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NGT ESHS Solutions

PROJECT TITLE:

BASIC ASSESSMENT REPORT FOR THE MINING RIGHT APPLICATION FOR FARM WOODLANDS 407, SITUATED IN THE FREE STATE PROVINCE

PROJECT REFERENCE:

DATE OF ISSUE:

14 APRIL 2019

SPECIALIST REPORT:

Heritage Impact Assessment for the mining right application for Farm Woodlands 407, situated in the Free State Province.

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DECLARATION OF INDEPENDENCE

Ms. Cherene de Bruyn and Ms Kuni Mosweu for NGT ESHS Solutions have compiled this report (See Appendix 1 and 2). The views expressed in this report are entirely those of the author and no other interest was displayed during the decision-making process for the project.

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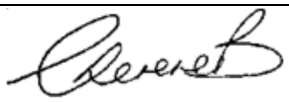
SIGNATURE (HAND SIGNATURE ON APPROVAL BY CLIENT)	

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EXECUTIVE SUMMARY

NGT ESHS, a division of NGT Holdings (Pty) Ltd was appointed by Shango to conduct a Heritage Impact Assessment (HIA) (inclusive of Palaeontological Desktop Assessment) study for the mining right application for Farm Woodlands 407, situated in the Free State Province. The receiving environment is located in the Ngwathe Local Municipality (NLM) of the Fezi Dabi District Municipality, (FDDM), in the Free State Province of South Africa.

This HIA report forms part of the Basic Assessment Report (BAR) and it also informs the Environmental Management Programme report (EMPR) on the management and conservation of cultural heritage resources. This study is conducted independently in terms of Section 38 (3) of the National Heritage Resources Act (NHRA), No. 25 of 1999.

The standard NGT ESHS HIA study process entailed conducting a detailed background information search of the receiving environment. The search assesses among other forms of data, previous studies conducted in and around the proposed study area or the development area. This also includes conducting an onsite investigation (survey) to identify and map out heritage resources on site and assess impacts of the proposed development on the identified heritage resources. Recommendations are then made with regards to how the identified heritage resources should be managed and/or mitigated to avoid being negatively impacted by development activities. Furthermore, recommendations are made on how the positive project benefits can be enhanced, to ensure a long-term strategy for the conservation and promotion of heritage resources, if any are found.

The receiving environment covers a total of 85 858. 25 hectares over three farm portions, namely Remaining extent (RE), Remainder of Portion 1 and Portion 3 of the farm Woodlands 407. The mining activities will include mining of sand, gravel and diamond (alluvial).

The survey of the project area was conducted on 26 March 2019. The survey was conducted by Miss Cherene de Bruyn (Manager: Archaeology & Heritage Unit/ Archaeology and Heritage Consultant – NGT ESHS) and Miss Kuni Mosweu (Assistant Archaeologist and Field Technician – NGT ESHS). The survey was conducted on foot and a vehicle was also used to access the site.

During the survey, six stone wall sites, five building structures, one single grave and 51 graves in an informal cemetery were identified. In terms of the South African Heritage and Resources Agency (SAHRA) Paleontological Sensitivity Layer, the area falls within a region defined as a moderate to very

high sensitivity area. As such a field assessment and protocol for finds is required is required for these finds.

Conclusions

Based on the results of literature review, field survey and the assessment of identified heritage resources, the following conclusions are made in terms of the National Heritage Act about the proposed activities:

- It is concluded that the Woodlands 407 near the town of Parys and is located in a region rich in archaeology and heritage resources.
- Six stone wall sites were identified. These sites are of medium significance and have heritage value.
- *Site Complex-01:*
    - A square enclosure stone wall site that most likely dates to the Late Iron Age / Early Historical Period.
- *Site Complex-02:*
    - A stone walled structure forms that a circular enclosure that most likely dates to the Late Iron Age / Early Historical Period.
- *Site Complex-03:*
    - A circular stone walled structure that most likely dates to the Late Iron Age / Early Historical Period.
- *Site Complex-04:*
    - Site Complex-04 is characterised by two circular stone walled structures that are attached to each other.
    - A pottery shard was found in the vicinity of Site Complex-04
- *Site Complex-05:*
    - Site Complex-05 is characterised by a circular stone walled structure located in the west of Farm Woodlands 407.
    - An artefact that may have been used for cattle was found in the vicinity of the Site Complex-05.
- *Site Complex-06:*

- Site Complex-06 is an Anglo-Boer war stone wall structure overlooking the Vaal River, which may have been used as a defence structure during the war). Walling most likely dates to the Historical Period during the Anglo-Boer (1899-1902).
- A bullet was found in the vicinity of Site Complex-06.

- Five building structures were identified that are of low significance.
- *Built-Wood-01:*
  - A contemporary building was identified in the east of Woodlands Farm 407, with three associated outbuildings.
  - The building structures are made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of corrugated iron.
- *Built-Wood-02:*
  - A cabin camping site used for holiday vacation and fishing was located on the south east of the study area.
  - The structures are made with wood with the stairwell made with reddish/brown bricks and the roof is of corrugated iron.
- *Built-Wood-03:*
  - A tall cement structure was found on the west of the study area with associated structure ruins of foundation.
- *Built-Wood-04:*
  - A contemporary structure was identified on the south of Woodlands Farm 407, which is used as a reception area.
  - The building structures are made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of thatch.
- *Built-Wood-05:*
  - A guard house was identified at the entrance of Woodlands farm 407.
  - The building structure is made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of corrugated iron.
- A cemetery and a possible grave were identified.
- *Wood-Grave-01:*

- An area containing a possible unknown grave was identified. A bonfire is located next to the grave. The area is located approximately 2,9 km north from Alternative 3 of the proposed infrastructure developments.

- *Wood-CEM-01:*
  - An informal cemetery (Wood-CEM-01) was identified.
  - The cemetery containing approximately fifty-one graves and was located approximately 1 km south from Alternative 2 of the proposed development of infrastructure and falls outside the 500m zone of influence. Moreover, the cemetery is of high heritage significance.
- No other graves or burial grounds were identified in the project area. However, as graves are subterranean in nature and might not have been identified during the initial site visit and survey.
- In terms of SAHRA Paleontological Sensitivity Layer, the project area is located in a moderate to very high sensitivity area:
  - 60% falls within a moderate sensitivity area (green)
  - 25% falls within a high sensitivity area (orange)
  - 15% falls within a high sensitivity zone (red)
- According to the PIA report, the farm Woodlands lies in the ancient volcanic rocks, some dolomite and Quaternary sands. Based on the geology of the area and the palaeontological record, it can be assumed that the formation and layout of the basal gneisses, granites, sandstones, shales and sands are typical for the country and do not contain any fossil plants, but the dolomites and limestones might contain stromatolites, trace fossils. The sands of the Quaternary period and ancient volcanic rocks would not preserve fossils. Stromatolites have been recorded from the Malmani Group in other parts of the country so there is a possibility that they occur in this area too (See PIA report).

Recommendations:

Based on the Limitations and Conclusions it is recommended that:

- The stone walls have heritage value therefore they should be completely avoided and be treated as No-Go-Area's.

- *Site Complex-01:*
    - It is recommended that mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area
    - If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction.
- *Site Complex-02:*
    - Site Complex-02 is of medium significance and have heritage value. As such it is recommended the stone walls should be completely avoided, as it is a No-Go-Area
    - If the mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted before its destruction.
- *Site Complex-03:*
    - Site Complex-03 is of medium significance and have heritage value. As such it is recommended that the stone walls should be completely avoided, as it is a No-Go-Area
    - The mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction
- *Site Complex-04:*
    - The stone walls should be completely avoided, as it is a No-Go-Area.
    - If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction
- *Site Complex-05:*
    - Site Complex-05 is of medium significance and have heritage value. As such it is recommended the stone walls should be completely avoided, as it is a No-Go-Area
    - If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction
- *Site Complex-06:*
    - Site Complex-06 is of medium significance and have heritage value. As such it is recommended the stone walls should be completely avoided, as it is a No-Go-Area

- If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction

- *Built-Wood-01:*
  - The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value.
  - The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified
- *Built-Wood-02:*
  - The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value.
  - The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified.
- *Built-Wood-03:*
  - The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value.
  - The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified.
- *Built-Wood-04:*
  - The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value.
  - The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified.

- *Built-Wood-05:*
    - The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value.
    - The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
    - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified.
- *Wood-Grave-01:*
    - The area identified to contain a possible grave is of high significance. As such it is recommended that no mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area
    - A fence should be erected around the possible grave and be treated as a No-Go-Zone;
- *Wood-CEM-01*:
    - The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that the site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone
    - Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided
    - No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area
    - If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied. As such it is recommended that no machinery or site camp associated with the proposed mining activities should be established near the graves; they should be treated as a No-Go-Area.
- However, it should be noted that some archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visits. In the case where the proposed development activities bring these materials to the surface, they should be treated as **Chance Finds**. Should such resources be unearthed it is recommended that, the prospecting activities be stopped immediately, and an archaeologist be

contacted to conduct a site visits and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds.

- In terms of the SAHRA Paleontological Sensitivity Layer, the area falls within a region defined as a moderate to very high sensitivity area and a **Fossil Chance Find Protocol** should be followed once mining activities commence (See PIA report).
- According to the PIA report, it is unlikely that any fossils would be preserved in the underlying volcanic rocks or in the loose sands of the Quaternary. There is an extremely small chance that fossils may occur in the dolomites and limestones of the Malmani Group so a Chance Find Protocol (Appendix 3) should be added to the EMPr, if fossils are found once drilling and excavations have commenced then they should be rescued, and a palaeontologist or geologist be called to assess and collect a representative sample. Thereafter the palaeontology heritage will not be impacted on any further.
- The proposed mining activities on the farm Woodlands 407 will not have impact on the heritage and archaeological resources in the broader area.
- It is recommended that FS-PHRA and SAHRA grant the project a **Positive Review Comment** and allow the proposed mining activities to occur on Alternative 1 as planned.

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LIST OF ABBREVIATIONS

ACRONYMS	DESCRIPTION
AUTHORITIES	
ASAPA	Association of South African Professional Archaeologists
ESHS	Environmental, Socio-Economic and Heritage Sustainability
FDDM	Fezi Dabi District Municipality
FSPHRA	Free State Provincial Heritage Resources Authority
NLM	Ngwathe Local Municipality
NGT	Nurture, Grow, Treasure
SADC	Southern African Developing Community
SAHRA	South African Heritage Resources Agency
DISCIPLINE	
AIA	Archaeological Impact Assessment
BAR	Basic Assessment Report
CMP	Cultural Management Plan
CRM	Cultural Resources Management
ESA	Early Stone Age
EIAs	Environmental Impact Assessment
EMPr	Environmental Management Programme
EIA	Early Iron Age
ha	Hectares
HCMP	Heritage Cultural Management Plan Report
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
PIA	Palaeontological Impact Assessment
LEGAL	
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act

TERMS AND DEFINITIONS

Archaeological resources

These include:

- Material remains resulting from human activities which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures.
- Rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10 m of such representation.
- Wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.
- Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Palaeontological

This means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- Construction, alteration, demolition, removal or change in 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 boards; 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.

Heritage resources

This means any place or object of cultural significance

Living heritage

This means the intangible aspects of inherited culture, and may include cultural tradition; oral history; performance; ritual; popular memory; skills and techniques; indigenous knowledge systems; and the holistic approach to nature, society and social relationships

1. INTRODUCTION

1.1. Background Information of Project

NGT ESHS a division of NGT Holdings was appointed by Shango to conduct an HIA (inclusive of Palaeontological Desktop Assessment) study for the proposed mining right application, for the Remaining extent (RE), Remainder of Portion 1 and Portion 3 of the farm Woodlands 407, located near Parys within the NLM and FDDM, in the Free State Province.

The application area is distributed over three farms located north-east of Parys *(Figure 1-2 and Table 1).* The total size of the application area is 85 858. 25 hectares (ha). The proposed mining right involves an establishment of an opencast mine which will involve the development of open pits and associated mine infrastructure. Commodities to be mined include sand, aggregate/gravel and diamond (alluvial).

The HIA investigated the potential impacts of the proposed project mining activities on any heritage resources identified within the receiving environment, such as archaeological artefacts, burial grounds and historical features of the built environment. The overall objective of the HIA is to give advice on the management of the heritage resources in and around the proposed project area in terms of known heritage resources management measures in line with the NHRA, No. 25 of 1999.

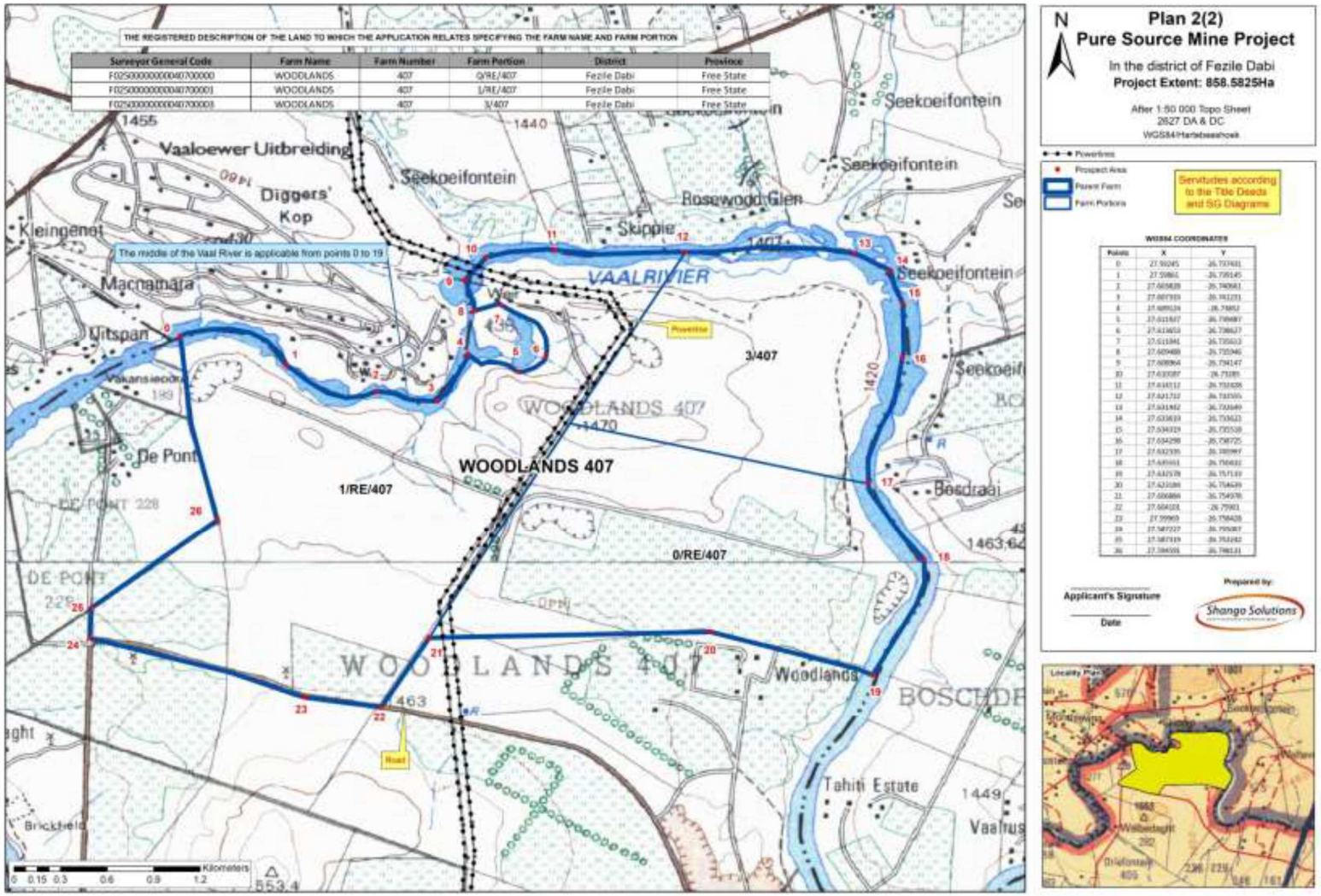


Figure 1: Map showing the location of the project area (Source: Shango Solutions).

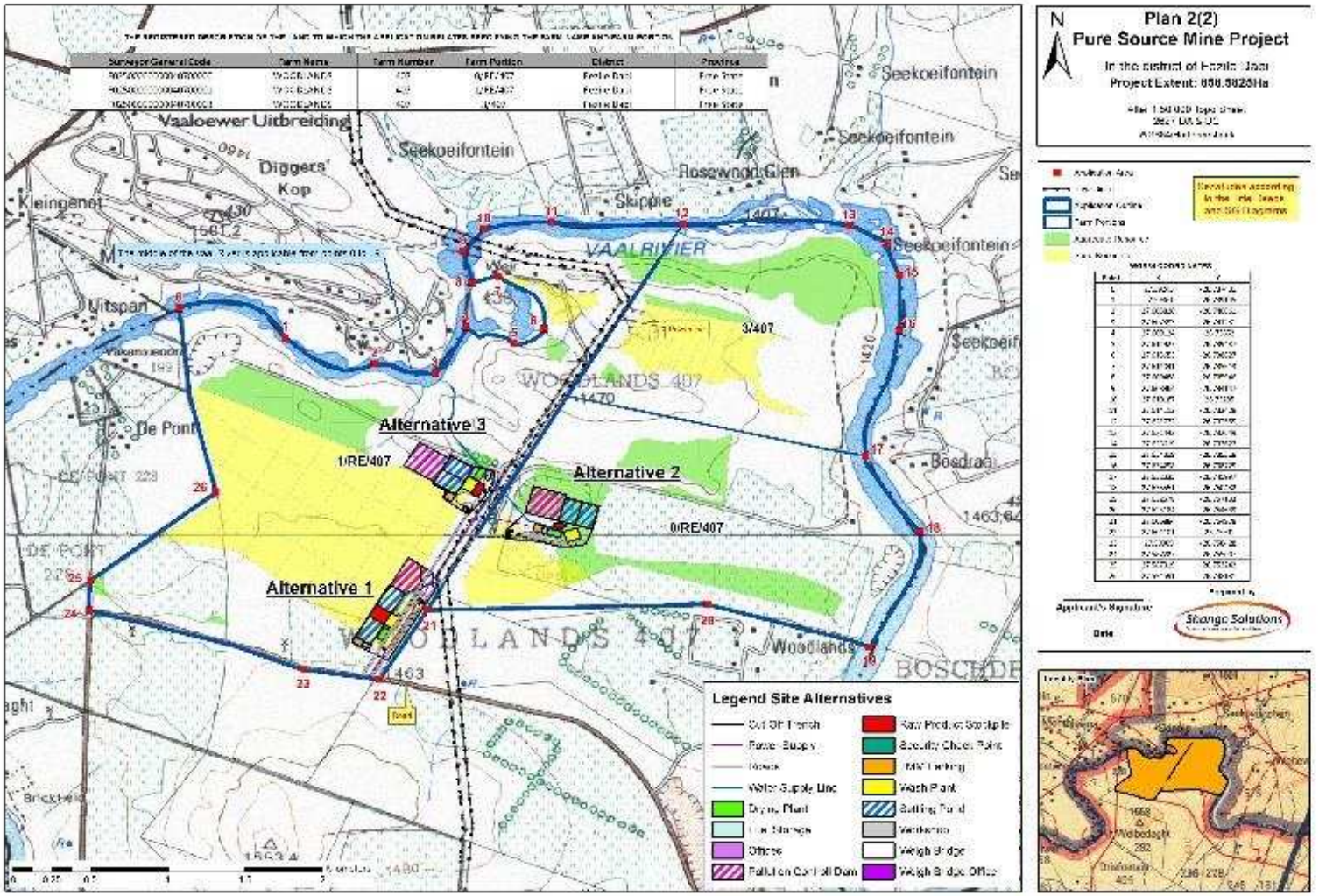


Figure 2: Map of the locality plan.

1.2. Description of the Affected Environment

1.2.1. Land Use and History

The project area is located approximately 35 km northwest of Parys, in the NLM of the FDDM, situated in the Free State Province of South Africa *(Table 2).* It is located in the south banks of the Vaal river. This area is characterised by dense vegetation and grasslands. The farms fall within a heavily disturbed area, as the area is characterised by agricultural activities such as corn fields, game farming, animal grazing, and previous mining activities.

1.2.2. Access

- From Johannesburg the site can be reached via the N1/Bloemfontein (Figure. 4),
- Continue onto the N1/N12,
- Keep right at the fork to continue on N1
- Turn right onto an unnamed road.

Table 1: Site Location and Property Information

Erf or farm number/s	Woodlands 407 (portion RE, RE of portion 1 and portion 3)
Size of development footprint	85 858. 25 ha
Town	Near Parys
Responsible local authority	Ngwathe Local Municipality
Ward	6
Magisterial district	Fezi Dabi District Municipality
Region	Free State Province
Country	South Africa
Site centre GPS coordinates	26°44'48.82"S 27°36'42.51"E

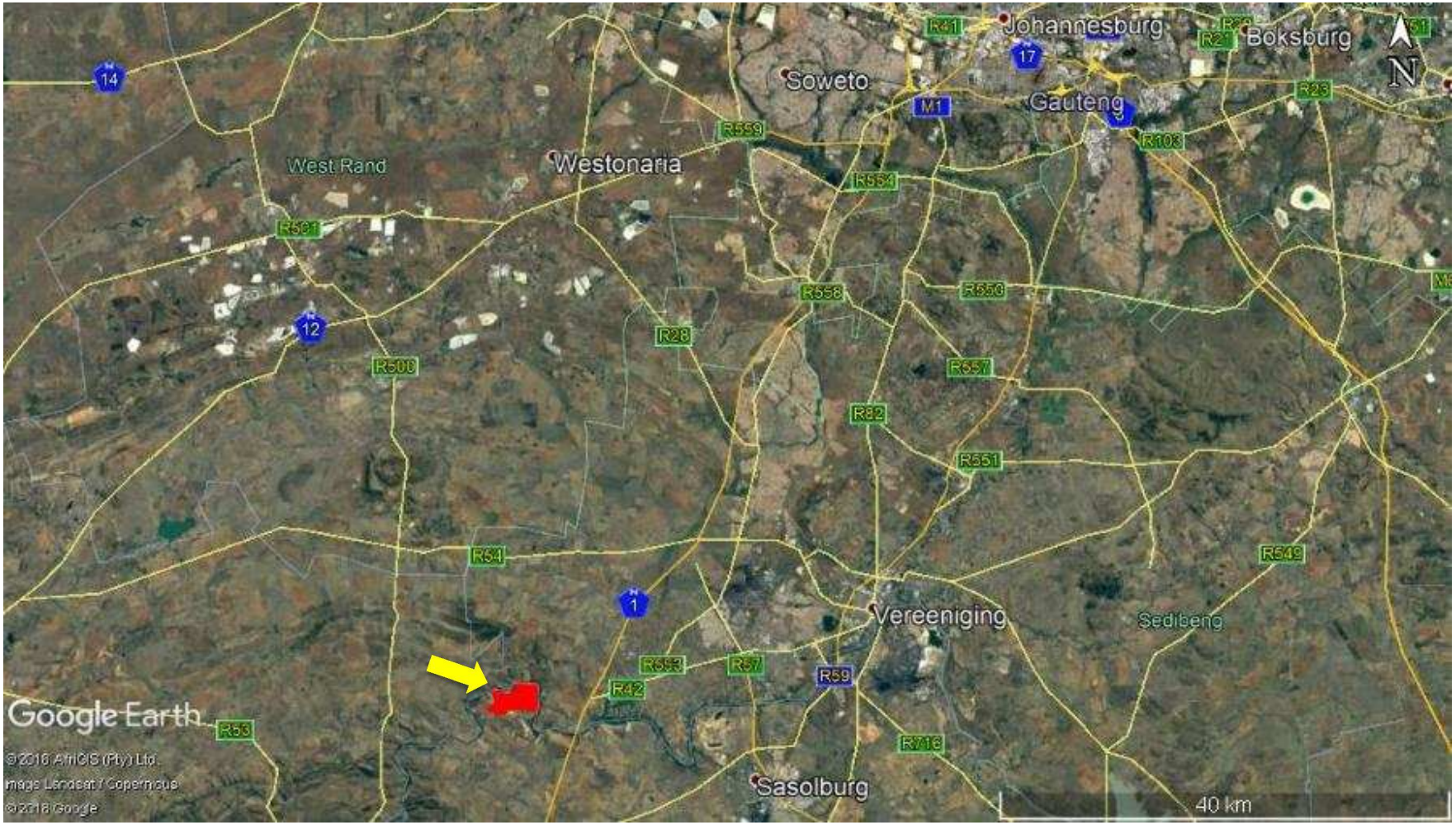


Figure 3: Google Earth image indicating access to the site (yellow arrow).

1.3. Terms of Reference for the Appointment of Archaeologist and Heritage Specialist

The HIA is conducted in terms of Sections 38 the NHRA, No. 25 of 1999. This prescript of the Act Section 38:

"the responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (3) (a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected.

(b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7.

(c) An assessment of the impact of the development on such heritage resources.

(d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development.

(e) The result of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.

(f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives.

(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development."

Shango appointed NGT to conduct the HIA. Miss Cherene de Bruyn (Manager: Archaeology & Heritage Unit/ Archaeology and Heritage Consultant – NGT ESHS) and Miss Kuni Mosweu (Assistant Archaeologist and Field Technician – NGT ESHS), conducted the HIA for the proposed development. The appointment of NGT ESHS is in terms of the NHRA, No. 25 of 1999.

1.4. Legislative requirements for this study

The NHRA, No. 25 of 1999 sets norms and standards for the management of heritage resources in South Africa. Section 35 and 38 (3) of the NHRA, No. 25 of 1999 informs the current HIA. Table 2 below gives a summary of all the relevant legislations that informed the current study.

Table 2: Legislation and relevance to this HIA Study

Legislation (incl. Policies, Bills and Framework)	
Heritage	• Heritage resources in South Africa are managed through the NHRA, No. 25 of 1999. This Act sets guidelines and principles for the management of the nation estate. • Section 34 becomes relevant in terms of structures. • Section 35 becomes relevant in terms of archaeology and palaeontology. • Section 36 becomes relevant in terms of burial grounds and graves. • Section 38 of the Act becomes relevant in terms of nature of the proposed project in terms of developing the heritage impact assessment study.
Environmental	• The National Environmental Management Act (NEMA), No. 107 of 1998. • The cultural environment in South Africa is managed through Section 24 of the NEMA, No. 107 of 1998.

1.5. Limitations and Assumptions

Although a comprehensiveness physical survey was undertaken, it should be noted that some of the archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visit. In the case where the proposed development activities bring these materials to the surface, they should be treated as Chance Finds. Should such resources be unearthed, it is recommended that the development activities be stopped immediately, and an archaeologist be contacted to conduct a site visit and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds. In this case, no archaeological material of graves should be moved from the site until the heritage specialist has been able to make an assessment regarding the significance of the site and archaeological material, which is also subject to SAHRA approval.

The following chapter outlines the methodology used to assess the current site impacts and cumulative impacts that will result from the proposed project on the identified historic or archaeological sites.

2. METHODOLOGY

2.1. Approach to the Study

Miss Cherene de Bruyn (Manager: Archaeology & Heritage Unit/ Archaeology and Heritage Consultant – NGT ESHS) and Miss Kuni Mosweu (Assistant Archaeologist and Field Technician – NGT ESHS), is responsible for the compilation of the current HIA report. The Review and Quality Control (RQC) process involved reviewing the First Draft HIA (Revision 01) and revising the Second Draft (Revision 02); the RQC was completed by Mr Nkosinathi Tomose Executive Director and CEO NGT (also Principal Consultant for NGT subsidiaries **NGT ESHS Solutions** and **NGT-Infraco** (an infrastructure development entity specialising **Construction**, **Conservation** (rehabilitation and refurbishment of historic sites, buildings and public artworks), and **Civils**). The RQC is a standard process at NGT; in the case that the Director and Principal Consultant is responsible for the report, another consultant has to undertake the RQC process.

2.2. Step I – Literature Review (Desktop Phase)

Background information search for the proposed development took place following the receipt of appointment letter from the client. Sources used included, but not limited to, published heritage studies, academic books and academic journal articles about the site and the broader area in which it is located. Interpretation of legislation (the NHRA, No. 25 of 1999) and local bi-laws forms form the backbone for the study.

2.3. Step II – Physical Survey

The survey was conducted by Miss Cherene de Bruyn and Miss Kuni Mosweu on Tuesday, 26 March 29. The survey was conducted on foot and a vehicle was also used to access the site.

The aim of the survey was to identify archaeological and heritage sites and resources within the area proposed for development activities as well as within the 500 m radius:

- The survey of the proposed mining right application area was conducted on foot and the site was accessed using a bakkie.
- The aim of the surveys was to identify archaeological, burial grounds and graves and built environment heritage sites and resources in and around the area proposed for the eight drill holes.
- To record and document the sites using applicable tools and technology.

The following technological tools were used for documenting and recording identified resources on site:

- Garmin GPS (i.e. Garmin 62s) – to take Latitude and Longitude coordinates of the identified sites and to track the site.
- Canon SLR – to take photos of the affected environment and the identified sites.

2.4. Step III – Report Writing and Site Rating

The final step involves the compilation of the report using desktop research as well as the physical survey results. Archaeological resources, graves and sites found in the project area are rated according to the site significance classification standards as prescribed by SAHRA.

2.5. Assessment of Site Significance in Terms of Heritage Resources Management Methodologies

The following site significance classification minimum standards as prescribed by the SAHRA (2006) and approved by ASAPA for the Southern African Developing Community (SADC) region were used to grade the identified heritage resources or sites *(Table 3).* This Statement of Heritage Significance does not imply exemption from any national, provincial or local authority legal or other regulatory requirement, including any protection or management or general provision in terms of the NHRA, No. 25 of 1999.

Table 3: Site significance classification standards as prescribed by SAHRA

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	High Significance	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	High Significance	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP. A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP. A)	-	Low Significance	Destruction

2.6. Impact Significance Rating in Accordance to Environmental Requirement:

Impact Significance Rating in will be completed and is guided by the requirements of the NEMA EIA Regulations (2014) *(Tables 4-7).*

Table 4: Table indicating the impact significance rating.

Alternative No	**List Alternative Names**	
Proposal	Development	
Alternative 1	Development Area 01	
Alternative 2	Development Area 02	
Nature	-1	Negative
	1	Positive
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary),
	3	Local (i.e. the area within 5 km of the site),
	4	Regional (i.e. extends between 5 and 50 km from the site
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years),
	3	Medium term (6-15 years),
	4	Long term (the impact will cease after the operational life span of the project),
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction).
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
	2	Low (where the impact affects the environment in such a way that

		natural, cultural and social functions and processes are slightly affected),
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease).
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact
Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%),
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%),
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability), or
	5	Definite (the impact will occur),
Public feedback	1	Low: Issue not raised in public responses
	2	Medium: Issue has received a meaningful and justifiable public response

	3	High: Issue has received an intense meaningful and justifiable public response
Cumulative Impact	1	Low: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	2	Medium: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	3	High: Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable loss of resources	1	Low: Where the impact is unlikely to result in irreplaceable loss of resources.
	2	Medium: Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	3	High: Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).
Degree of Confidence	Low	<30% certain of impact prediction
	Medium	>30 and < 60% certain of impact prediction
	High	>60% certain of impact prediction
Priority	Ranking	Prioritisation Factor
3	Low	1,00
4	Medium	1,17
5	Medium	1,33
6	Medium	1,50

7	Medium	1,67
8	Medium	1,83
9	High	2,00
Phase		
Planning		
Construction		
Operation		
Decommissioning		
Rehab and closure		

Table 5: Impact Rating table with impact mitigation.

IMPACT DESCRIPTION		PRE – MITIGATION						POST – MITIGATION								IMPACT PRIORITISATION		
Impact	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigation ER	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitigation ER	Confidence	Public response	Cumulative Impact	Irreplaceable loss
1. Heritage Impact Ratings	Planning	-1	3	2	2	2	5	-11,25	-1	3	1	2	2	4	-8	High	1	2	1
								0	-1						0				
								0							0				

Table 6: Risk assessment.

	Impact Name					
	Alternative					
	Phase					
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact			Magnitude of Impact		
	Extent of Impact			Reversibility of Impact		
	Duration of Impact			Probability		
	Environmental Risk (Pre-mitigation)					
	Mitigation Measures					
	Heritage Risk (Post-mitigation)					
	Degree of confidence in impact prediction:					
	Impact Prioritisation					
	Public Response					
	Cumulative Impacts					
	Degree of potential irreplaceable loss of resources					
	Prioritisation Factor					
	Final Significance					

Table 7: Final Significance Ratings

SIGNIFICANCE RATINGS	
Value	**Description**
< -10	Low Negative (i.e. where this impact would not have a direct influence on the decision to develop in the area)
≥ -10 and < -20	Medium Negative (i.e. where the impact could influence the decision to develop in the area)
≥ -20	High Negative (i.e. where the impact must have an influence on the decision process to develop in the area)
< 10	Low Positive (i.e. where this impact would not have a direct influence on the decision to develop in the area)
≥ 10 and < 20	Medium Positive (i.e. where the impact could influence the decision to develop in the area)
≥ 20	High Positive (i.e. where the impact must have an influence on the decision process to develop in the area)

3. BACKGROUND LITERATURE REVIEW: ARCHAEOLOGY

Southern Africa has one of the longest human species occupations record in the world. The occupation dates to approximately 2 million years ago (Mitchell 2002). Therefore, southern Africa is rich in archaeological material. The archaeology of South Africa is divided into three periods, which are mainly the Stone Age, Iron Age and the Historical Period. Each period is characterised by a unique cultural marker that distinguishes it from other archaeological periods. Both archaeological and historical sites have been identified all over South Africa, including the Free State Province.

Several HIA and Archaeological Impact Assessments (AIA) have been conducted in and around the proposed development area. From an assessment of the South African Heritage Resources Information System (SAHRIS) database, previous Heritage and Archaeological Impact Reports of the proposed development area were reviewed. It was observed that archaeological and historical materials were found during past surveys within the 500 m radius of the study area *(Table. 8, Figure. 4).*

Table 8: Previous HIA and AIA reports conducted in and surrounding the proposed project area as recorded on the SAHRIS database

NO.	AUTHOR/YEAR	TOWN	SITE	SAHRIS ID	DISTANCE FROM PROJECT AREA
1	Dreyer, C. (2005)	Parys	N1 to R59 road	00828	15,7 km
2	Huffman, T.N. (2005)	Parys	Parys Golf Island and Feesgronde	00826	20, 2 km
3	Schoeman, M.H & Esterhuysen. A.B (2006)	Vaal Oewer	Farm Zeekoefontein 573-IQ	00490	2,2 km
4	Coetzee, F.P. (2008)	Parys	Farm Woodlands 407	02370	Same study area
5	De Jong, R.C. (2011)	Closer to Parys	1816 km cable route between Johannesburg and Cape Town, the closets site to the study area is the N 1 between Johannesburg and Bloemfontein	1820	6,5 km
6	Van de Walt, J. (2013)	Banks of the Vaal River south west of the town of Parys.	Farm Tweespruit 198	2893	27,3 km

NO.	AUTHOR/YEAR	TOWN	SITE	SAHRIS ID	DISTANCE FROM PROJECT AREA
7	Nel, J. & Khan, S.K. (2013)	Sasolburg	Sasolburg	1691	17,2 km
8	Gaigher, S. (2015)	Parys	Farm Woodlands 407	8127	1,2 km
9	Hardwick, S. (2018)	Sasolburg	Saltberry Plain 137	12401	25,3 km

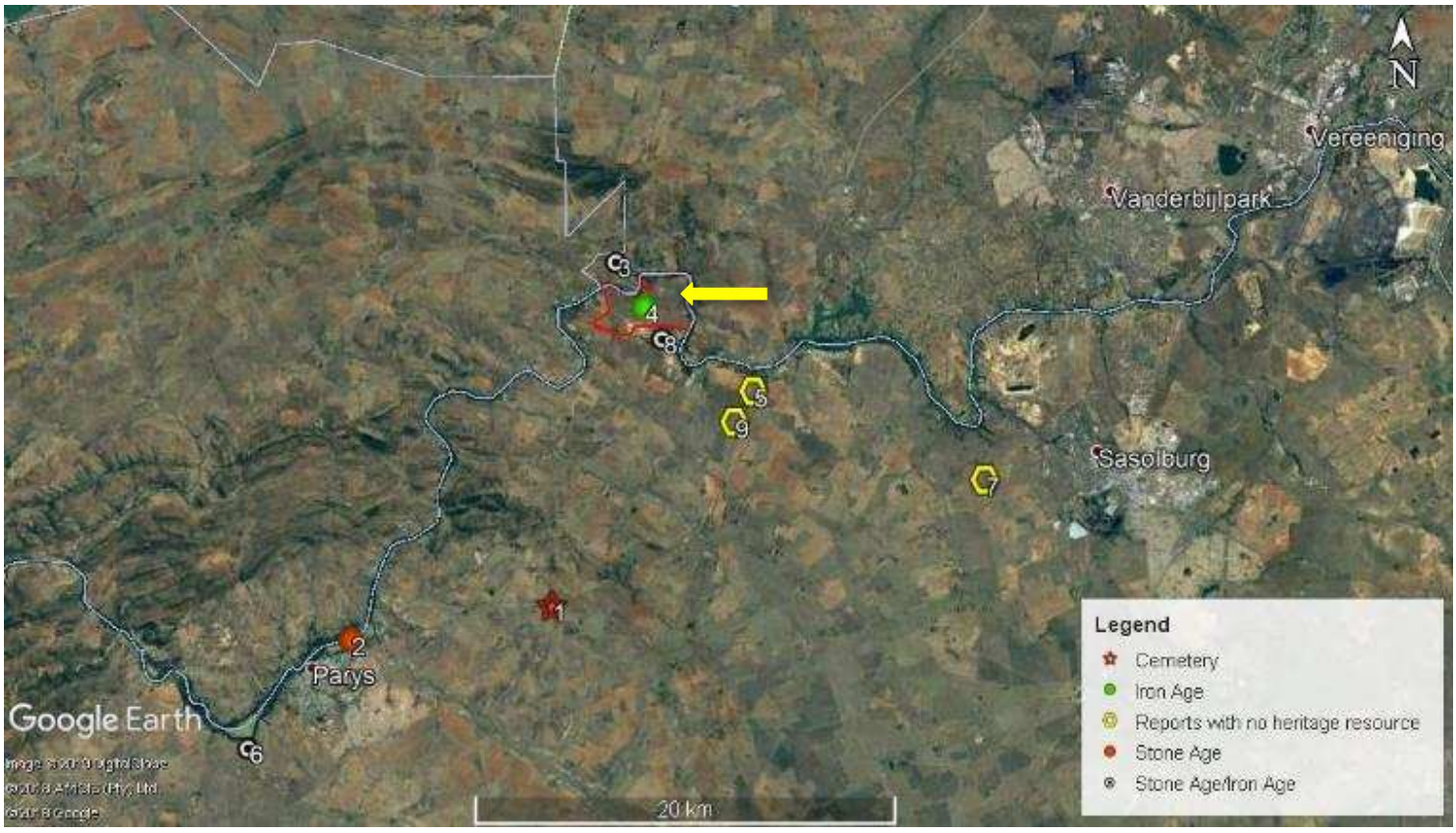


Figure 4: Google Earth map indicating locations of previous heritage and archaeological impact assessments in relation to the proposed project area.

3.1. Stone Age

The Stone Age is divided into the Early Stone Age (ESA) (± 2 Ma to ± 300 ka), the Middle Stone Age (MSA) (± 300 ka to ± 40 ka) and the Later Stone Age (LSA) (± 40 ka to ± 2 ka). It is important to note that these dates are not fixed due to variability and overlapping of site date across the country (Lombard *et al.,* 2012). The Stone Age refers to humans that mainly used stone as their technological marker. The

ESA is characterised by two technological industries which are the Oldowan (± 2 Ma to ± 1.5 Ma) and Acheulean (± 1.5 Ma to 300 ka (Klein 2000; Lombard *et al.,* 2012). The Oldowan industry is characterised by flakes produced from pebbles, cobbles and percussive tools (Klein 2000; Roche et al. 2009). The Acheulean industry is characterised by large hand axes, cleavers and other bifacial tools (Klein 2000). ESA stones tools and faunal material have been found in the Vaal River.

The MSA is widely debated to be the phase that marked a change in hominin species to anatomically modern humans (Wadley 2007). The use of ochre, ostrich eggshell water flasks which inform archaeologists about the emergence of symbolic behaviour and distinctive stone tools that are found in MSA sites of southern Africa have yielded evidence that this region is the origin of cognitive modern humans. The MSA is associated with small flakes, points and blades that are suggested to be made for hunting activities and cutting prey (Wurz 2013) and arrowheads or spears (Wadley 2007). The Vredefort Dome *(Table. 9, Figure. 5),* a UNESCO world heritage site located 30,1 km away from the development area, is an example of an MSA site in the Free State Province, as MSA stone tools have been found in the area (Mitchell 2002). Also, a skull of an archaic Homo Sapiens was found in the MSA layers at Florisbad, an open-air site located 261,7 km from the developmental area (Mitchell 2002). Furthermore, stone tool assemblages have been found at Rose Cottage cave, a site located a few kilometres from Ladybrand (Wadley 1995, 1997, 2000).

Table 9: Archaeological sites located in the Free State Province

SITE NO.	ARCHAEOLOGICAL SITE	TYPE OF SITE	SAHRIS ID	DISTANCE FROM PROJECT AREA
1	Schaapplaats	Later Stone Age	26571	215,8 km
2	Florisbad	Middle Stone Age	26509	261,7 km
3	Rose Cottage Cave	Middle Stone Age/ Later Stone Age	32417	269,5 km
4	Vredefort Dome	Middle Stone Age/ Late Iron Age	59044	30,1 km
5	Stowslands on Vaal	Later Stone Age	26522	267,2 km
6	Tandjiesberg Rock Shelter	Later Stone Age	26510	256,3 km

SITE NO.	ARCHAEOLOGICAL SITE	TYPE OF SITE	SAHRIS ID	DISTANCE FROM PROJECT AREA
7	Modderpoortspruit Cave	Later Stone Age	26445	261,8 km
8	Beehive Stone Huts, Sedan	Iron Age	26441	126,9 km
9	Willem Pretorius Game Reserve	Iron Age	26375	170,4 km
10	Lekgalong La Mantsopa	Later Stone Age/ Late Iron Age	89386	262,1 km
11	Ventershoek	Later Stone Age	26384	336,6 km

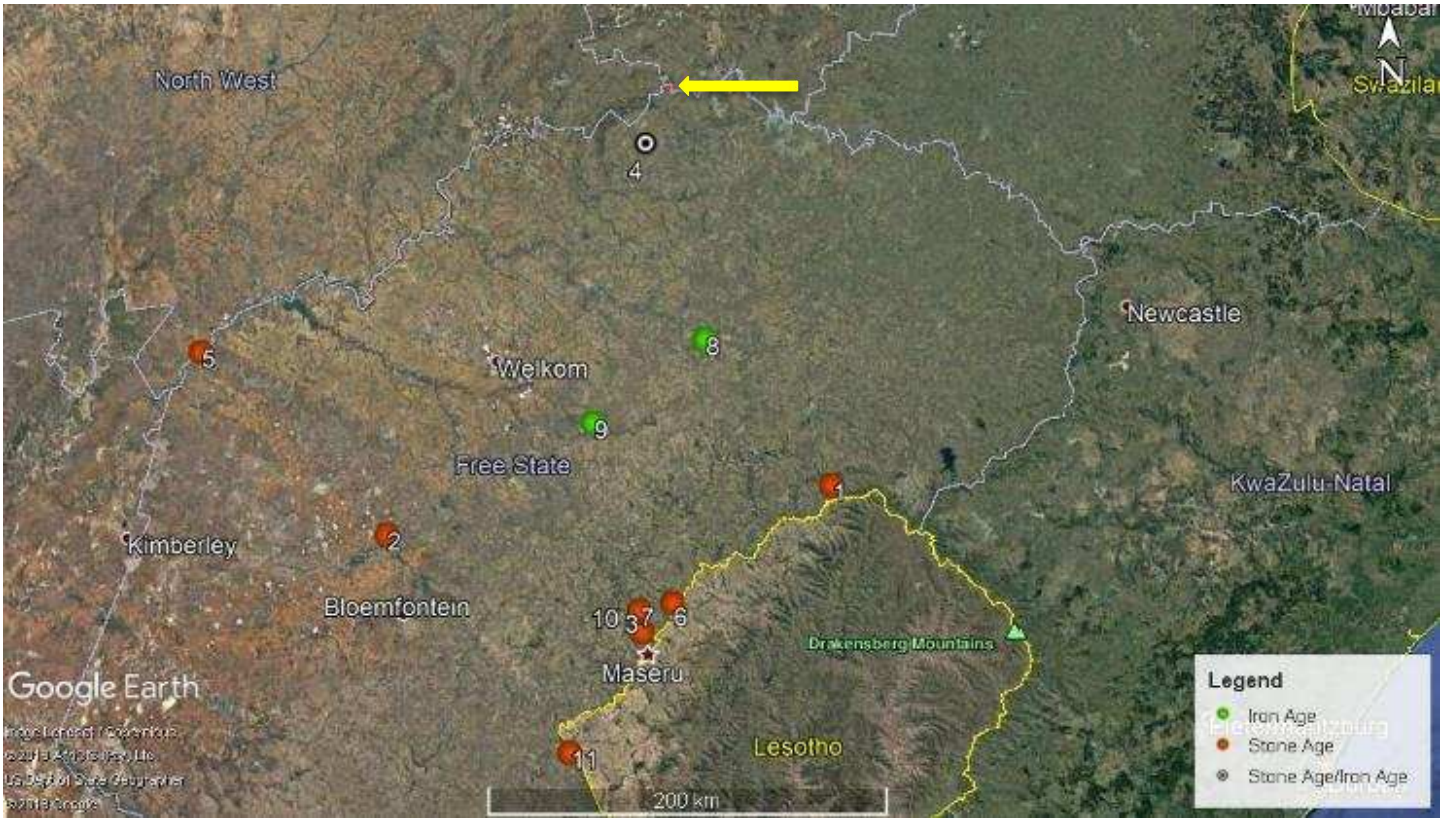


Figure 5: Google Earth map of the archaeological sites located in the Free State Province in relation to the proposed project area (the yellow arrow).

The LSA is marked by microlithic stone tools, flakes and scrapers (Binneman 1995; Lombard *et al.,* 2012). This period is also associated with rock art. During this period, there was a development of an economic system, whereby hunter-gatherers inland hunted fauna and gathered plants which can be seen by seed remains in archaeological assemblages. Furthermore, evidence of symbolic behaviour has been found in southern African archaeological sites during this time. Symbolic behaviour of LSA period is shown by deliberate burial (Hall 1990), decorating using ostrich eggshell beads and the use of ochre (Hall & Binneman 1987). LSA groups preferred to settle in rock shelters and caves close to rivers. Evidence of LSA inhabitants have been found in the case of rock engravings. For instance, LSA rock engravings have between found around the Vaal River (Bergh 1999). LSA rock art has also been found in Rose Cottage cave and at Tandjiesberg (Wadley 1995). Animal bones, stone tools such as small scrappers and grinding stones have also been found at Tandjiesberg (Wadley 1995).

3.2. Iron Age

The Iron Age is divided into the Early Iron Age (EIA) (AD 200 – 900), the Middle Iron Age (MIA) (AD 900 – 1300), and the Late Iron Age (LIA) (AD 1300 – 1840). The Iron Age is characterised by farming communities who domesticated animals, cultivated plants, produced various ceramic vessels, smelted iron for weapons and manufactured tools. There is also evidence of small-scale mining of copper, iron and gold in the northern areas of Southern Africa (Friede & Steel 1981). The Iron Age groups migrated with their material culture and it can be observed in the archaeological record. The material culture expresses the identity of the groups as it forms part of the group's distinct patterns and cultural symbols (Huffman 2002). Ceramic style is used in Iron Age archaeology to distinguish the different Iron Age groups that lived in the southern African landscape and trace their movements.

The EIA is characterised by the first settlements of Bantu farming communities in southern Africa (Badenhorst 2010). These farmers mainly cultivated plants, herded domestic animals primarily sheep and goats and produced metal and ceramic vessels. Furthermore, these farmers lived in houses located on valley floors (Badenhorst 2010), to mainly cater subsistence for their crops and livestock. During the EIA, three streams of pottery are identified in Africa, which are the Kalundu Tradition which is referred as the western stream, the Kwale Branch which is the eastern stream and the Nkope Branch which is the central stream. Both the Nkope and Kwale streams form part of the Urewe Tradition (Mitchell 2002; Huffman 2002, 2007), which can be traced back to east Africa (Boeyens 2003). Several ceramics that are

associated with the EIA have been found in areas surrounding the Orange River Scheme region (Samson 1972).

The MIA is a period that is mainly focussed in the Mapungubwe region, in southern Africa. The inhabitants that lived in the Mapungubwe region were mainly farmers and traders of gold. The MIA saw an increase in the population size of the southern African communities such as those who settled at Mapungubwe (Badenhorst 2010). This was brought on by the success of the established trading networks of ivory and gold for goods such as beads and cloth in the trans-Indian Ocean (Badenhorst 2010).

The LIA is mainly characterised by the domestication of cattle, hilltop settlements and the making of ceramics. Studies conducted on the LIA classification of stone wall settlement patterns have been done by Maggs (1976) and Mason (1986). Mason (1968) focused his research on stone wall sites located in the Magaliesberg, it is also in this area that the 19th century Tswana town, Marothodi is located (Anderson 2009). Mason (1986) published a review of his stone wall settlement types following more research that was conducted in the area. It is believed to be the period when Sotho-Tswana speaking groups migrated from east Africa to southern Africa due to climatic conditions in the region (Boeyens 2003). Ceramics of the Moloko Branch are associated with the Sotho-Tswana groups (Evers 1983; Huffman 2002; Mitchell & Whiteland 2005; Anderson 2009). The abundance of Moloko ceramic style of the Sotho-Tswana groups found in the Limpopo Province and Botswana regions indicates that this ceramic style replaced the earlier Eiland ceramics around (AD 1000-1300) (Mitchell 2002; Boeysens 2003; Huffman 2007). This is evidenced by tracing the Moloko ceramics back to the EIA of the Urewe Tradition (Boeyens 2003; Huffman 2007). In the Free State Province, Moloko style ceramics have been found around the Vaal River.

During the 16th to 18th Century AD, Sotho-Tswana speaking groups migrated from the central Highveld across the Vaal River into the southern Highveld in the Free State Province (Thorp 1996). Ceramics dating to the LIA have been found at Tandjiesberg Rock Shelter, in the Free State Province (Thorp 1996). Also, extensive stone wall sites have also been found in the Kroonstad region (Dreyer 2006). These sites are associated with Sotho-Tswana speakers who occupied the site from around 16th Century. Ceramics of the Ntsuanatsatsi facies and N- Type walling have also been found in the Free State Province, suggesting the presence of Nguni speakers in the Free State from AD 1450 to 1650. Ntsuanatsatsi facies

are characterised by broad band stamping in the neck with stamped arcades on the shoulder (Huffman 2007). The Uitkomst facies (AD 1650 – 1820) of the same branch is seen as the successors to the Ntsuanatsatsi facies and contains elements of both Nguni (Ntsuanatsatsi facies) and Sotho-Tswana speakers (Olifantspoort facies) pottery styles (Huffman, 2007). They are characterised by stamped arcades and blocks of parallel incisions and cord impressions, which represents contact between these two groups. Olifantspoort facies (AD 1500-1700) and Thabeng facies (AD 1700-1840) of the Moloko Branch have been found at Iron age sites in the Free state Province, around the Vaal River region (Mason 1986; Mitchell 2002; Huffman 2007). Olifantspoort pottery is characterised by "multiple bands of fine stamping and narrow incision separated by colour" (Huffman 2007). The presence of ceramics of the Olifantspoort facies (AD 1500-1700) and Thabeng facies (AD 1700-1840) around the Vaal River region provides evidence of the contact between Nguni and Sotho-Tswana speaking groups during the LIA.

Buispoort ceramics (AD 1700 – 1840), of the Moloko Branch, have been found to the north of Potchefstroom (Mason 1986; Boeyens 2003; Huffman 2007). Buispoort ceramics are characterised by "rim notching, broadly incised chevrons and white bands" (Huffman 2007). To the north of Kroonstad, in the Vredefort Dome, several LIA stone walled settlements, most likely related to Fokeng settlements, have been identified dating to AD 1450 – 1650 (Huffman 2007). A later occupation from AD 1700-1840 also occurred in this region (Huffman 2007).

3.2 Historical Period

The Historical Period dates from AD 1600 and is generally the period related to colonial settlement in South Africa. During the 1820's and 1830's, the Mfeqane conflict and expansion of the Voortrekkers caused instability in South Africa (Huffmann 2004; Morton 2013). The conflict mainly came about due to environmental changes that caused drought in southern Africa, thus arable land was scarce, which in turn caused competition for land and invasions were on the rise (Eldredge 1987; Morton 2013). In the highveld region, the Mfeqane conflict was escalated by Mzilikazi. It must be noted that before the Mzilikazi invasion, other groups such as the Pedi invaded the highveld area with no avail (Morton 2013). At about 1827, Mzilikazi migrated north-wards from Natal settling in the interior of South Africa. Mzilikazi invaded parts of the interior of South Africa capturing, killing and driving away the Sotho-Tswana groups. Consequently, expanding his territory in the Highveld region (Okihiro 1973). At the same time, in the 1830s, the Voortrekkers were migrating northwards from the Cape Colony due to

dissatisfaction with the British rule (Eldredge 1987). The migration of the Voortrekkers is known as the Great Trek.

The migrations led to a series of battles and wars between the Zulu's, Voortrekkers and Sotho-Tswana communities in the Orange Free State and southern Transvaal (Gutteridge 2008). This resulted in the Sotho-Tswana people being dislocated from their historical settlements (Morton 2013). During their survey, Schoeman and Esterhuysen (2006), came across the Lindequesdrift/Zeekoefontein cave located approximately 2 km to the study area. The Lindequesdrift/Zeekoefontein cave is associated with the Mfeqane, as it is believed that it was used as a refuge site for the Sotho-Tswana people at the time (Schoeman & Esterhuysen 2006). In October 1836, the Voortrekkers engaged in a battle with 3000 of Mzilikazi's warriors on Vegkop hill (Zvobgo 2009). The Voortrekkers who were assisted by the Sotho-Tswana and Griqua groups defeated Mzilikazi's Matabele, who fled to the Limpopo Province and settled in Zimbabwe (Zvobgo 2009). In 1848, the region between the Orange and Vaal Rivers was proclaimed as British Possession by Sir Harry Smith (Scott-Keltie & Epstein 1925). The Convention of Sandrivier was signed in 1852 between Great Britain and the Voortrekkers (Kruger 2018). In the Convention the Voortrekkers were given independence. The Voortrekkers then established the South African Republic (Transvaal) (Ashman 1996). In 1854, the Orange Free State was formed (Pistorius 2004).

With the discovery of diamond in Kimberly and gold in the Witwatersrand *(Figure 6),* coal was needed for powering machinery in the mines. Thus, coal discovered in the northern Orange Free State was used for both these mining areas. Consequently, on May 1892, a wooden bridge was built across the Vaal River to link the Orange Free State with Transvaal (Meyer & Strauss 2014). The wooden bridge was replaced by a steel bridge in November 1892 (Mever & Strauss 2014). The discovery of coal in northern Free State region led to the construction of the Sasol 1 Power Station in the 1900s.

The discovery of gold brought about conflict and led to the Anglo-Boer War in 1899-1902 as both the Afrikaner groups and the British wanted control of the gold production (Wessels 2010). In early May 1900, British forces started to march from the Parys area to Pretoria (Coetzee 2008). The topography of the area made it ideal for a guerrilla warfare as soldiers could hide in the hills (Gaigher 2015). On May 24th, 1900, lord Roberts ordered General French and Hamilton to cross the Vaal River near the Parys area to go to Pretoria (Coetzee 2008). Therefore, the Vaal River is an important cultural landscape feature in the region. Furthermore, another significant cultural landscape is the Vredefort Dome as in 2015, it was declared South Africa's seventh World Heritage site.

The Parys general region has been developing slowly since the 20th century and has thus remained a small town. It is characterised by industries that have come and gone. For instance, a jam factory, boat building factory, cold drink factory and Parys Roller Milling Company have been in the region since the 1950s (van de Walt 2013). However, the region is presently popular mainly for its holiday destinations (van de Walt 2013). The Anglo-Boer War fights destroyed many of the old buildings in the region. The oldest building remaining in the town is the Town Hall that was built in the 1930's (van de Walt 2013).

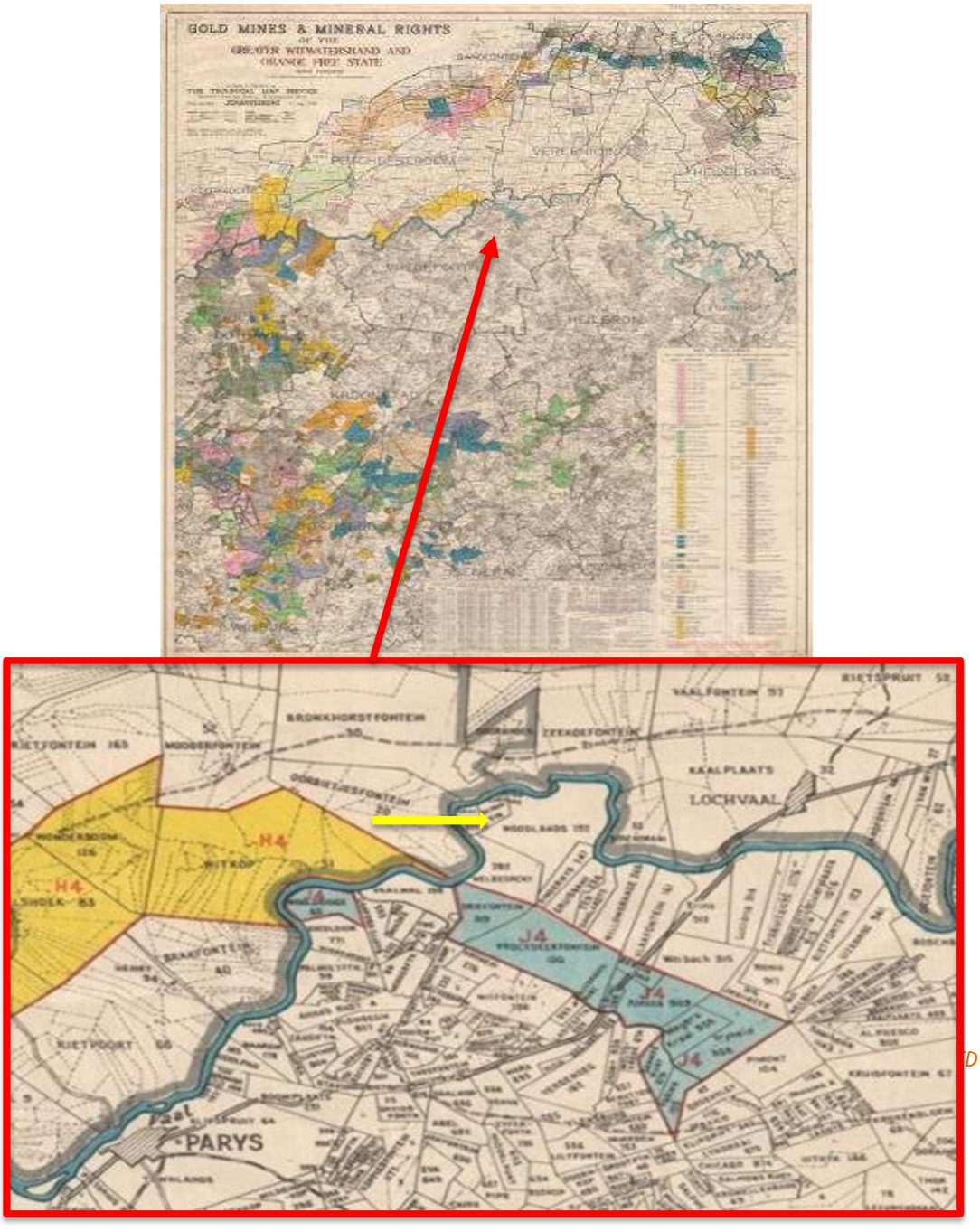


Figure 6: A 1949 map depicting gold mines and mineral rights of the Greater Witwatersrand and Orange Free State. Yellow arrow indicates Farm Woodlands 407 (Source: University of Cape Town 1949).

Previous HIA and AIA's found several archaeology and heritage resources during their survey in the study area and broader region. They found MSA and LSA artefacts (Huffman 2005; Schoeman & Esterhysen 2006; Van de Walt 2013, Gaigher 2015), stone-walled enclosures (Coetzee 2008; Schoeman & Esterhuysen 2006; Coetzee 2008; Van de Walt 2013), pottery (Coetzee 2008), strategic entrenchment redoubt (2008), old farm buildings (Gaigher 2015) cemeteries and burial grounds (Dreyer 2005; Schoeman & Esterhuysen 2006; Coetzee 2008), historic diamond diggings (Schoeman & Esterhuysen 2006; Gaigher 2015), while other studies did not find any archaeology and heritage resources (Nel & Khan 2013; Hardwick 2018). With the De Jong study, archaeological and heritage resources were found, however, they were not found in the vicinity of the study area as the study location was 1861 km long from Johannesburg to Cape Town (De Jong 2011).

3.3 Conclusion on Literature Review

The proposed development area is situated in a province that is rich in archaeology, history and heritage. The province is home to several archaeological sites that have yielded significant material culture related to the Stone and Iron Age. Archaeological stone tool artefacts, Iron-Age Sotho-Tswana stone walls and ceramics, graves, and colonial period buildings have been found throughout the province and areas close to the proposed development.

4. STUDY RESULTS

The background information yielded information about known archaeological and heritage resources located in the Free State Province, particularly the general Parys region. The broader Free State Province has a long history with Sotho-Tswana speaking people migrating and settling in the area during the Iron Age.

The physical survey focused on the area proposed for the mining rights activities on the farm Woodlands, situated in the Free State Province *(Figure. 7).* The proposed area is characterised by a mosaic of land cover. The vegetation consists mainly of dry grassland and on many parts of the farm the vegetation is overgrown *(Figure. 7)*. The Vaal River is the main natural feature located to the north, north-west and east of the farm *(Figure. 8)*. On some parts the proposed project area is characterised by a sand area which was previously used as a mining area *(Figure. 9 and 10*). Furthermore, two wetland areas were found on the farm *(Figure. 11 and 12)* and a pump area *(Figure. 13).* Some parts of the farm were used for agricultural activities, including the growing of corn field *(Figure. 14)* and animal grazing as there are various fauna in the farm (e.g. ostriches, zebras, antelopes and wildebeests) *(Figure. 15).* Consequently, the areas were very disturbed by these activities.

The survey identified six stone wall sites, a bullet found in the vicinity of Site Complex-04 and pottery chard was found in the vicinity of Site Complex-06. Five structures were located in various parts of the farm, however there were contemporary in nature. Furthermore, a possible grave and a small informal cemetery were recorded in the study area.

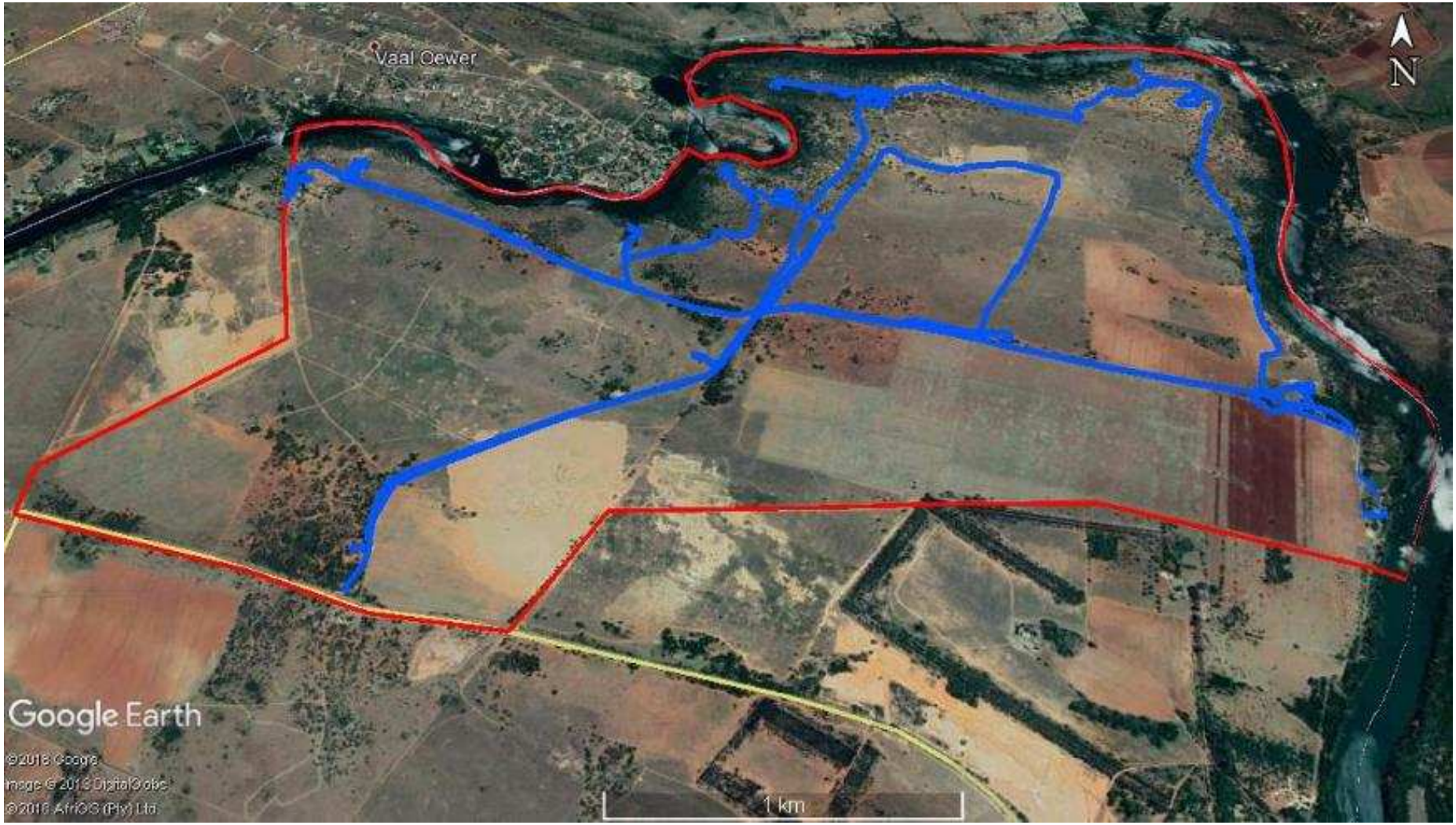


Figure 7: Google Earth image depicting the GPS Track of the survey

Figure 8: Map depicting the sites identified during survey

Figure 9: General view of the taken in the northern part of the study site.

Figure 10: General view of the Vaal River located north of the study site.

Figure 11: General view of the mining site located south of the study site.

Figure 12: General view of the mining site located north of the study site, note the dam.

Figure 13: General view of a wetland area located west of the study site.

Figure 14: General view of the wetland area located in the northwest of the study area.

Figure 15: General view of the pump area.

Figure 16: General view of the corn field located in the south west of the study site.

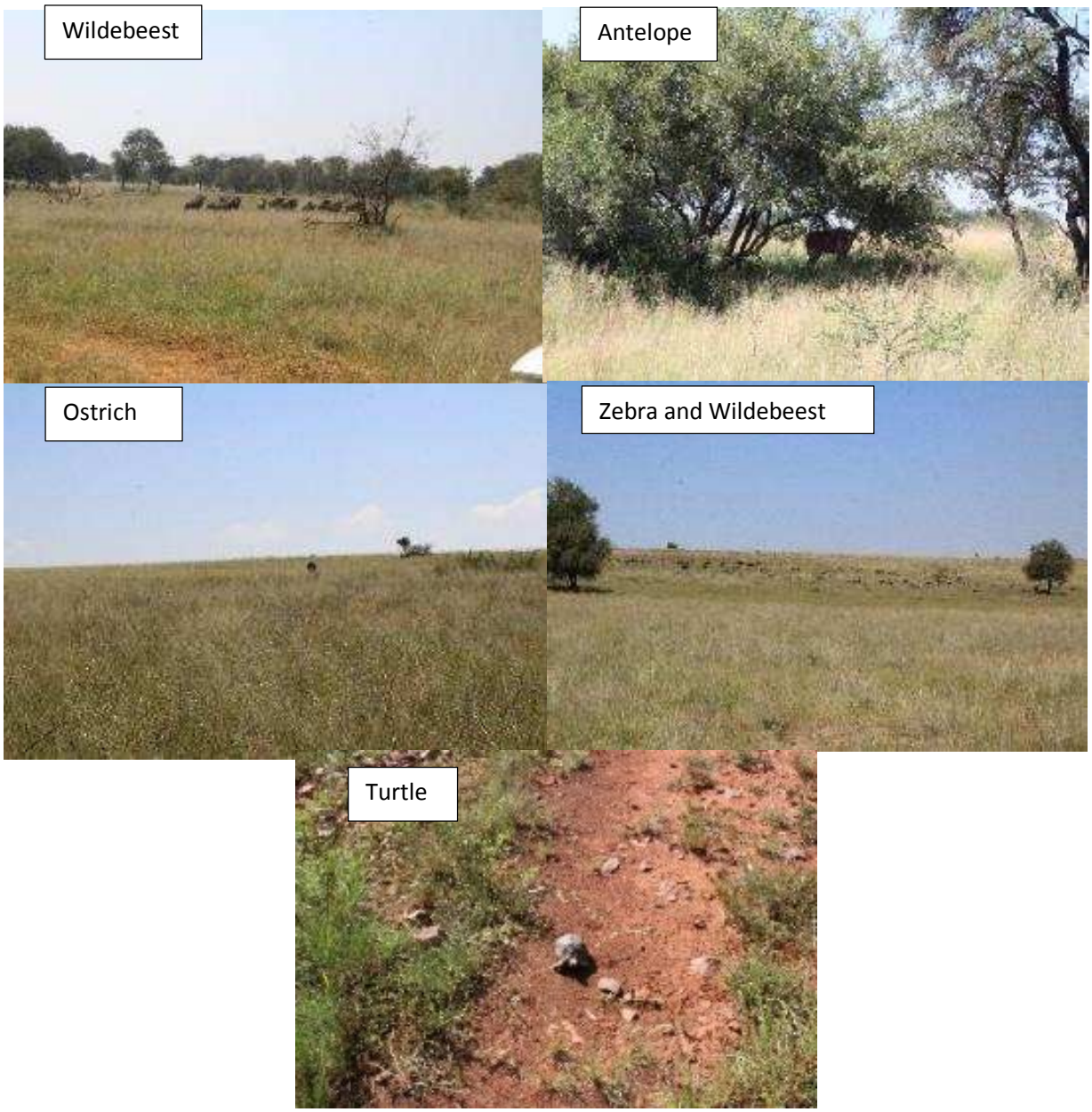


Figure 17: General view of the fauna found in the study site

4.2. Archaeological sites

Table 10: Site Complex-01

Site Name:	**Site Complex - 01**
Type:	Stone wall site
Density:	Medium density
Location/GPS Coordinates:	• 26° 44' 08.0" S • 27° 36' 39.8" E
Approximate Age:	Late Iron Age/ Early Historical Period
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
Collapsed and overgrown stone walling was recorded in the north west section of the farm, approximately 1.3 km away from Alternative 3 of the proposed infrastructure developments *(Figure 18-19).* The stone walled structure forms a square enclosure and is clustered together to form a settlement. There is evidence of damage at several places, which is most likely due to natural processes and vegetation. The stone walls are approximately 0.8 m - 0.9 m in width and 0.3 m – 0.5 m in height. The area was overgrown with vegetation, which most likely contributed to the collapsed nature of the stonewalls. Walling most likely dates to the Late Iron Age / Early Historical Period.	

Figure 18: General view Site Complex-01

Figure 19: The stone wall of Site Complex-01.

Table 11: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Site Complex-01

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	2	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	Site Complex-01 is of medium significance and have heritage value. As such it is recommended: • Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,00

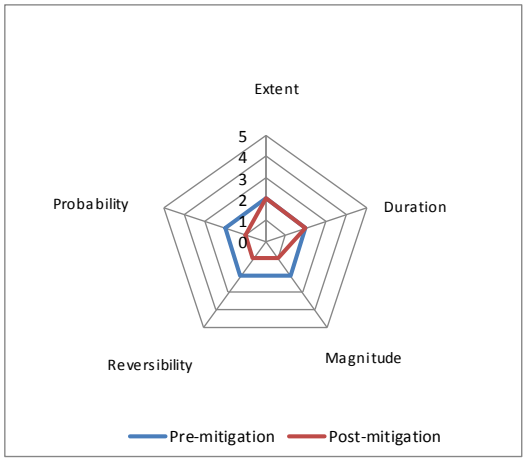


Figure 20: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site Complex-01

Table 12: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Site Complex-01

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	2	2	Reversibility of Impact	4	3
	Duration of Impact	4	3	Probability	4	3
	Environmental Risk (Pre-mitigation)					-14,00
	Mitigation Measures					
	It is recommended that: • Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-8,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-11,00

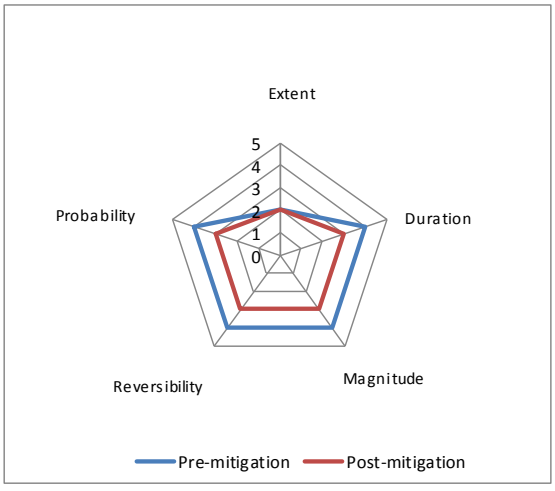


Figure 21: Radar chart depicting the pre-and post-mitigation for the Construction phase for Site Complex-01

Table 13: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Site Complex-01

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	4	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-10,50
	Mitigation Measures					
	It is recommended that: • Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

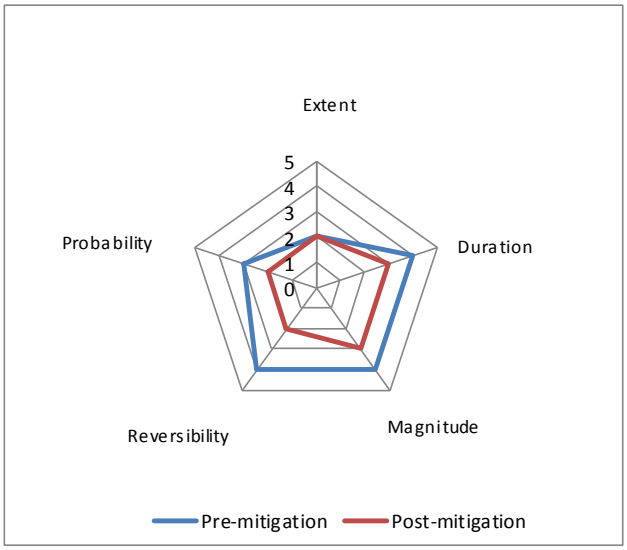


Figure 22: Radar chart depicting the pre-and post-mitigation for the Operation phase for Site Complex-01l

Table 14: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Site-Complex-01

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-9,00
	Mitigation Measures					
	It is recommended that: • Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction. Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

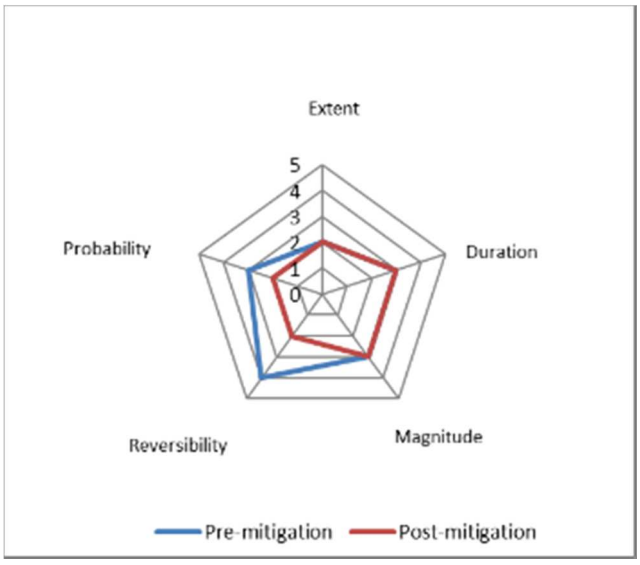


Figure 23: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Site Complex-01

Table 15: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Site Complex-01

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	3	2
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	It is recommended that: • Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-5,33

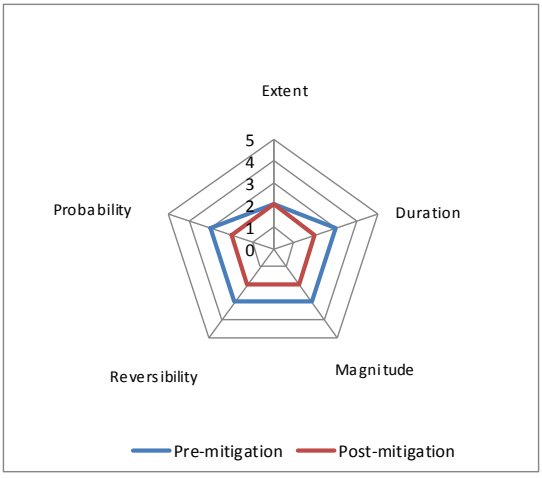


Figure 24: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Site Complex-01

Table 16: Site Complex-02

Site Name:	**Site Complex - 02**
Type:	Stone wall site
Density:	Medium density
Location/GPS Coordinates:	• 26° 44' 05.8" S • 27° 36' 47.0" E
Approximate Age:	Late Iron Age/ Early Historical Period
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
Collapsed and overgrown stone walling was recorded in the north west of the farm by the border of the Vaal River, 1.3 km away from Alternative 3 of the proposed infrastructure development *(Figure. 25-26)*. The stone walled structure forms a circular enclosure and the walls are approximately 0.5 – 0.7 in width and 0.5-0.6 in height. The stone wall is located in an area with overgrown vegetation, which most likely contributed to the collapsed nature of the stonewalls. Walling most likely dates to the Late Iron Age / Early Historical Period.	

Figure 25: General view of Site Complex-02

Figure 26: Stone wall of Site Complex-02

Table 17: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Site Complex-02

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	2	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	• Site Complex-02 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If the mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted before its destruction. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,00

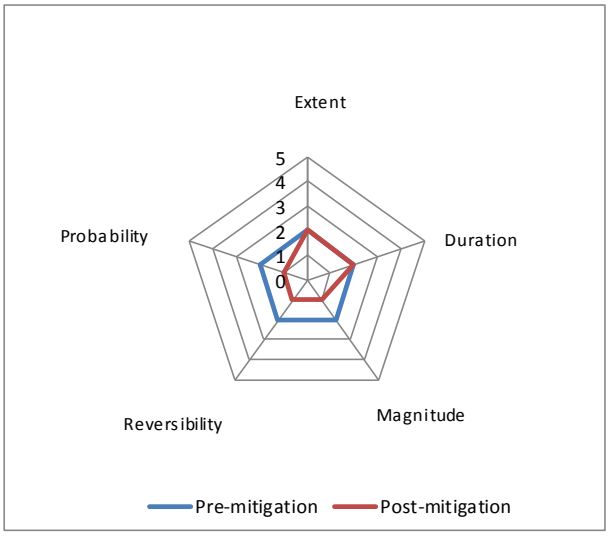


Figure 27: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site-Complex-02

Table 18: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Site-Complex-02

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	2	2	Reversibility of Impact	4	3
	Duration of Impact	4	3	Probability	4	3
	Environmental Risk (Pre-mitigation)					-14,00
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-8,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-11,00

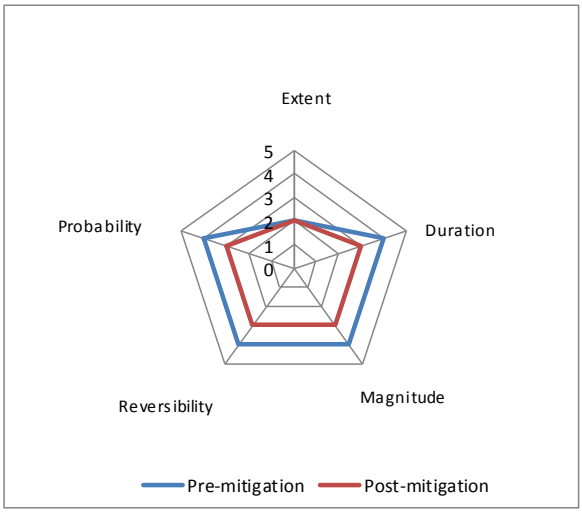


Figure 28: Radar chart depicting the pre-and post-mitigation for the Construction phase for the Site-Complex-02

Table 19: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Site-Complex-02

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	4	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-10,50
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

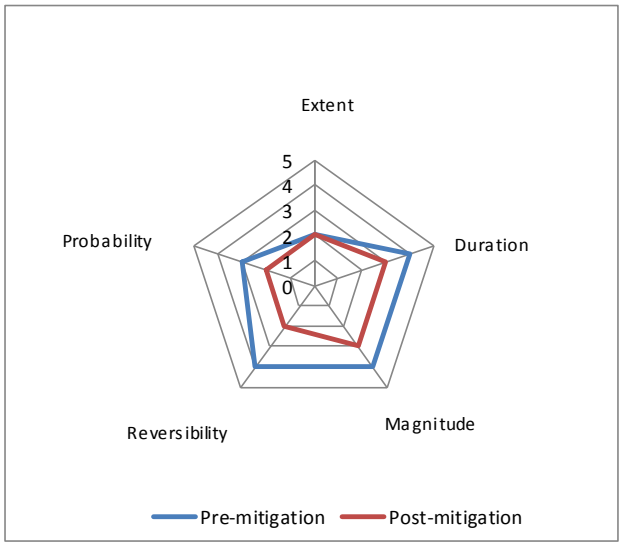


Figure 29: Radar chart depicting the pre-and post-mitigation for the Operation phase for Site-Complex-02

Table 20: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Site-Complex-02

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-9,00
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area. • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

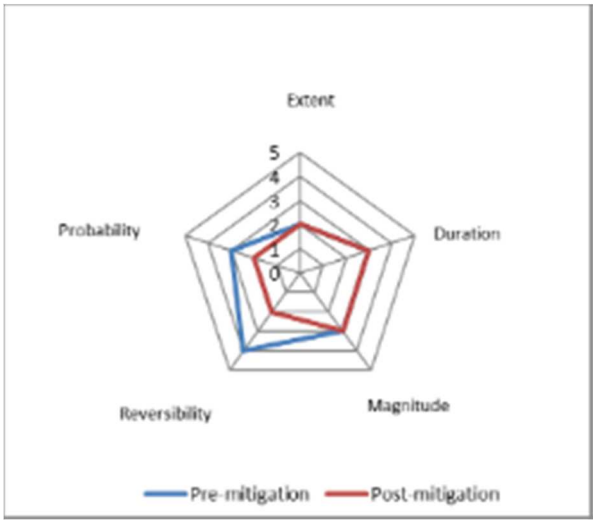


Figure 30: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Site-Complex-02

Table 21: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Site-Complex-02

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	3	2
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-5,33

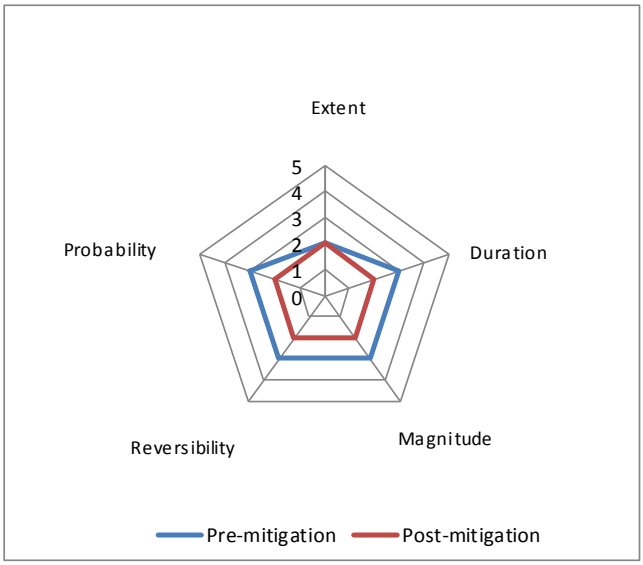


Figure 31: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Site-Complex-02

Table 22: Site Complex-03

Site Name:	**Site Complex - 03**
Type:	Stone wall site
Density:	Medium density
Location/GPS Coordinates:	• 26° 44' 07.5" S • 27° 36' 56.7" E
Approximate Age:	Late Iron Age/ Early Historical Period
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
Site Complex-03 is characterised by a circular stone walled structure, located 1.2 km away from Alternative 3 of the proposed infrastructure developments *(Figure. 32-33).* The stone wall has evidence of damage at several places as it is collapsed. Furthermore, the site is and overgrown with vegetation which most likely contributed to the collapse nature of the stone walls. The stone walls are approximately 0.5 m - 0.6 m in width and 0.8 m – 0.9 m in height. Walling most likely dates to the Late Iron Age / Early Historical Period occupation by Sotho-Tswana speaking people.	

Figure 32: General view of Site Complex-03

Figure 33: Stone walls of Site Complex-03

Table 23: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Site-Complex-03

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	2	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	• Site Complex-03 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-1,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,00

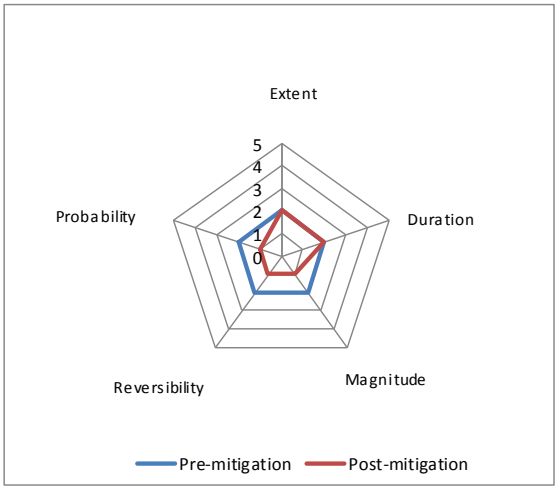


Figure 34: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site-Complex-03

Table 24: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Site-Complex-03

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	2	2	Reversibility of Impact	4	3
	Duration of Impact	4	3	Probability	4	3
	Environmental Risk (Pre-mitigation)					-14,00
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-8,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-11,00

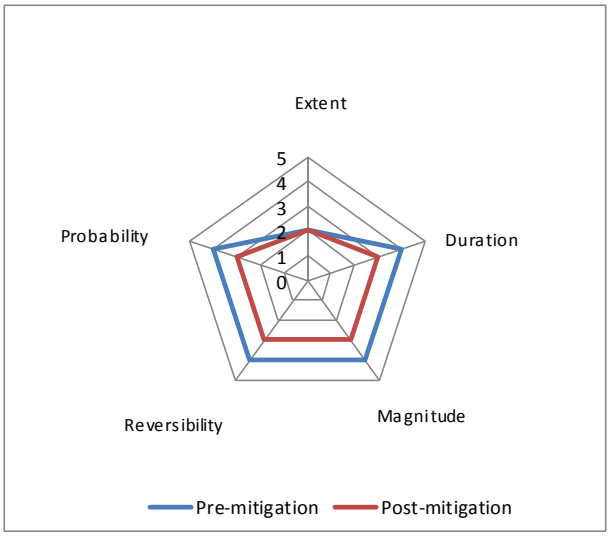


Figure 35: Radar chart depicting the pre-and post-mitigation for the Construction phase for Site-Complex-03

Table 25: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Site-Complex-03

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	4	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-10,50
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

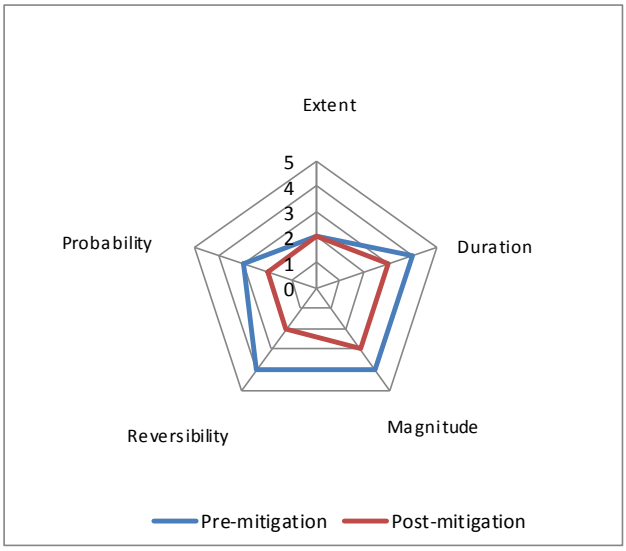


Figure 36: Radar chart depicting the pre-and post-mitigation for the Operation phase for Site-Complex-03

Table 26: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Site-Complex-03

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-9,00
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

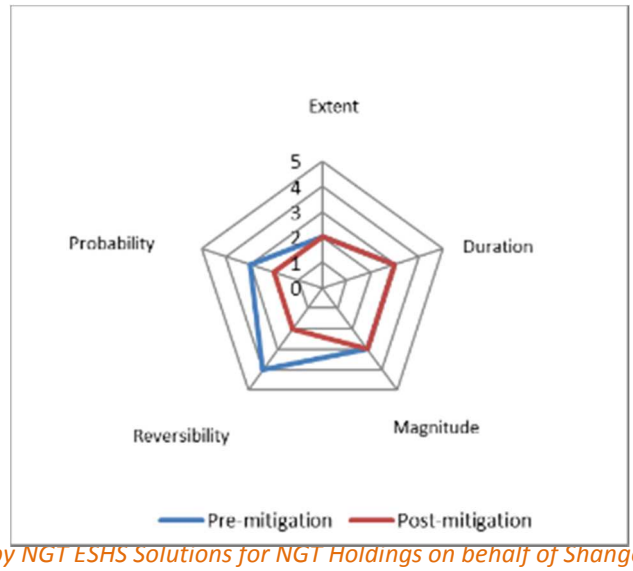


Figure 37: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Site-Complex-03

Table 27: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Site-Complex-03

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	3	2
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	• Mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-5,33

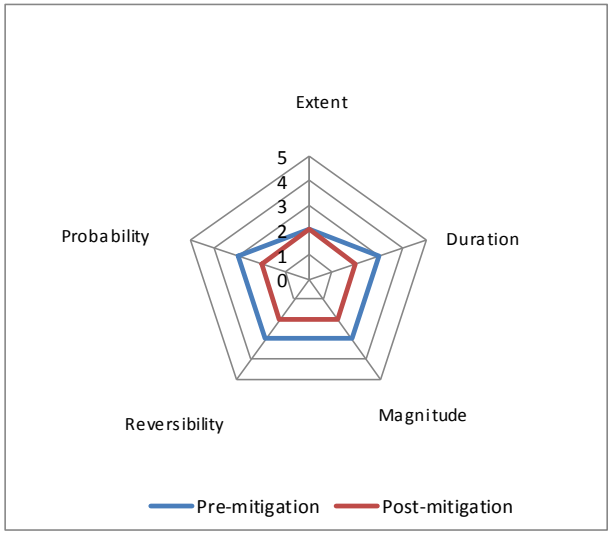


Figure 38: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Site-Complex-03

Table 28: Site Complex -04

Site Name:	**Site Complex - 04**
Type:	Stone wall site
Density:	Medium density
Location/GPS Coordinates:	• 26° 44' 28.7" S • 27° 36' 46.2" E
Approximate Age:	Late Iron Age/ Early Historical Period
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
Site Complex-04 is characterised by two circular stone walled structures that are attached to each other, located 600m from Alternative 3 of the proposed infrastructure developments *(Figure. 39-40).* The stone wall has evidence of damage at several places as it is collapsed. Furthermore, the site is and overgrown with vegetation which most likely contributed to the collapse nature of the stone walls. The stone walls are approximately 0.3 m - 0.5 m in width and 0.7 m – 0.8 m in height. Walling most likely dates to the Late Iron Age / Early Historical Period occupation by Sotho-Tswana speaking people. A pottery shard was found in the vicinity of the stone walls at coordinates 26°44’ 28.6” S; 27°36’46’1” E *(Figure 41)* and most likely dates to the Iron Age. Although pottery has been found in the area, the area cannot be characterised as a site, since the pottery was found in a disturbed context and in low density.	

Figure 39: General view of Site Complex-04

Figure 40: Stone walls of Site Complex-04

Figure 41: Pottery shard found in the vicinity of Site Complex-04

Table 29: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for the Site Complex-04

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	2	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	Site Complex-04 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-1,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,00

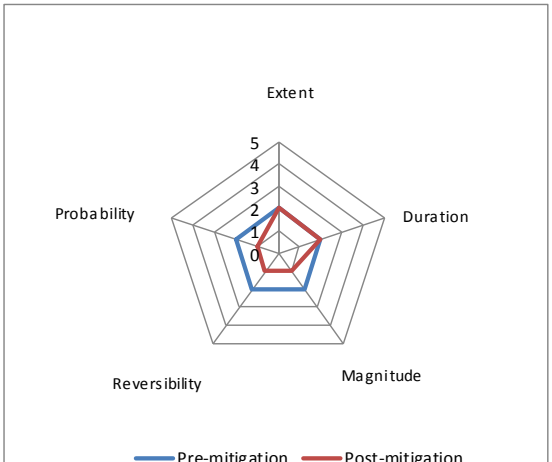


Figure 42: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site Complex-04

Table 30: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Site Complex-04

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	3	3	Reversibility of Impact	4	3
	Duration of Impact	4	3	Probability	4	3
	Environmental Risk (Pre-mitigation)					-15,00
	Mitigation Measures					
	• The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-9,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-13,50

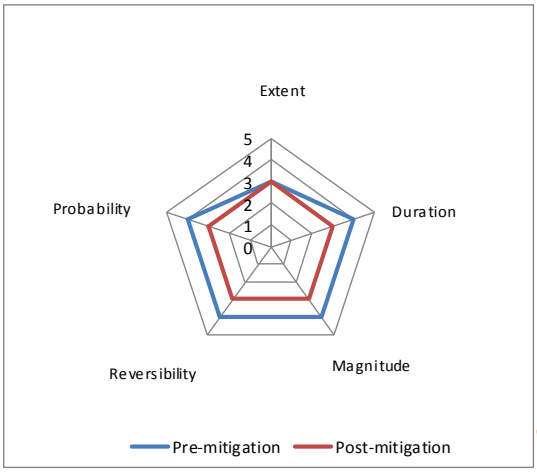


Figure 43: Radar chart depicting the pre-and post-mitigation for the Construction phase for Site Complex-04

Table 31: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Site Complex-04

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	2
	Extent of Impact	3	3	Reversibility of Impact	3	2
	Duration of Impact	4	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-10,50
	Mitigation Measures					
	• The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

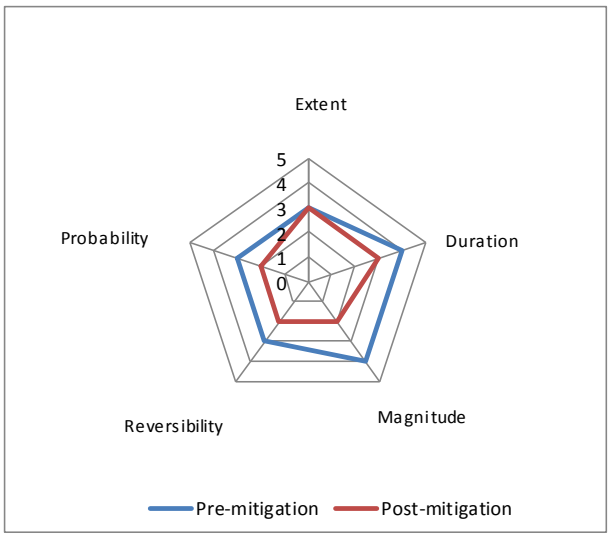


Figure 44: Radar chart depicting the pre-and post-mitigation for the Operation phase for Site Complex-04

Table 32: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Site Complex-04

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-9,00
	Mitigation Measures					
	• The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

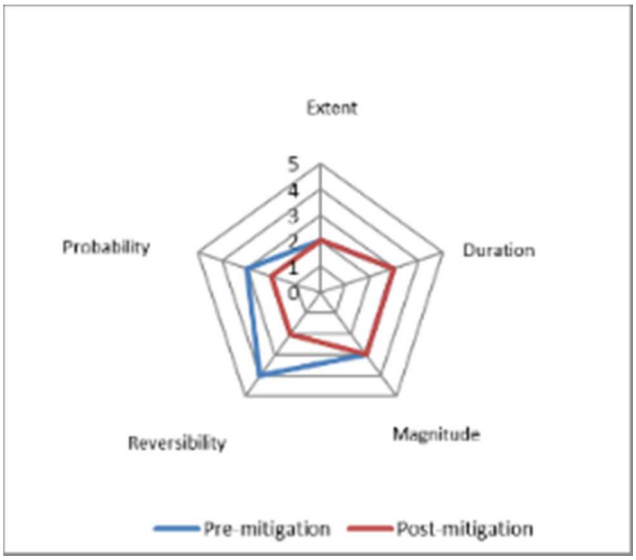


Figure 45: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Site-Complex-04

Table 33: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Site Complex-04

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	3	2
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	• The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-5,33

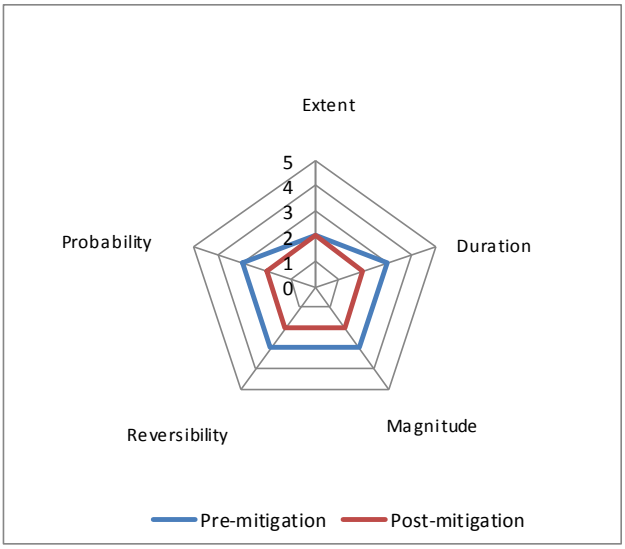


Figure 46: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Site-Complex-04

Table 34: Site Complex-05

Site Name:	**Site Complex - 05**
Type:	Stone wall site
Density:	Medium density
Location/GPS Coordinates:	• 26° 44' 29.17" S • 27° 36' 48.35" E
Approximate Age:	Late Iron Age/ Historical Period
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
Site Complex-05 is characterised by a circular stone walled structure located in the west of Farm Woodlands 407, 600 m away from alternative 3 of the proposed infrastructure developments (Figure. 47-48). The stone wall has evidence of damage at several places as it is collapsed. Furthermore, the site is and overgrown with vegetation which most likely contributed to the collapse nature of the stone walls. The stone walls are approximately 0.7 m - 0.8 m in width and 0.4 m – 0.5 m in height. Walling most likely dates to the Late Iron Age/ Historical Period occupation by Sotho-Tswana speaking people.	

Figure 47: General view of Site Complex-05

Figure 48: Stone wall of Site Complex-05

Table 35: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for the Site Complex-05

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	2	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	Site Complex-05 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-1,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,00

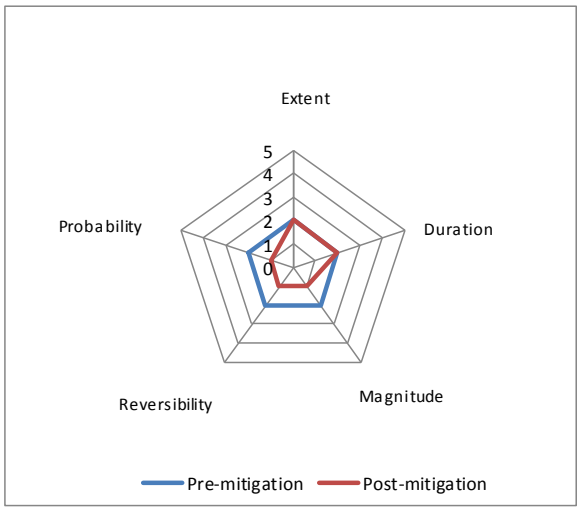


Figure 49: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site Complex-05

Table 36: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Site Complex-05

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	3	3	Reversibility of Impact	4	3
	Duration of Impact	4	3	Probability	4	3
	Environmental Risk (Pre-mitigation)					-15,00
	Mitigation Measures					
	Site Complex-05 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-9,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-13,50

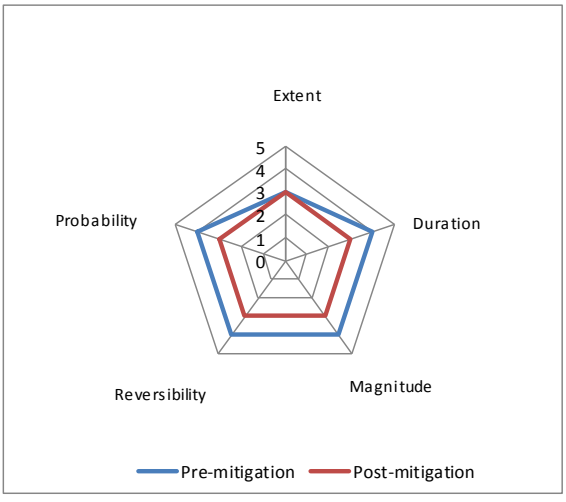


Figure 50: Radar chart depicting the pre-and post-mitigation for the Construction phase for Site Complex-05

Table 37: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Site Complex-05

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	2
	Extent of Impact	3	3	Reversibility of Impact	3	2
	Duration of Impact	4	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-10,50
	Mitigation Measures					
	Site Complex-05 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

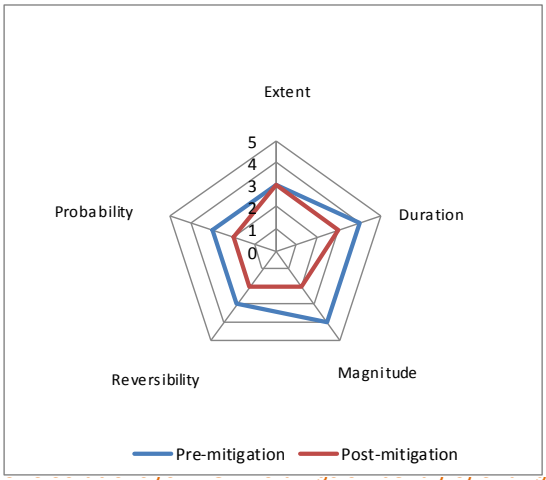


Figure 51: Radar chart depicting the pre-and post-mitigation for the Operation phase for Site Complex-05

Table 38: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Site Complex-05

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-9,00
	Mitigation Measures					
	Site Complex-05 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

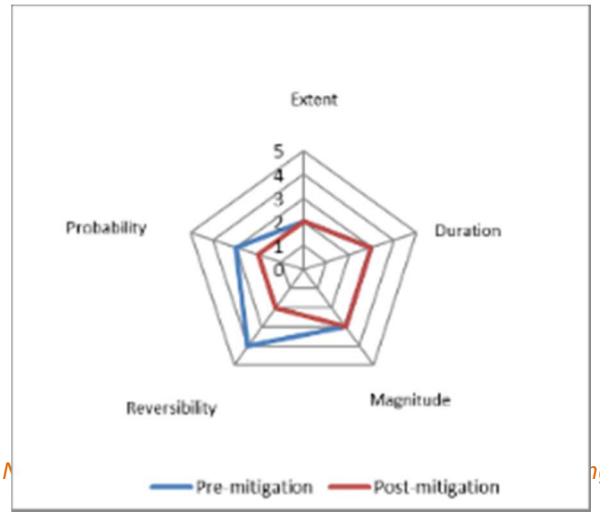


Figure 52: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Site Complex-05

Table 39: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Site Complex-05

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	3	2
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	Site Complex-05 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-5,33

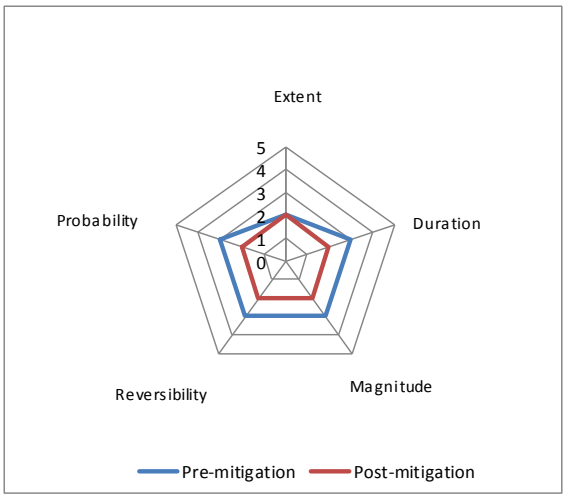


Figure 53: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Site Complex-05

Table 40: Site Complex -06

Site Name:	**Site Complex - 06**
Type:	Stone wall site
Density:	Medium density
Location/GPS Coordinates:	• 26° 44' 23.1" S • 27° 36' 39.2" E
Approximate Age:	Historical Period
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
Site Complex-06 is an Anglo-Boer war stone wall structure overlooking the Vaal River, which may have been used as a defence structure during the war *(Figure. 54-55).* The walling is located 800 m way from alternative 3. The stone walls are approximately 0.8 m - 0.9 m in width and 0.9 m – 10 m in height. Walling dates to the Historical Period during the Anglo-Boer (1899-1902). A Hornady 308 WIN bullet was found in the vicinity of the stone wall at coordinates 26°44’ 23.2” S; 27°36’38’7” E *(Figure. 56).* The bullet is contemporary as the Hornady company was founded in 1949, however, the bullet may have been manufactured between 2000-2009 and may been used for hunting activities.	

Figure 54: General view of Site Complex-06

Figure 55: Stone wall of Site Complex-06

Figure 56: Bullet found in the vicinity of Site Complex-06

Table 41: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Site-Complex-06

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	2	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-7,50
	Mitigation Measures					
	Site Complex-06 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-4,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-6,00

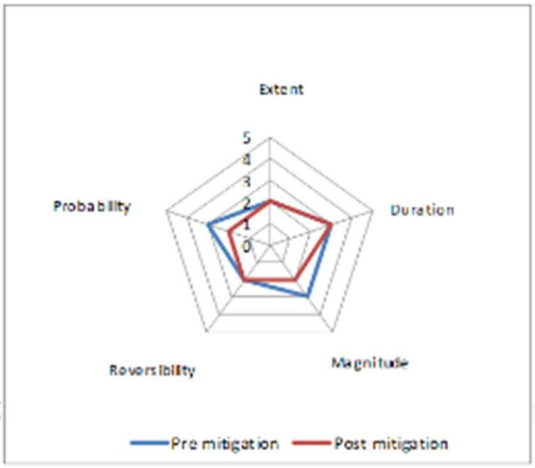


Figure 57: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site Complex-06

Table 42: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Site Complex-06

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	3	2	Reversibility of Impact	4	3
	Duration of Impact	4	3	Probability	4	2
	Environmental Risk (Pre-mitigation)					-15,00
	Mitigation Measures					
	Site Complex-06 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-7,33

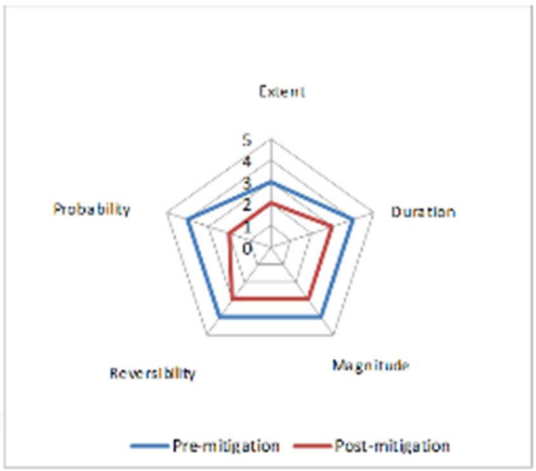


Figure 58: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site Complex-06

Table 43: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Site Complex-06

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	3	2	Reversibility of Impact	3	2
	Duration of Impact	4	3	Probability	4	2
	Environmental Risk (Pre-mitigation)					-14,00
	Mitigation Measures					
	Site Complex-06 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-6,67

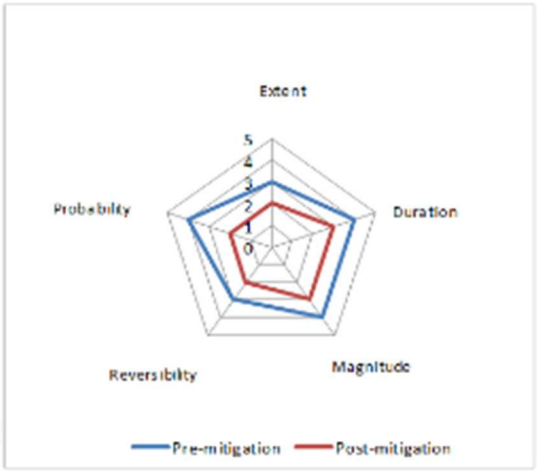


Figure 59: Radar chart depicting the pre-and post-mitigation for the Planning phase for Site Complex-06

Table 44: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Site Complex-06

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	3
	Extent of Impact	2	2	Reversibility of Impact	4	2
	Duration of Impact	3	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-9,00
	Mitigation Measures					
	Site Complex-06 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-7,50

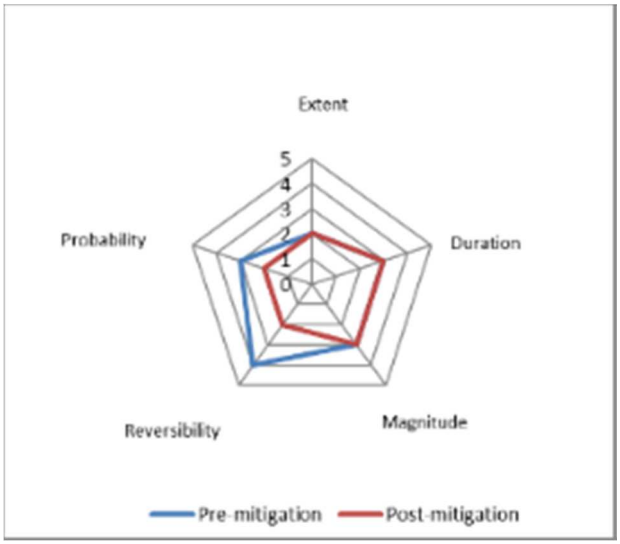


Figure 60: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Site Complex-06

Table 45: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Site Complex-06

	Disturbance/destruction of archaeology and living heritage resources					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of archaeology and living heritage resources**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	3	2
	Environmental Risk (Pre-mitigation)					-8,25
	Mitigation Measures					
	Site Complex-06 is of medium significance and have heritage value. As such it is recommended: • The stone walls should be completely avoided, as it is a No-Go-Area • If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-5,33

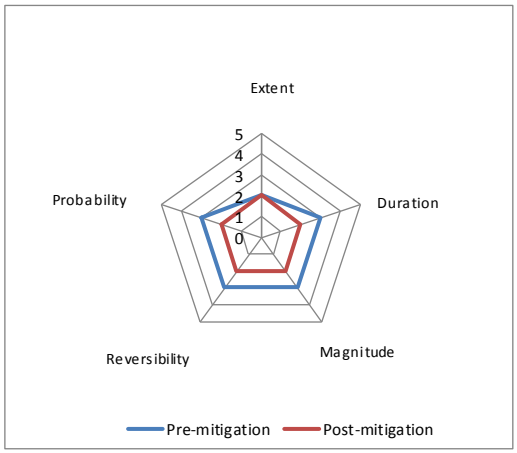


Figure 61: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Site Complex-06

4.3. Built Environment Features

Table 46: Built-Wood-01

Site Name:	**Built-Wood- 01**
Type:	Built environment
Density:	Low density
Location/GPS Coordinates:	• 26° 45' 0.90" S • 27° 37' 53.71" E
Approximate Age:	Contemporary
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
During the survey a contemporary building was identified in the east of Woodlands Farm 407, with three associated outbuildings *(Figure 62-68).* The building structures are made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of corrugated iron. The buildings are used for multi-purposes, the main building and Outbuilding 1 seemed to be a storage area. Outbuilding 1 and 2 is used as a stall.	

Figure 62: General view of Built-Wood-1

Figure 63: West facing corner of the main building

Figure 64: South facing corner of the main building

Figure 65: East facing corner of the main building

Figure 66: North facing corner of the main building

Figure 67: Outbuilding 1 with cement plaster

Figure 68: Outbuilding 2 with rock plaster on top of cement plaster (Yellow arrow)

Table 47: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase of Built-Wood-01

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					-2,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

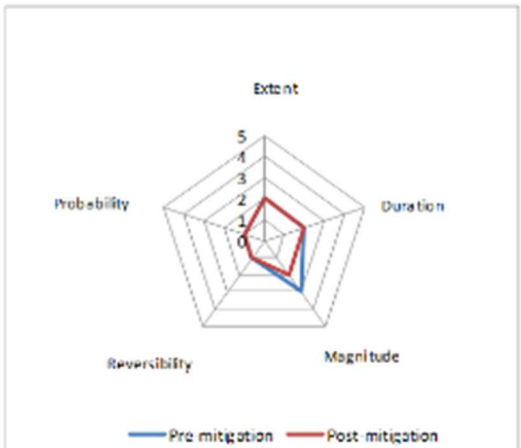


Figure 69: Radar chart depicting the pre and post mitigation for the Planning phase for Built-Wood-01

Table 48: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Built-Wood-01

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-7,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

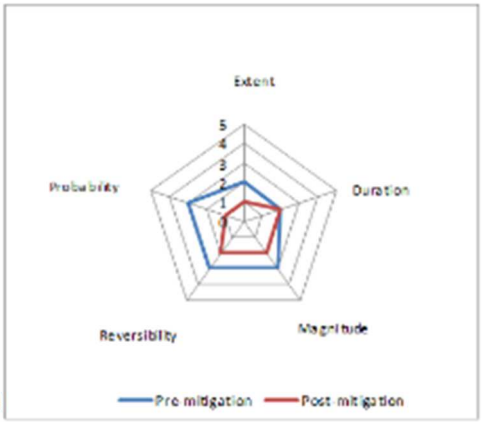


Figure 70: Radar chart depicting the pre and post mitigation for the Construction phase for Built-Wood-01

Table 49: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Built-Wood-01

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	3
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-2,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,67

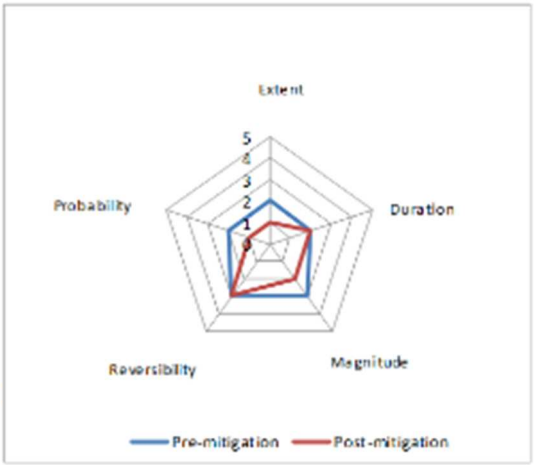


Figure 71: Radar chart depicting the pre and post mitigation for the Operation phase for Built-Wood-01

Table 50: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Built-Wood-01

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

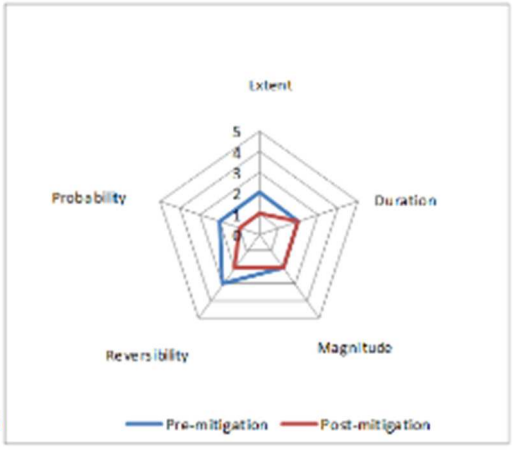


Figure 72: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-01

Table 51: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Built-Wood-01

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	1	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,67

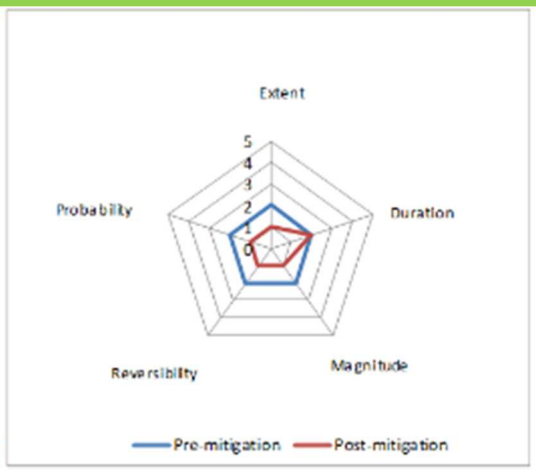


Figure 73: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-01

Table 52: Built-Wood-02

Site Name:	**Built-Wood- 02**
Type:	Built Environment
Density:	Low density
Location/GPS Coordinates:	• 26° 45' 17.31" S • 27° 37' 58.26" E
Approximate Age:	Contemporary
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
A cabin camping site used for holiday vacation and fishing was located on the south east of the study area *(Figure. 75).* The structures are made with wood with the stairwell made with reddish/brown bricks and the roof is of corrugated iron. The cabins are less than 60 years therefore they are not protected under not protected under the NHRA (Act no. 25 of 1999),	

Figure 74: General view of the cabin site (Built-Wood-02)

Table 53: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Built-Wood-02

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					-2,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

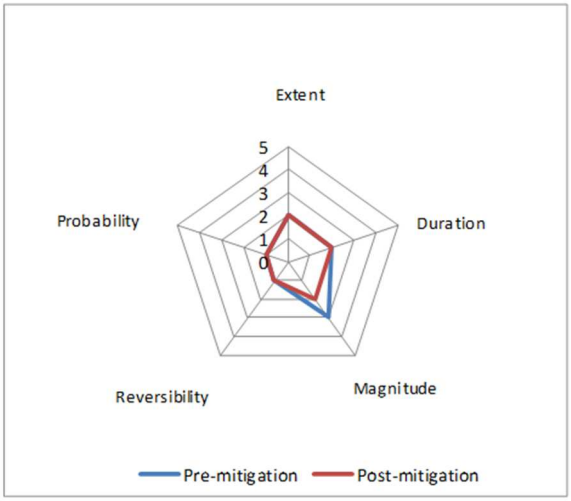


Figure 75: Radar chart depicting the pre and post mitigation for the Planning phase for Built-Wood-02

Table 54: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Built-Wood-02

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-7,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

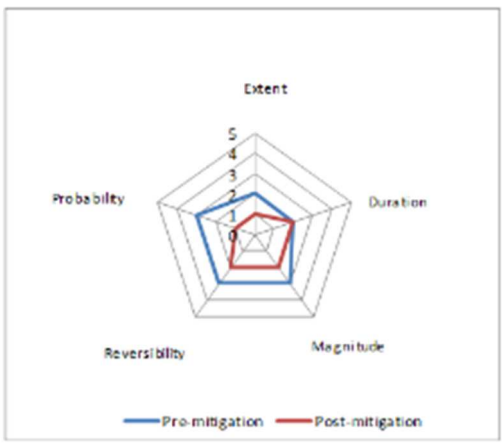


Figure 76: Radar chart depicting the pre and post mitigation for the Construction phase for Built-Wood-02

Table 55: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Built-Wood-02

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	3
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-2,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,67

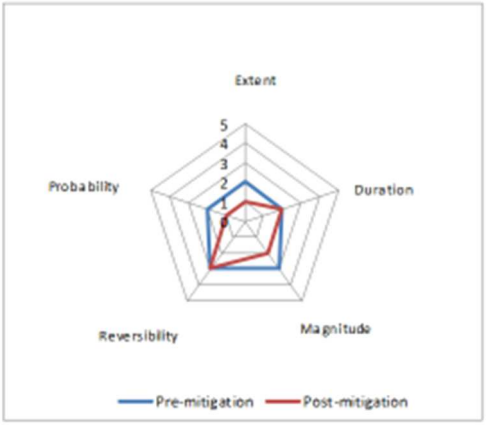


Figure 77: Radar chart depicting the pre and post mitigation for the Operation phase for Built-Wood-02

Table 56: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Built-Wood-02

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

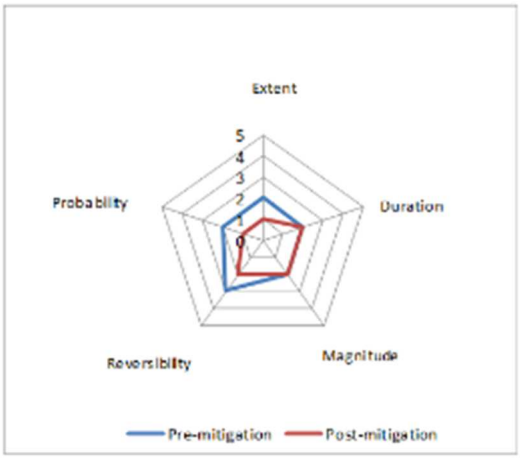


Figure 78: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-02

Table 57: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Built-Wood-02

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	1	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,67

Figure 79: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Built-Wood-02

Table 58: Built-Wood-03

Site Name:	**Built-Wood- 03**
Type:	Built environment
Density:	Low density
Location/GPS Coordinates:	• 26° 44' 21.7" S • 27° 35' 44.5" E
Approximate Age:	Contemporary
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
A tall cement structure was found on the west of the study area *(Figure. 80)* with associated structure ruins of a foundation *(Figure. 81).* The structure is contemporary thus less than 60 years old.	

Figure 80: General view of the tall cement structure (Built-Wood-03)

Figure 81: General view of the concrete foundation

Table 59: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase of Built-Wood-03

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	1	1	Reversibility of Impact	1	1
	Duration of Impact	2	1	Probability	1	1
	Environmental Risk (Pre-mitigation)					-1,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,33

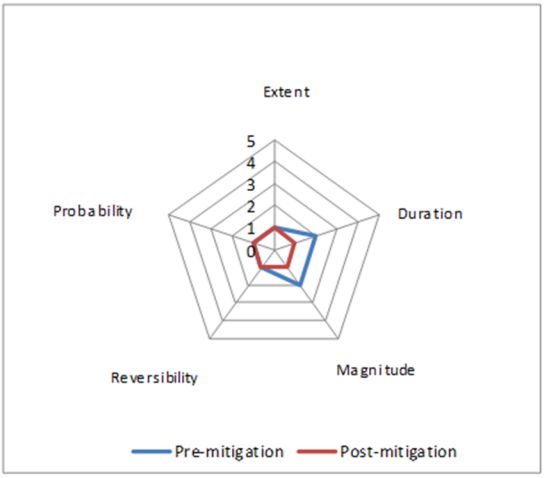


Figure 82: Radar chart depicting the pre and post mitigation for the Planning phase of Built-Wood-03

Table 60: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Built-Wood-03

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	1	1	Reversibility of Impact	2	1
	Duration of Impact	2	1	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,67

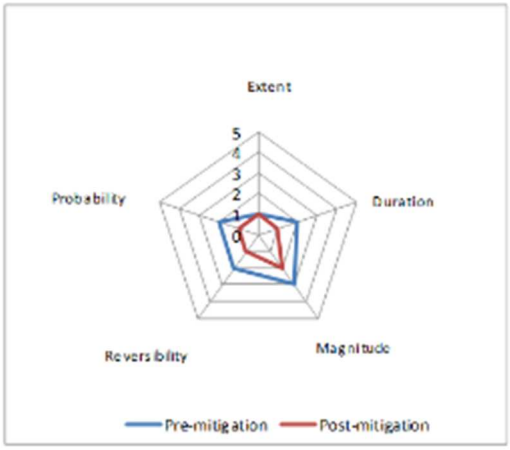


Figure 83: Radar chart depicting the pre and post mitigation for the Construction phase for Built-Wood-03

Table 61: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Built-Wood-03

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	3
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-2,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,67

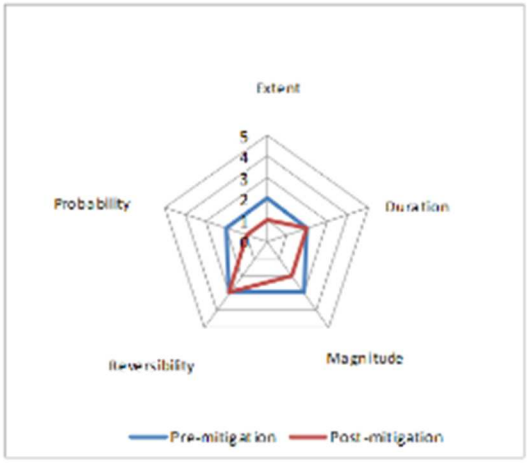


Figure 84: Radar chart depicting the pre and post mitigation for the Operation phase for Built-Wood-03

Table 62: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Built-Wood-03

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

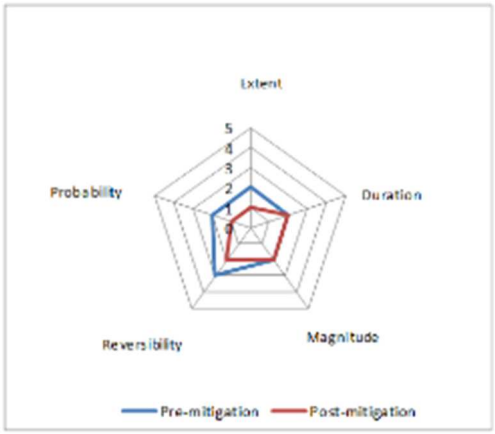


Figure 85: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-03

Table 63: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Built-Wood-03

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	1
	Extent of Impact	1	1	Reversibility of Impact	1	1
	Duration of Impact	1	1	Probability	2	1
	Environmental Risk (Pre-mitigation)					-3,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value. • The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,33

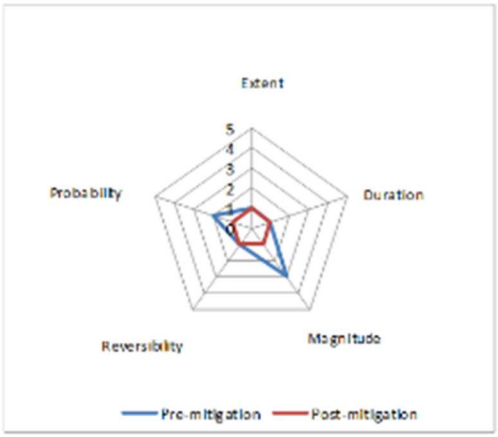


Figure 86: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-03

Table 64: Built-Wood-04

Site Name:	**Built-Wood- 04**
Type:	Built environment
Density:	Low density
Location/GPS Coordinates:	• 26° 45' 23.19" S • 27° 35' 55.47" E
Approximate Age:	Contemporary
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
A contemporary house structure was identified on the south of Woodlands Farm 407, which is used as a reception area *(Figure. 87).* The building structures are made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of thatch.	

Figure 87: General view of the reception area (Built-Wood-04)

Table 65: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Built-Wood-04

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					-2,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

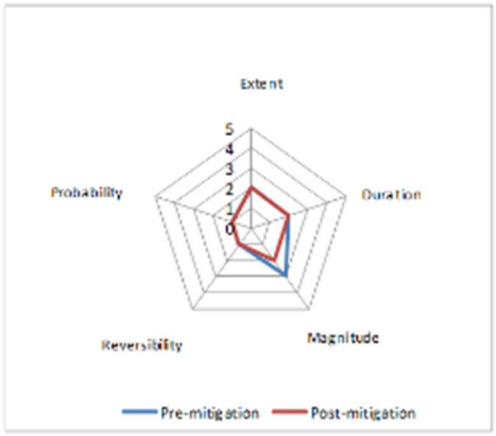


Figure 88: Radar chart depicting the pre and post mitigation for the Planning phase for Built-Wood-04

Table 66: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Built-Wood-04

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-7,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

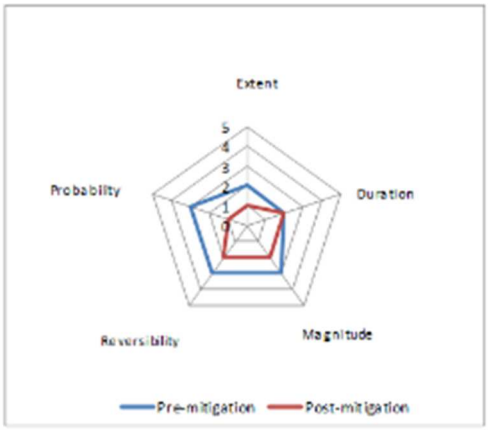


Figure 89: Radar chart depicting the pre and post mitigation for the Construction phase for Built-Wood-04

Table 67: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Built-Wood-03

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	3
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-2,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,67

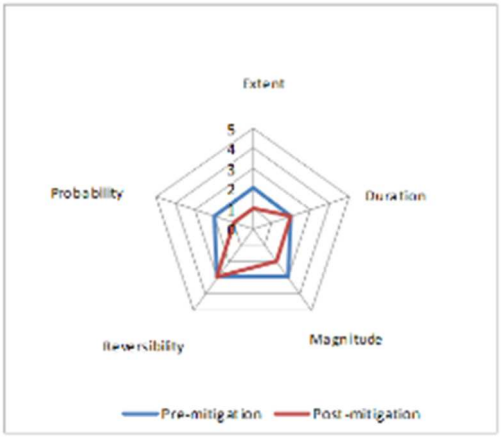


Figure 90: Radar chart depicting the pre and post mitigation for the Operation phase for Built-Wood-04

Table 68: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Built-Wood-04

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

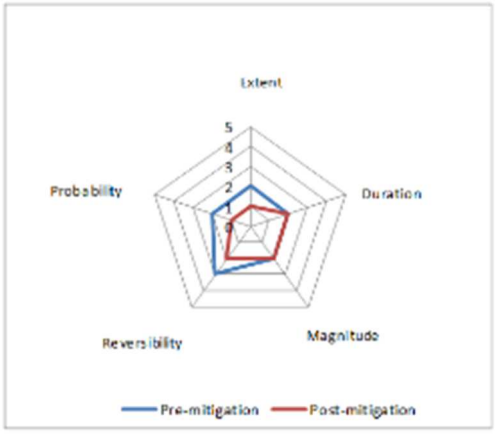


Figure 91: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-04

Table 69: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Built-Wood-04

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	1	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,67

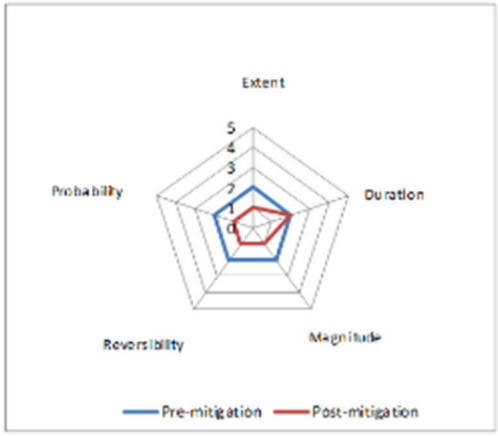


Figure 92: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Built-Wood-04

Table 70: Built-Wood-05

Site Name:	**Built-Wood- 05**
Type:	Built environment
Density:	Low density
Location/GPS Coordinates:	• 26° 45' 27.65" S • 27° 35' 56.84" E
Approximate Age:	Contemporary
Applicable Sections of the Relevant Acts:	Section 34 of the NHRA, No. 25 of 1999
Description:	
A guard house was identified at the entrance of Woodlands farm 407 (*Figure. 93).* The building structure is made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of corrugated iron.	

Figure 93: General view of the guard house (Built-Wood-05)

Table 71: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Built-Wood-05

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	1	1
	Duration of Impact	2	2	Probability	1	1
	Environmental Risk (Pre-mitigation)					-2,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

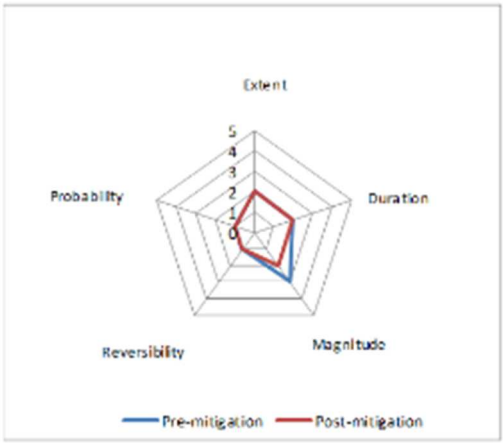


Figure 94: Radar chart depicting the pre and post mitigation for the Planning phase for Built-Wood-05

Table 72: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Built-Wood-05

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-7,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

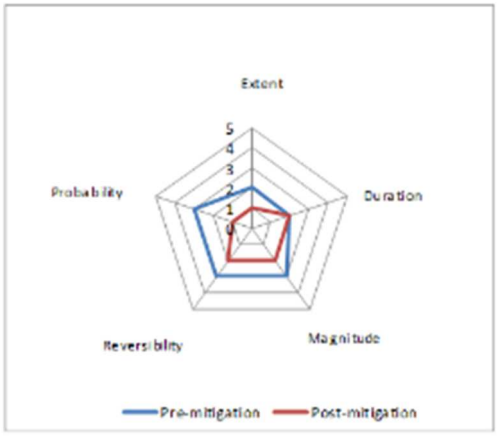


Figure 95: Radar chart depicting the pre and post mitigation for the Construction phase for Built-Wood-05

Table 73: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Built-Wood-05

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	1	Reversibility of Impact	3	3
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-2,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,67

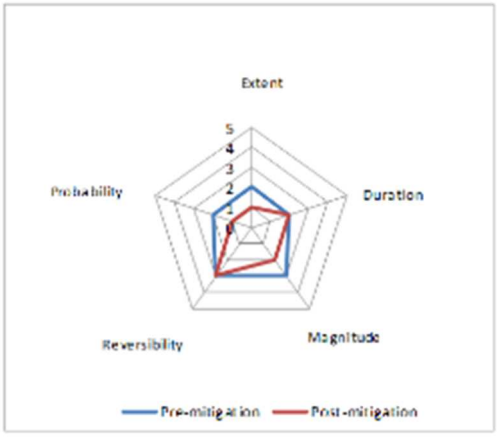


Figure 96: Radar chart depicting the pre and post mitigation for the Operation phase for Built-Wood-05

Table 74: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Built-Wood-05

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	2
	Extent of Impact	2	1	Reversibility of Impact	3	2
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,50
	Mitigation Measures					
	The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

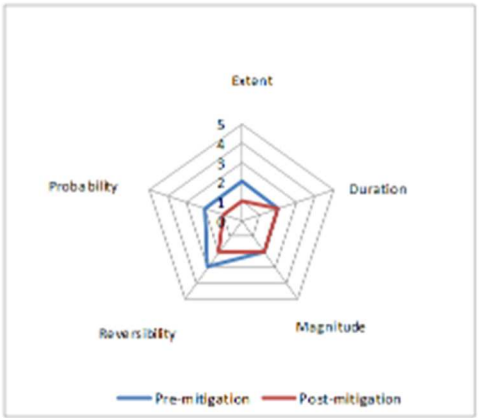


Figure 97: Radar chart depicting the pre and post mitigation for the Decommissioning phase for Built-Wood-05

Table 75: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Built-Wood-05

	Disturbance/Destruction of Built Environment					
Heritage Impact Assessment	**Impact Name**	**Disturbance/Destruction of Built Environment**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	2	1
	Extent of Impact	2	1	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,00
	Mitigation Measures					
	The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value. • The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999). • However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,67

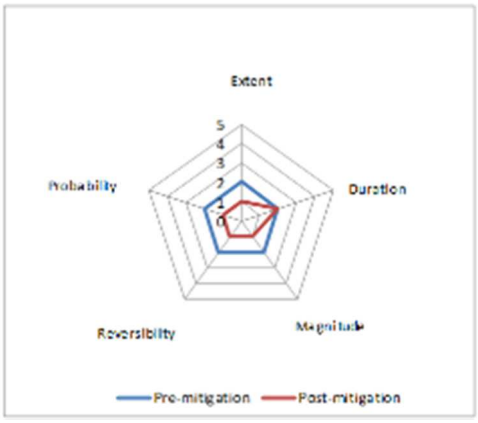


Figure 98: Radar chart depicting the pre and post mitigation for the Rehab and Closure phase for Built-Wood-05

4.3 Burial Grounds and Graves

Table 76: Wood-Grave-01

Site Name:	**Wood-Grave-01**
Type:	Burial Ground and Graves
Density:	High density
Location/GPS Coordinates:	• 26° 43' 59.8" S • 27° 37' 45.2" E
Approximate Age:	Contemporary
Applicable Sections of the Relevant Acts:	Section 36 of the NHRA, No. 25 of 1999
Description:	
An area containing a possible rectangular grave of unknown person was located to the north of the study area *(Figure 100).* A bonfire is located next to the grave. The area is located approximately 2,9 km north from alternative 3 of the proposed infrastructure developments.	

Figure 99: General view of the grave and bonfire area (Wood-Grave-01)

Table 77: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Wood-Grave-01

	Disturbance/destruction of burial grounds and graves					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	1
	Extent of Impact	2	2	Reversibility of Impact	2	1
	Duration of Impact	3	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The area identified to contain a possible grave is of high significance. As such it is recommended that the: • No mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area • A fence should be erected around the possible grave and be treated as a No-Go-Zone; • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,00

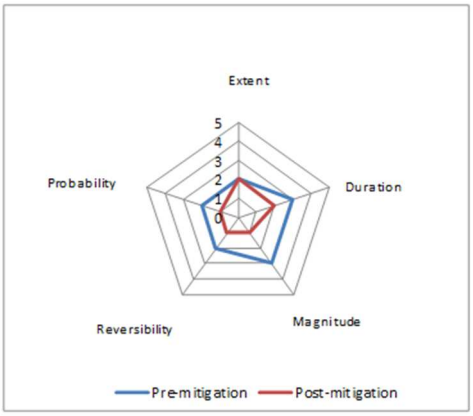


Figure 100: Radar chart depicting the pre-and post-mitigation for the Planning phase for Wood-Grave-01

Table 78: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Wood-Grave-01

	Disturbance/destruction of burial grounds and graves					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	5	4
	Extent of Impact	3	2	Reversibility of Impact	3	2
	Duration of Impact	5	4	Probability	3	2
	Environmental Risk (Pre-mitigation)					-12,00
	Mitigation Measures					
	The area identified to contain a possible grave is of high significance. As such it is recommended that the: • No mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area • A fence should be erected around the possible grave and be treated as a No-Go-Zone; • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-6,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-8,00

Figure 101: Radar chart depicting the pre-and post-mitigation for the Construction phase for Wood-Grave-01

Table 79: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Wood-Grave-01

	Disturbance/destruction of burial grounds and graves					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	3	2	Reversibility of Impact	3	2
	Duration of Impact	4	3	Probability	3	2
	Environmental Risk (Pre-mitigation)					-10,50
	Mitigation Measures					
	The area identified to contain a possible grave is of high significance. As such it is recommended that the: • No mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area • A fence should be erected around the possible grave and be treated as a No-Go-Zone; • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-5,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-6,67

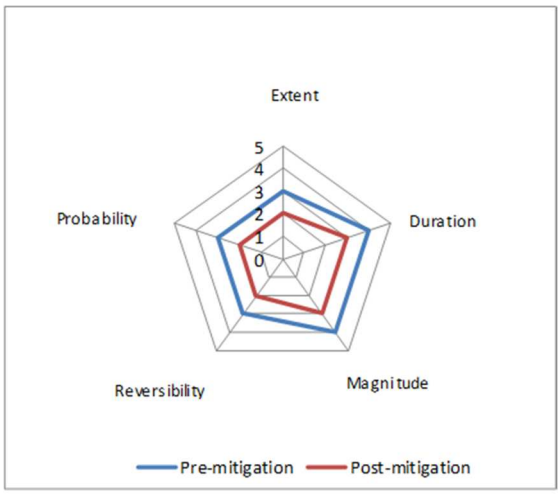


Figure 102: Radar chart depicting the pre-and post-mitigation for the Operation phase for Wood-Grave-01

Table 80: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Wood-Grave-01

	Disturbance/destruction of burial grounds and graves					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	3	2	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-5,00
	Mitigation Measures					
	The area identified to contain a possible grave is of high significance. As such it is recommended that the: • No mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area • A fence should be erected around the possible grave and be treated as a No-Go-Zone; • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-2,33

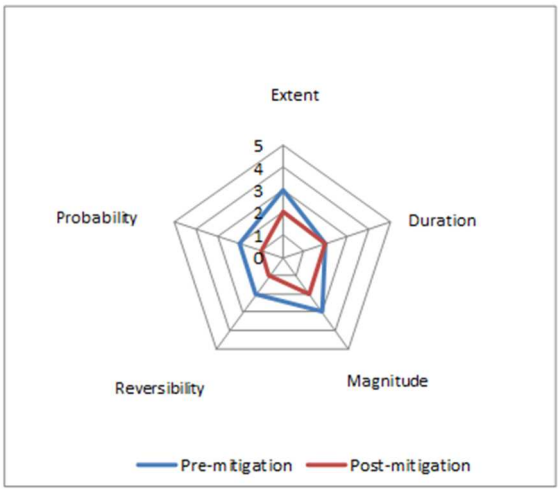


Figure 103: Radar chart depicting the pre-and post-mitigation for the Decommissioning phase for Wood-Grave-01

Table 81: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Wood-Grave-01

	Disturbance/destruction of burial grounds and graves					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	1
	Extent of Impact	2	1	Reversibility of Impact	2	1
	Duration of Impact	2	2	Probability	2	1
	Environmental Risk (Pre-mitigation)					-4,50
	Mitigation Measures					
	The area identified to contain a possible grave is of high significance. As such it is recommended that the: • No mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area • A fence should be erected around the possible grave and be treated as a No-Go-Zone; • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,25
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					2
	The impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.					
	Prioritisation Factor					1,33
	Final Significance					-1,67

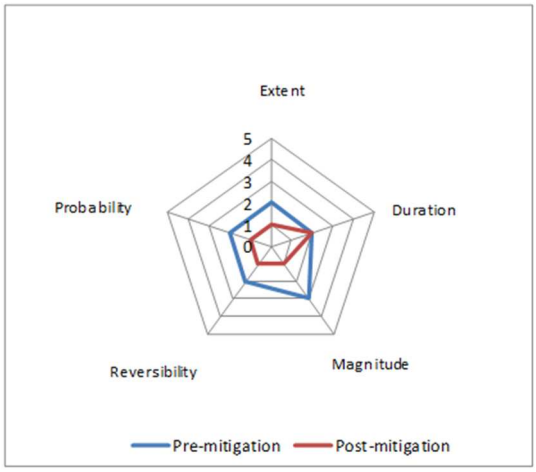


Figure 104: Radar chart depicting the pre-and post-mitigation for the Rehab and Closure phase for Wood-Grave-01

Table 82: Wood-CEM-01

Site Name:	**Wood-CEM-01**
Type:	Burial Ground and Graves
Density:	High density
Location/GPS Coordinates:	• 26° 44' 52.6" S • 27° 37' 15.9" E
Approximate Age:	Historical to Contemporary
Applicable Sections of the Relevant Acts:	Section 36 of the NHRA, No. 25 of 1999

Description:

A cemetery was located in the south of the Remaining Extent of Woodlands 407 during survey. The site is located approximately 1 km south from alternative 2 of the proposed development of infrastructure. The cemetery contains 51 graves; 43 were unmarked and were characterized by packed stones, 4 were characterised by packed stones with metal headstones were marked and 4 contained cement headstones.

The area where the cemetery is located characterised by an overgrown vegetation and surrounded by trees thus making the visibility of the graves difficult. Some of the graves had metal headstones that had faded writing which may had been due to weathering and rusting.

The following graves were identified:

- 43 unmarked graves of unknown individuals with packed stones *(Figure. 106- 148);*
- 3 graves with metal headstones *(Figure. 149-151),* Grave-A46 had faded writing *(Figure. 151);*
- 1 grave with a hole and metal frames, a worker at the farm mentioned that the family of the grave had removed the grave a few months before the *survey (Figure. 152);*
- 4 graves containing headstones, of which only 3 had visible inscriptions on their headstones (*Figure. 153, 154 and 156)*, Graved-A50 had engravings that are no longer visible *(Figure. 155);*

On Grave-A48 the following was engraved on the headstone (*Figure. 153):*

Abram Tsholo Qai

o hlahile ka di (born) 11-5-61 a hlokahala (died) ka di 28…

On Grave-A49 the following was engraved on the headstone *(Figure. 154):*

Abel Motsetse Ntsoelengoe

23-12-1967 Aged 69

Rest in peace

On Grave-A51 the following was engraved on the headstone *(Figure. 156)*

Paulinah Mmamohau

Figure 105: General view of the cemetery (Wood-Cem-01)

Figure 106: Grave A1

Figure 107: Grave A2

Figure 108: Grave A3

Figure 109: Grave A4

Figure 110: Grave A5

Figure 111: Grave A6

Figure 112: Grave A7

Figure 113: Grave A8

Figure 114: Grave A9

Figure 115: Grave A10

Figure 116: Grave A11

Figure 117: Grave A12

Figure 118: Grave A13

Figure 119: Grave A14

Figure 120: Grave A15

Figure 121: Grave A16

Figure 122: Grave A17

Figure 123: Grave A18

Figure 124: Grave A19

Figure 125: Grave A20

Figure 126: Grave A21

Figure 127: Grave A22

Figure 128: Grave A23, note the tree

Figure 129: Grave A24

Figure 130: Grave A25

Figure 131: Grave A26

Figure 132:Grave A27

Figure 133: Grave A28

Figure 134: Grave A29

Figure 135: Grave A30

Figure 136: Grave A31

Figure 137: Grave A32

Figure 138: Grave A33

Figure 139: Grave A34

Figure 140: Grave A35

Figure 141: Grave A36

Figure 142: Grave A37

Figure 143: Grave A38

Figure 144: Grave A39

Figure 145: Grave A40, note the tree branch over the grave

Figure 146: Grave A41

Figure 147: Grave A42

Figure 148: Grave A43

Figure 149: Grave A44 with a metal headstone (Yellow arrow)

Figure 150: Grave A45 with a metal headstone (Yellow arrow)

Figure 151: Grave A46 with a metal headstone that has a faded writing

Figure 152: Grave A47, with a metal frame

Figure 153: Grave A48 with a broken headstone

Figure 154: Grave A49 with the name "Abel Motsetse Ntsoelengoe" engraved on it

Figure 155: Grave A50, the engravings were not visible

Figure 156: Grave A51 with a cross shaped headstone, the name "Paulinah Mmamohau" is engraved on it

Table 83: Impact and risk assessment rating for the pre-and post-mitigation for the Planning phase for Wood-Cem-01

	Disturbance/destruction of burial grounds and graves

Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Planning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	3	2	Reversibility of Impact	3	2
	Duration of Impact	3	2	Probability	2	2
	Environmental Risk (Pre-mitigation)					-6,00
	Mitigation Measures					
	The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that: • The site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone • Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided • No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area • If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied for. • Subject to approval from SAHRA.					
	Environmental Risk (Post-mitigation)					-4,00
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-6,00

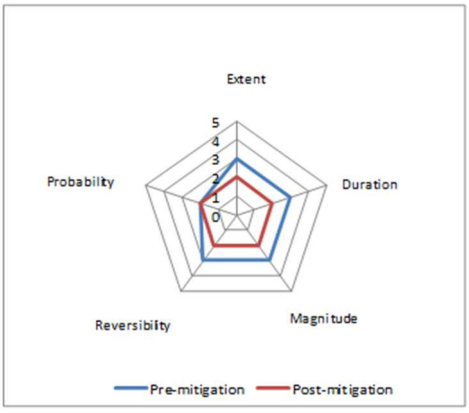


Figure 157: Radar chart depicting the pre-and post-mitigation for the Planning phase for Cem-Wood-01

Table 84: Impact and risk assessment rating for the pre-and post-mitigation for the Construction phase for Cem-Wood-01

	Disturbance/destruction of burial grounds and graves					
Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Construction**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	5	4
	Extent of Impact	3	3	Reversibility of Impact	4	3
	Duration of Impact	5	4	Probability	4	3
	Environmental Risk (Pre-mitigation)					-17,00
	Mitigation Measures					
	The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that: • The site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone • Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided • No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area • If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied for. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-10,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-15,75

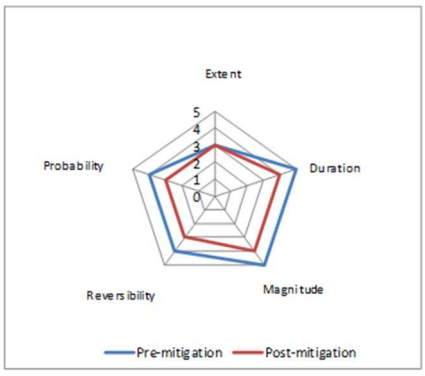


Figure 158: Radar chart depicting the pre-and post-mitigation for the Construction phase for Cem-Wood-01

Table 85: Impact and risk assessment rating for the pre-and post-mitigation for the Operation phase for Cem-Wood-01

	Disturbance/destruction of burial grounds and graves

Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Operation**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	4	3
	Extent of Impact	3	3	Reversibility of Impact	4	3
	Duration of Impact	4	4	Probability	4	3
	Environmental Risk (Pre-mitigation)					-15,00
	Mitigation Measures					
	The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that: • The site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone • Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided • No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area • If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied for. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-9,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-14,63

Figure 159: Radar chart depicting the pre-and post-mitigation for the Operation phase for Wood-Cem-01

Table 86: Impact and risk assessment rating for the pre-and post-mitigation for the Decommissioning phase for Wood-Cem-01

	Disturbance/destruction of burial grounds and graves

Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Decommissioning**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	3	3	Reversibility of Impact	4	3
	Duration of Impact	2	2	Probability	4	3
	Environmental Risk (Pre-mitigation)					-12,00
	Mitigation Measures					
	The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that: • The site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone • Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided • No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area • If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied for. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-7,50
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-11,25

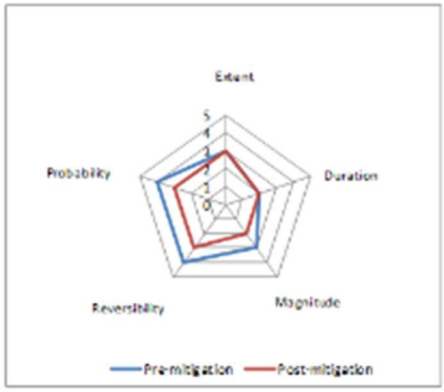


Figure 160: Radar chart depicting the pre-and post-mitigation for the Decommissioning phase for Wood-Cem-01

Table 87: Impact and risk assessment rating for the pre-and post-mitigation for the Rehab and Closure phase for Wood-Cem-01

	Disturbance/destruction of burial grounds and graves

Heritage Impact Assessment	**Impact Name**	**Disturbance/destruction of burial grounds and graves**				
	Alternative	**Proposal**				
	Phase	**Rehab and Closure**				
	Environmental Risk					
	Attribute	**Pre-mitigation**	**Post-mitigation**	**Attribute**	**Pre-mitigation**	**Post-mitigation**
	Nature of Impact	-1	-1	Magnitude of Impact	3	2
	Extent of Impact	2	2	Reversibility of Impact	3	1
	Duration of Impact	2	2	Probability	3	1
	Environmental Risk (Pre-mitigation)					-7,50
	Mitigation Measures					
	The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that: • The site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone • Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided • No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area • If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied for. • Subject to approval from SAHRA					
	Environmental Risk (Post-mitigation)					-1,75
	Degree of confidence in impact prediction:					High
	Impact Prioritisation					
	Public Response					1
	Low: Issue not raised in public responses					
	Cumulative Impacts					2
	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.					
	Degree of potential irreplaceable loss of resources					3
	The impact may result in the irreplaceable loss of resources of high value (services and/or functions).					
	Prioritisation Factor					1,50
	Final Significance					-2,63

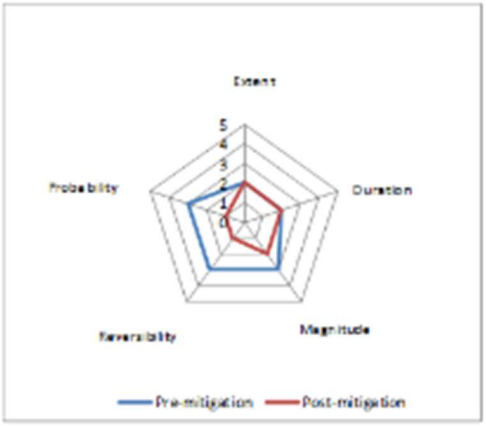
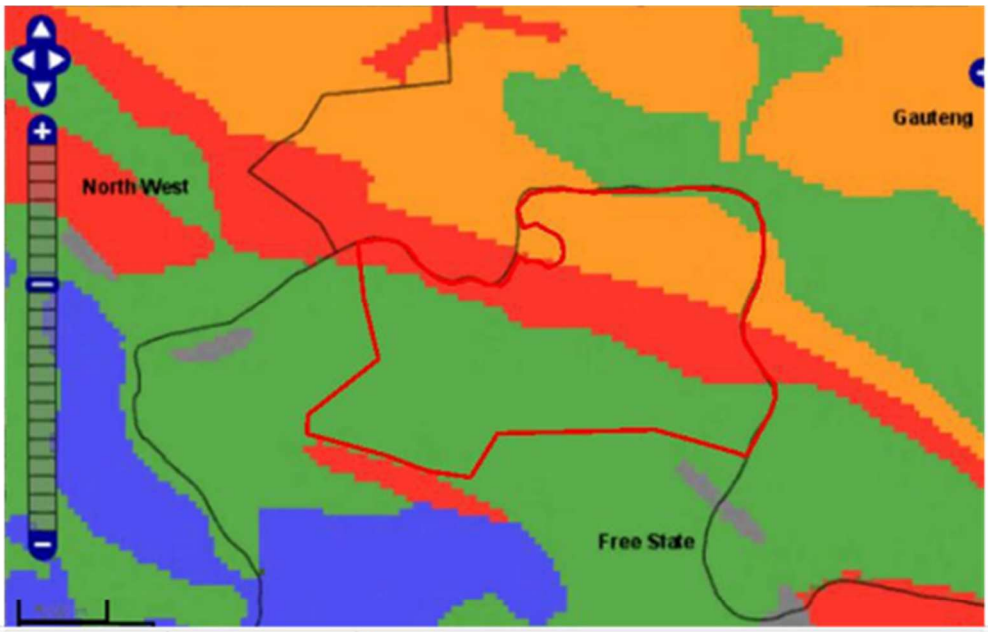


Figure 161: Radar chart depicting the pre-and post-mitigation for the Rehab and Closure phase for Wood-Cem-01

4.4. Paleontological Sensitivity

The SAHRA Palaeo-Sensitivity Layer *(Figure 163*) shows that the project area is in a moderate to very high sensitivity area. As such a field assessment and protocol for finds was required (See PIA and Appendix 3).

- 60% falls within a moderate sensitivity area (green)
- 25% falls within a high sensitivity area (orange).
- 15% falls within a high sensitivity zone (red).



Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 162: Paleo-Sensitivity layer of Woodlands 407 project area

4.5. Mitigation measures including timeframes, roles and responsibilities

Table 88: Mitigating measures including requirements for timeframes, roles and responsibilities

No.	Mitigation Measures	Phase	Timeframe	Responsible Party for Implementation	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
1. Legal Compliance							
A	The Applicant together with the ECO shall identify and comply with all relevant national, provincial and local legislation, including associated regulations and bylaws and shall establish and maintain procedures to keep track of, document and ensure compliance with environmental legislative changes.	Planning Construction Operation Decommissioning Rehab and closure	Prior to construction and ongoing throughout lifespan of mine	Applicant ECO	ECO (Monthly)	Ensure compliance with relevant legislation	No legal directives Legal compliance audit scores (legal register) (ECO monthly checklist/report)
B	Should there be changes in legislation and/or regulations the Applicant shall take the necessary actions to incorporate such changes and to pass these requirements on to the Contractors.	Planning Construction Operation Decommissioning Rehab and closure	Prior to construction and ongoing throughout lifespan of mine	Applicant ECO	ECO (Monthly)	Ensure compliance with relevant legislation	Contractual agreements Contractors work packs (ECO monthly checklist/report)
2. Site Access, Security and Traffic Management							
A	Access to the site must be controlled. The entire site shall be fenced so as to restrict unauthorised personnel from entering the	Construction Operation Decommissioning Rehab and closure	Ongoing	Applicant Contractor	Contractors EO (Daily) Mine EO (Weekly) ECO (Monthly)	Safety of people on site and surrounding landowners	No security or safety incidents as a result of unauthorised access to the site (site access logbook)

	site. Only authorised personnel are allowed on site.						(safety reports) (incident registers)
B	All construction and mining vehicles using public roads shall be in a roadworthy condition and their loads secured. They must adhere to the speed limits and all local, provincial and national regulations with regards to road safety and transport.	Construction Operation Decommissioning Rehab and closure	Ongoing	Applicant Contractor	Safety Department (weekly) ECO (Monthly)	No road accidents	Vehicle roadworthiness and inspection spot checks Vehicles accident statistics (vehicle inspection records)
3. Impacts on Heritage and Paleontological resources							
A	If the prospecting activities bring archaeological materials to the surface, they should be treated as Chance Finds. The prospecting activities be stopped immediately, and an archaeologist be contacted to conduct a site visits and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds.	Construction Operation Decommissioning Rehab and closure	Ongoing	Applicant ECO and Heritage Specialist	ECO (Monthly)	Restricting damage or destruction of heritage resources	Follow-up visits by Heritage Specialists or SAHRA
B	It is recommended that no machinery or site camp associated with the proposed prospecting activities	Construction Operation Decommissioning Rehab and closure	Ongoing	Applicant ECO and Heritage Specialist	ECO (Monthly)	Restricting damage or destruction of heritage resources	Follow-up visits by Heritage Specialists or SAHRA

	should be established near the graves; they should be treated as a No-Go-Area.						
C	It is recommended that Built Environment resources be fenced off and treated as No-Go- Areas.	Construction Operation Decommissioning Rehab and closure	Ongoing	Applicant ECO and Heritage Specialist	ECO (Monthly)	Restricting damage or destruction of heritage resources	Follow-up visits by Heritage Specialists or SAHRA
D	Develop Fossil Chance Find Protocol. If fossils are observed on site, the activities should immediately be stopped, and a palaeontologist called to assess and collect a representative sample	Construction Operation Decommissioning Rehab and closure	Ongoing	Applicant ECO and Paleontological Specialist	ECO (Monthly)	Restricting damage or destruction of heritage resources	Follow-up visits by Heritage Specialists or SAHRA

4.6. Action plan for the Woodlands 407 project

Table 89: Action plan for the Woodlands 407 project

ACTION PLAN				
Phase	**Management Action**	**Timeframe for Implementation**	**Responsible party for Implementation (frequency)**	**Responsible party for Monitoring/Audit/Review (frequency)**
Planning phase	Develop Heritage Action Plan	1 month prior to onset of construction	Heritage specialist to be appointed	Environmental Manager (annual internal review) Heritage specialist (external review as required)
	Develop Fossil Finds Procedure	During the EIA phase and within 3 months of start of construction	Paleontological specialist to be appointed	Environmental Manager (annual internal review) Heritage specialist (external review as required)
	Develop Grave Relocation Procedure	Within 3 months of start of construction	Heritage specialist to be appointed	Environmental Manager (annual internal review) Environmental Consultant (external review as required)
Construction	Undertake Social engagement process	Upon start of grave relocation process	Heritage specialist to be appointed (as required)	Environmental Manager/ECO (audit and review as required)
	Monitoring of demarcated heritage sites (archaeological, graves and built environment resources)	Throughout construction	Environmental Officer (weekly)	ECO (monthly audit)
	Specialist investigations upon discovery of previously unidentified heritage resources	As required	Heritage specialist to be appointed (as required)	Environmental Manager/ECO (audit and review as required)
Operation	Monitoring of demarcated heritage sites (archaeological, graves and built environment	Throughout operation	Environmental Officer (weekly)	ECO (monthly audit)

	resources)			
Decommissioning	Monitoring of demarcated heritage sites (archaeological, graves and built environment resources)	Throughout decommissioning	Environmental Officer (weekly)	ECO (monthly audit)
Rehabilitation and Closure	Monitoring of demarcated heritage sites (archaeological, graves and built environment resources)	Throughout rehabilitation until closure	Environmental Officer (weekly)	ECO (monthly audit)

4.7. Site Ratings

FEATURE	FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
Site Complex-01	Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Site Complex-02	Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Site Complex-03	Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Site Complex-04	Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Site Complex-05	Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Site Complex-06	Generally Protected B (GP. B)	-	Medium Significance	Recording before destruction
Built-Wood-01	Generally Protected C (GP. A)	-	Low Significance	Destruction
Built-Wood-02	Generally Protected C (GP. A)	-	Low Significance	Destruction
Built-Wood-03	Generally Protected C (GP. A)	-	Low Significance	Destruction
Built-Wood-04	Generally Protected C (GP. A)	-	Low Significance	Destruction
Built-Wood-05	Generally Protected C (GP. A)	-	Low Significance	Destruction
Wood-Grave-01	Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Wood-CEM-01	Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)

5. CONCLUSION

Based on the results of literature review, field survey and the assessment of identified heritage resources, the following conclusions are made in terms of the National Heritage Act about the proposed activities:

- It is concluded that the Woodlands 407 near the town of Parys and is located in a region rich in archaeology and heritage resources.
- Six stone wall sites were identified. These sites are of medium significance and have heritage value.
- *Site Complex-01:*
    - A square enclosure stone wall site that most likely dates to the Late Iron Age / Early Historical Period.
- *Site Complex-02:*
    - A stone walled structure forms that a circular enclosure that most likely dates to the Late Iron Age / Early Historical Period.
- *Site Complex-03:*
    - A circular stone walled structure that most likely dates to the Late Iron Age / Early Historical Period.
- *Site Complex-04:*
    - Site Complex-04 is characterised by two circular stone walled structures that are attached to each other.
    - A pottery shard was found in the vicinity of Site Complex-04
- *Site Complex-05:*
    - Site Complex-05 is characterised by a circular stone walled structure located in the west of Farm Woodlands 407.
    - An artefact that may have been used for cattle was found in the vicinity of the Site Complex-05.
- *Site Complex-06:*
    - Site Complex-06 is an Anglo-Boer war stone wall structure overlooking the Vaal River, which may have been used as a defence structure during the war). Walling most likely dates to the Historical Period during the Anglo-Boer (1899-1902).
    - A bullet was found in the vicinity of Site Complex-06.
- Five building structures were identified that are of low significance.

- *Built-Wood-01:*
    - A contemporary building was identified in the east of Woodlands Farm 407, with three associated outbuildings.
    - The building structures are made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of corrugated iron.
- *Built-Wood-02:*
    - A cabin camping site used for holiday vacation and fishing was located on the south east of the study area.
    - The structures are made with wood with the stairwell made with reddish/brown bricks and the roof is of corrugated iron.
- *Built-Wood-03:*
    - A tall cement structure was found on the west of the study area with associated structure ruins of foundation.
- *Built-Wood-04:*
    - A contemporary structure was identified on the south of Woodlands Farm 407, which is used as a reception area.
    - The building structures are made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of thatch.
- *Built-Wood-05:*
    - A guard house was identified at the entrance of Woodlands farm 407.
    - The building structure is made with brick but aggregated with reddish/brown stone on outside to probably create an old appearance. The roof is of corrugated iron.
- A cemetery and a possible grave were identified.
- *Wood-Grave-01:*
    - An area containing a possible unknown grave was identified. A bonfire is located next to the grave. The area is located approximately 2,9 km north from Alternative 3 of the proposed infrastructure developments.
- *Wood-CEM-01:*
    - An informal cemetery (Wood-CEM-01) was identified.
    - The cemetery containing approximately fifty-one graves and was located approximately 1 km south from Alternative 2 of the proposed development of infrastructure and falls

outside the 500m zone of influence. Moreover, the cemetery is of high heritage significance.

- No other graves or burial grounds were identified in the project area. However, as graves are subterranean in nature and might not have been identified during the initial site visit and survey.
- In terms of SAHRA Paleontological Sensitivity Layer, the project area is located in a moderate to very high sensitivity area:
    - 60% falls within a moderate sensitivity area (green)
    - 25% falls within a high sensitivity area (orange)
    - 15% falls within a high sensitivity zone (red)
- According to the PIA report, the farm Woodlands lies in the ancient volcanic rocks, some dolomite and Quaternary sands. Based on the geology of the area and the palaeontological record, it can be assumed that the formation and layout of the basal gneisses, granites, sandstones, shales and sands are typical for the country and do not contain any fossil plants, but the dolomites and limestones might contain stromatolites, trace fossils. The sands of the Quaternary period and ancient volcanic rocks would not preserve fossils. Stromatolites have been recorded from the Malmani Group in other parts of the country so there is a possibility that they occur in this area too (See PIA report).

6. RECOMMENDATIONS

Based on the Limitations and Conclusions it is recommended that:

- The stone walls have heritage value therefore they should be completely avoided and be treated as No-Go-Area's.
- *Site Complex-01:*
    - It is recommended that mining activities and machinery should completely avoid the stonewalls, as it is a No-Go-Area
    - If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted and a demolition permit should be applied for before its destruction.
- *Site Complex-02:*
    - Site Complex-02 is of medium significance and have heritage value. As such it is recommended the stone walls should be completely avoided, as it is a No-Go-Area
    - If the mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted before its destruction.
- *Site Complex-03:*
    - Site Complex-03 is of medium significance and have heritage value. As such it is recommended that the stone walls should be completely avoided, as it is a No-Go-Area
    - The mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction
- *Site Complex-04:*
    - The stone walls should be completely avoided, as it is a No-Go-Area.
    - If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction
- *Site Complex-05:*
    - Site Complex-05 is of medium significance and have heritage value. As such it is recommended the stone walls should be completely avoided, as it is a No-Go-Area

- If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction

- *Site Complex-06:*
  - Site Complex-06 is of medium significance and have heritage value. As such it is recommended the stone walls should be completely avoided, as it is a No-Go-Area
  - If mining activities encroach on the site a Phase II Heritage study (including recording and mapping of site) should be conducted, and a destruction permit should be applied for, before its destruction
- *Built-Wood-01:*
  - The Built Environment found in Built-Wood- 01 is of low significance and have no heritage value.
  - The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified
- *Built-Wood-02:*
  - The Built Environment found in Built-Wood- 02 is of low significance and have no heritage value.
  - The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified.
- *Built-Wood-03:*
  - The Built Environment found in Built-Wood- 03 is of low significance and have no heritage value.
  - The buildings are contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified.
- *Built-Wood-04:*

- The Built Environment found in Built-Wood- 04 is of low significance and have no heritage value.
- The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
- However, should heritage sites be identified on-site during invasive mining activities, all prospecting activities must stop, and a Heritage specialist should be notified.

- *Built-Wood-05:*
  - The Built Environment found in Built-Wood- 05 is of low significance and have no heritage value.
  - The building is contemporary in nature therefore it is less than 60 years old consequently the structure is not protected under the NHRA (Act no. 25 of 1999).
  - However, should heritage sites be identified on-site during invasive mining activities, all activities must stop, and a Heritage specialist should be notified.
- *Wood-Grave-01:*
  - The area identified to contain a possible grave is of high significance. As such it is recommended that no mining activities should be undertaken within 100 metres from the area with the potential grave, furthermore mining activities and machinery should completely avoid the area
  - A fence should be erected around the possible grave and be treated as a No-Go-Zone;
- *Wood-CEM-01*:
  - The Graves found at Wood-CEM- 01 are of high significance and have heritage value. It is proposed that the site be demarcated, and a fence should be erected around the graves and be treated as a No-Go-Zone
  - Because the graves are located 800 m north-east from Alternative 2, the boundary of the cemetery should be marked off, indicating that is an area that should be completely avoided
  - No mining activities must be undertaken within 100 metres from graves, furthermore mining activities and machinery should completely avoid the area
  - If future mining activities are proposed for the area surrounding the cemetery, leading to direct impact on the graves a permit to exhume and relocate the graves should be applied. As such it is recommended that no machinery or site camp associated with the

proposed mining activities should be established near the graves; they should be treated as a No-Go-Area.

- However, it should be noted that some archaeological material, including artefacts and graves can be buried underground and as such, may not have been identified during the initial survey and site visits. In the case where the proposed development activities bring these materials to the surface, they should be treated as **Chance Finds**. Should such resources be unearthed it is recommended that, the prospecting activities be stopped immediately, and an archaeologist be contacted to conduct a site visits and make recommendations on the mitigation of the finds. SAHRA and FS-PHRA should also be informed immediately on such finds.
- In terms of the SAHRA Paleontological Sensitivity Layer, the area falls within a region defined as a moderate to very high sensitivity area and a **Fossil Chance Find Protocol** should be followed once mining activities commence (See PIA report).
- According to the PIA report, it is unlikely that any fossils would be preserved in the underlying volcanic rocks or in the loose sands of the Quaternary. There is an extremely small chance that fossils may occur in the dolomites and limestones of the Malmani Group so a Chance Find Protocol (Appendix 3) should be added to the EMPr, if fossils are found once drilling and excavations have commenced then they should be rescued, and a palaeontologist or geologist be called to assess and collect a representative sample. Thereafter the palaeontology heritage will not be impacted on any further.
- The proposed mining activities on the farm Woodlands 407 will not have impact on the heritage and archaeological resources in the broader area.
- It is recommended that FS-PHRA and SAHRA grant the project a **Positive Review Comment** and allow the proposed mining activities to occur on Alternative 1 as planned.

7. REFERENCES

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8. APPENDIX 1: SPECIALIST CV – CHERENE DE BRUYN

Name	:	Cherene de Bruyn
Profession	:	Archaeology
Date of Birth	:	1991/03/01
Parent Firm	:	NGT Holdings (Pty) Ltd
Position in Firm	:	Manager: Archaeology & Heritage Unit
Years with firm	:	10 Months
Nationality	:	South Africa
BI & Male/Female Status	:	White South African Female
Languages	:	

Language	Speak	Read	Write
English	X	X	X
Afrikaans	X	X	X

Countries of Work Experience	:	South Africa
Proposed Position on Team	:	Archaeologist and Heritage Consultant

KEY QUALIFICATIONS

Cherene is a hardworking Archaeologist who has developed a mature and responsible approach to any task she undertakes. She received the British High Commissions Chevening Scholarship to complete my Master's degree in Archaeology at UCL in 2016/2017. She is skilled in excavating and analysing archaeological artefacts such as pottery and skeletal human remains, and have an interest in Egyptian, African and burial archaeology. Cherene is a motivated individual who gained relevant professional experience in the heritage sector through Internships as well as through volunteering on archaeological projects.

●●●●● = Excellent ●●●● = Proficient ●●● = Intermediate ●● = Developing ● = Novice

Communication	●●●●●
Team Work	●●●●●
Time Management	●●●●●
Adaptability	●●●●●
Creativity	●●●●
Leadership	●●●●
Excavation	●●●●●
Recording	●●●●●
MS Office	●●●●
Google Earth	●●●●
QGIS	●●●
Total Station	●●●

EDUCATION

NAME OF INSTITUTION	DEGREE OBTAINED	DATES ATTENDED
University College London	MA in Archaeology	2016-2017
University of Pretoria	BSC Honours in Physical Anthropology	2015
University of Pretoria	BA Honours in Archaeology	2013
University of Pretoria	BA in Archaeology	2010-2012

RELEVANT EXPERIENCE

DATE	ASSIGNMENT	POSITION	LOCATION
2018-Current	**Employer - NGT Holdings (Pty) Ltd**	**Archaeologist and Heritage Consultant**	**RSA**
2018	Heritage Impact Assessment Study for the Proposed New Lambano Sub Acute Facility on Stand 5454, 5455, 5456,5457 and New Training Facility on Stands 5458 and 5460 in Kensington, Johannesburg, South Africa	Author	
2018	Heritage Impact Assessment for the proposed prospecting rights application and environmental authorisation for the farm Three Sisters in Barberton, within the city of Mbombela Local District, Mpumalanga, South Africa	Author	
2018	Report on the exhumation and reburial report of 16 graves from Doornkop, to Voortrekker Cemetery in Middelburg, Mpumalanga Province, South Africa	Author	
2018	Heritage Impact Assessment and Integrated Cultural Resources Management Study For The Proposed Mfolozi-Mbewu 765kv Transmission Line, Zululand And King Cetshwayo District Municipality, Kwazulu-Natal.	Author	
2018	Heritage Impact Assessment for the proposed for the Construction of the Bulk Water Supply Pipeline and Feeder Pipes in Dunnottar, Gauteng Province	Author	
2018	Letter of Recommendation for Exemption from Conducting a full Heritage Impact Assessment Study for the Matlala Park, Ekurhuleni Metropolitan Municipality, Gauteng Province.	Author	
2018	Heritage Impact Assessment for the Proposed KwaThema to Grundlingh WWTW Bulk Outfall Sewer: Capital Project Implementation near Nigel, Gauteng Province, South Africa.	Author	
2018	Heritage Impact Assessment the prospecting right and environmental authorisation application for Kroonstad South situated in the Free State Province.	Author	

DATE	ASSIGNMENT	POSITION	LOCATION
2018	Heritage Impact Assessment the prospecting right and environmental authorisation application for Vredefort West situated in the Free State Province.	Author	
2018	Archaeological impact assessment for a mining permit application for portion 19 of the farm Syferfontein 303 IP within the city of Matlosana Local Municipality in the North West Province, South Africa.	Author	
2018	Background literature study on the archaeology and history of Madimatle Mountain and the Gatkop Caves situated within the Thabazimbi Local Municipal area of Waterberg District, Limpopo Province, south Africa.	Author	
2018	Heritage Impact Assessment report for the proposed development of a SMME Training Centre and Youth Enterprise Park on Erf 1977 Edendale-CC located in the Msunduzi Local Municipality, Pietermaritzburg, KwaZulu-Natal Province, South Africa.	Author	
2018	Prospecting Right and Environmental Authorisation for the proposed WRE Nkunzana Prospecting Right Project.	Researcher	
2014-2015	**Forensic Anthropological Research Centre, University of Pretoria**	**DST-NRF Archaeological Intern**	**RSA**
2015	Report on rescue excavations and skeletal analyses of two archaeological graves inadvertently uncovered in Boitekong, North-West.	Field Assistant and Researcher	
2015	Report on Follow-up site visit excavation and physical anthropological analyses of archaeological human remains transferred from SAPA Victim Identification Center to Department of Anatomy. Mamelodi East Phase 2 House 566.	Field Assistant and Researcher	
2014	Rescue excavation of an unmarked grave yard at Diamond Park, Greenpoint, Kimberley, Northern Cape Province	Field Assistant	
2014	Follow up site visit on human remains found at Bothlokwa (Ramatjowe & Mphakahne), Limpopo Province	Field Assistant	
2014	Follow up site visit on human remains found in Waterpoort, Soutpansberg, Limpopo Province	Field Assistant	
2014	**Archaeological Assistant**	**Archaetnos Ltd**	**RSA**
2014	A report on a cultural heritage impact assessment for the proposed development on portion 91 of the farm Waterkloof 305 JQ, close to Rustenburg, Northwest Province.	Field Assistant	
2014	A report on the phase II heritage investigation of a farmstead on portion 470 of the farm Waterkloof 305 JQ near Rustenburg in the Northwest Province.	Field Assistant	
2014	A report on the heritage impact assessment for the proposed new bulk water and sewer pipeline from Cosmo City to Lanseria, Gauteng Province.	Field Assistant	

DATE	ASSIGNMENT	POSITION	LOCATION
2014	A report on the updating of a previous cultural heritage impact assessment for the EMPR alignment and consolidation process at Anglo American Platinum: Rustenburg platinum mines – Rustenburg section, Northwest Province.	Field Assistant and Researcher	
2014	A report on a cultural heritage impact assessment for the proposed Thusanang housing development, close to Rustenburg, Northwest Province.	Field Assistant and Researcher	
2014	A report on the cultural heritage impact assessment for the Tshepong extension 1, 2 and 3 housing development, close to Vereeniging, Gauteng Province.	Field Assistant	
2014	A report on the cultural heritage impact assessment for the proposed Isibonelo Colliery Block Z opencast mine, close to Kriel, Mpumalanga Province.	Field Assistant	
2014	A report on a cultural heritage impact assessment for a proposed transport facility on portion 33 of the farm Vaalbank 289 JS, close to Middelburg, Mpumalanga Province.	Field Assistant	
2014	Report on a cultural heritage Impact assessment done for the Anglo-American Platinum and African Rainbow Minerals Modikwa Platinum Mine South Shaft 2 project, close to Burgersfort, Limpopo Province.	Field Assistant	

SUMMARY OF OTHER EXPERIENCE

DATE	EMPLOYER	POSITION	LOCATION
2018	Sci-bono Discovery Centre	Lascaux Exhibition Tour Guide	Newton, SA
2018, 2016	Umbeli Belli Middle Stone Age Excavation	Field and Lab Assistant	Kwazulu-Natal, SA
2015-2016	Bio-Archaeological Analysis and Archaeological Geophysics Unit, University of Pretoria	Archaeological Contractor	Pretoria, SA
2016, 2015	Wenner-Gren Foundation Funded Grassridge Archaeological and Palaeoenvironmental Project	Field and Lab Assistant	Eastern Cape, SA
2015	Department of Anatomy, University of Pretoria	Student Teaching Assistant	Pretoria, SA

MEMBERSHIPS

DATE	ORGANIZATION	POSITION
2019- Present	Association of Southern African Professional Archaeologists	CRM Accredited
2018-Present	International Association of Impact Assessment South Africa	Member
2015 - Present	Association of Southern African Professional Archaeologists	Professional Member
2014 - Present	South African Archaeological Society	Member

DECLARATION

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the Proposal, for the durations and at the locations indicated therein.

Cherene de Bruyn 1 April 2019

9. APPENDIX 2: SPECIALIST CV – KUNI MOSWEU

Name	:	Kuni Mosweu
Profession	:	Archaeology
Date of Birth	:	1994/06/05
Parent Firm	:	NGT Holdings (Pty) Ltd
Position in Firm	:	Assistant Archaeologist and Field Technician
Years with Firm	:	6 Months
Nationality	:	South Africa
BI & Male/Female Status	:	Black South African Female
Languages	:	

Language	Speak	Read	Write
English	X	X	X
Tswana	X	X	X
Sotho	X	X	X

Country of Work Experience	:	South Africa
Proposed Position on Team	:	Assistant Archaeologist and Field Technician

KEY QUALIFICATIONS

I see myself as a dedicated, trusted and patient focused professional with wide range of skills in Archaeology Geography and Archaeology. Through my MSc degree in Archaeological landscape analysis using GIS I have honed my skills to evaluate, analyse and integrate various types of data. I am proficient in using ArcGIS, QGIS, Google Earth and total station. I was part of the team leading data collection, processing and excavating at the Klasies River excavations project for three years. I am interested in Landscape and Paleoenvironmental Archaeology and the importance of these aspects in human behaviour.

●●●●● = Excellent ●●●● = Proficient ●●● = Intermediate ●● = Developing ● = Novice

Communication	●●●●●
Teamwork	●●●●●
Time Management	●●●●●
Adaptability	●●●●●
Creativity	●●●●
Leadership	●●●
Excavation	●●●●●
Recording	●●●●●
MS Office	●●●●
Google Earth	●●●●
ArcGIS	●●●●
QGIS	●●●
Total Station	●●●

EDUCATION

NAME OF INSTITUTION	DEGREE OBTAINED	DATES ATTENDED
University of the Witwatersrand	MSc in Archaeology	2017 - 2019
University of the Witwatersrand	BSc Honours in Geography, Archaeology and Environment Studies	2016
University of Johannesburg	BA Geography	2013 - 2015

RELEVANT EXPERIENCE

DATE	ASSIGNMENT	POSITION	LOCATION
2018-Current	**Employer - NGT Holdings (Pty) Ltd**	**Assistant Archaeologist and Field Technician**	**RSA**
2018	Basic Assessment Report for the prospecting right and environmental authorization application for Ventersburg B situated in the Free State Province.	Field Assistant	
2018	Archival search and literature background study of the Lyttelton Primary School, Lyttelton Manor, Centurion, Gauteng Province.	Field Assistant and Researcher	
2018	Basic Assessment Report for the proposed construction of the bulk water supply pipeline and feeder pipes in Dunnottar, Gauteng Province.	Researcher	
2018	Phase 1 Heritage Impact Assessment study for development of Zandspruit Secondary School on portion 504 of the Farm Wilgespruit 190 IQ, Zonnehoewe, Gauteng province, south Africa.	Field Assistant and Researcher	
2018	Gap analysis for the Basic Assessment Report of the proposed mining project for prospecting right on the Farm Three sisters and an application for environmental authorization of Barberton, within the City of Mbombela local district, Mpumalanga, South Africa.	Author	
2018	Proposed new Lambano Sub Acute Facility on stands 5454, 5455, 5456, 5456, 5457 and new Training Facility on stands 5458 and 5460 in Kensington within the City of Johannesburg Metropolitan Municipality, Gauteng Province, South Africa	Field Assistant and Researcher	

SUMMARY OF OTHER EXPERIENCE

DATE	EMPLOYER	POSITION	LOCATION
2018, 2017	University of the Witwatersrand	Laboratory Assistant	Johannesburg, SA
2018, 2017	University of the Witwatersrand	Field Assistant and Data Manager	Johannesburg, SA
2017	University of the Witwatersrand	Tutor	Johannesburg, SA
2014, 2015	Star Schools	Invigilator	Johannesburg, SA

DECLARATION

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature, I am available and willing to serve in the position indicated for me in the Proposal, for the durations and at the locations indicated therein.

Kuni Mosweu 12 April 2019

10. APPENDIX 3: CHANCE FINDS OF PALAEONTOLOGICAL MATERIAL

Introduction

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under section 38 of the NHRA no 25 of 1999.

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the NHRA and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded. Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

Training workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO.

It is recommended that copies of the attached poster and procedure are printed out and displayed on-site so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

Actions to be taken: one person in the team must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on-site should follow the protocol correctly in order to not jeopardise the conservation and well-being of the fossil material. Once a workman notices possible fossil material, he/she should report this to the ECO or site agent.

Procedure to follow if it is likely that the material identified is a fossil:

The ECO or site agent must ensure that all work ceases immediately in the vicinity of the area where the fossil or fossils have been found;

The ECO or site agent must inform SAHRA of the find immediately. This information must include photographs of the findings and GPS co-ordinates;

The ECO or site agent must compile a Preliminary Report and fill in the Fossil Discoveries: SAHRA Preliminary Record Form within 24 hours without removing the fossil from its original position. The Preliminary Report records basic information about the find including:

The date

A description of the discovery

A description of the fossil and its context (e.g. position and depth of find)

Where and how the find has been stored

Photographs to accompany the preliminary report (the more the better):

A scale must be used

Photos of location from several angles

Photos of vertical section should be provided

Digital images of hole showing vertical section (side);

Digital images of fossil or fossils.

Upon receipt of this Preliminary Report, SAHRA will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary.

Exposed finds must be stabilised where they are unstable, and the site capped, e.g. with a plastic sheet or sand bags. This protection should allow for the later excavation of the finds with due scientific care and diligence. SAHRA can advise on the most appropriate method for stabilisation.

If the find cannot be stabilised, the fossil may be collected with extreme care by the ECO or the site agent and put aside and protected until SAHRA advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove all fossil material and any breakage of fossil material must be avoided at all costs.

No work may continue in the vicinity of the find until SAHRA has indicated, in writing, that it is appropriate to proceed.