 | Heritage Impact Assessment | Aureus Mining |
| ERPM Section 34 Destruction Permits Applications | Johannesburg, Gauteng, South Africa | 2015 2015 | Section 34 Destruction Permit Applications | Ergo (Pty) Ltd |
| JMEP II EIA | Botswana | 2015 2015 | Heritage Impact Assessment | Jindal |
| Gino's Building Section 34 Destruction Permit Application | Johannesburg, Gauteng, South Africa | 2015 2016 | Heritage Impact Assessment and Section 34 Destruction Permit Application | Bigen Africa Services (Pty) Ltd |
| EDC Block Refurbishment Project | Johannesburg, Gauteng, South Africa | 2015 2016 | Heritage Impact Assessment and Section 34 Permit Application | Bigen Africa Services (Pty) Ltd |
| Namane IPP and Transmission Line EIA | Steenbokpan, Limpopo Province, South Africa | 2015 2016 | Heritage Impact Assessment | Namane Resources (Pty) Ltd |
| Temo Coal Road Diversion and Rail Loop EIA | Steenbokpan, Limpopo Province, South Africa | 2015 2016 | Heritage Impact Assessment | Namane Resources (Pty) Ltd |
| Groningen and Inhambane PRA | Limpopo Province, South Africa | 2016 2016 | Heritage Basic Assessment | Rustenburg Platinum Mines Limited |
| NTEM Iron Ore Mine and Pipeline Project | Cameroon | 2014 2016 | Technical Review | IMIC plc |
| Palmietkuilen MRA | Springs, Gauteng, South Africa | 2016 2016 | Heritage Impact Assessment | Canyon Resources (Pty) Ltd |
| Copper Sunset Sand Mining S.102 | Free State, South Africa | 2016 2016 | Heritage Basic Assessment | Copper Sunset Sand (Pty) Ltd |
| Exxaro Belfast GRP | Belfast, Mpumalanga, South Africa | 2013 2017 | Grave Relocation | Exxaro |
| Grootvlei MRA | Springs, Gauteng, South Africa | 2016 2016 | Notification of Intent to Develop | Ergo (Pty) Ltd |
| Lambda EMP | Mpumalanga, South Africa | 2016 2016 | Palaeontological Impact Assessment | Eskom Holdings SOC Limited |
| Kilbarchan Basic Assessment and EMP | Newcastle, KwaZulu-Natal, South Africa | 2016 2016 | Heritage Basic Assessment | Eskom Holdings SOC Limited |
| Grootegeeluk Amendment | Lephalale, Limpopo Province, South Africa | 2016 2016 | Notification of Intent to Develop | Exxaro |
| Eskom Northern KZN Strengthening | KwaZulu-Natal, South Africa | 2016 2017 | Heritage Impact Assessment | ILISO Consulting |
| Garsfontein Township Development | Pretoria, Gauteng, South Africa | 2016 2016 | Notification of Intent to Develop | Leungo Construction Enterprises |

| Project Title | Project Location | Date: | Description of the Project | Name of Client |
|------------------------------------|--|-----------|--|-------------------------|
| Massawa EIA | Senegal | 2016 2017 | Technical Reviewer Heritage Impact Assessment | Randgold Resources |
| Louis Botha Phase 2 | Johannesburg, Gauteng, South Africa | 2016 2016 | Phase 2 Excavations | Royal Haskoning DHV |
| Beatrix EIA and EMP | Welkom, Free State, South Africa | 2016 2017 | Heritage Impact Assessment | Sibanye Gold Ltd |
| Sun City Heritage Mapping | Pilanesberg, North-West Province, South Africa | 2016 2016 | Phase 2 Mapping | Sun International |
| Sun City Chair Lift | Pilanesberg, North-West Province, South Africa | 2016 2017 | Notification of Intent to Develop | Sun International |
| Hendrina Underground Coal Mine EIA | Hendrina, Mpumalanga, South Africa | 2016 2016 | Heritage Impact Assessment | Umcebo Mining (Pty) Ltd |
| Elandsfontein EMP Update | Clewer, Mpumalanga, South Africa | 2016 2017 | Heritage Impact Assessment | Anker Coal |

6 Professional Registrations

| 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 |

7 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