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Phase 2F of the Olifants Management Model Programme Bulk Raw Water Study near Steelpoort and Burgersfort in the Limpopo Province

Heritage Impact Assessment Report

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REVISION HISTORY

Version	Issue Date	Description of Changes
1.0	07 February 2025	First version of the report submitted to client
1.1	04 June 2025	Final version of the report with client feedback addressed

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DECLARATION OF INDEPENDENCE

I, Shannon Hardwick, declare that –

General Declaration

- I act as the independent heritage practitioner in this application
- I will perform the work relating to the application objectively, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting heritage impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in section 38 of the NHRA when preparing the application and any report relating to the application;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from a heritage practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations.

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SIGNATURE:

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ACKNOWLEDGEMENT OF RECEIPT

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Reviewer	WC Nienaber		PGS Heritage Heritage Unit Manager	
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The Heritage Impact Assessment Report has been compiled considering the National Environmental Management Act (Act No. 107 of 1998) (NEMA): Appendix 6 of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended, 2017) requirements for specialist reports as indicated in the table below.

Requirements of Appendix 6 – GN R320 EIA Regulations of 7 April 2017	Relevant section in report
1.(1) (a) (i) Details of the specialist who prepared the report	Page ii of Report – Contact details and company
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1.2 – refer to Appendix C
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1.1
(cA) An indication of the quality and age of base data used for the specialist report	N/A
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 5
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 4.4
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Appendix A and B
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 4
(g) An identification of any areas to be avoided, including buffers	Section 4
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 4.3
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.3
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 4
(k) Any mitigation measures for inclusion in the EMPr	Section 6
(l) Any conditions for inclusion in the environmental authorization	Section 6
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorization	Section 6
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 6 and 7
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and	
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 6
(o) A description of any consultation process that was undertaken during the course of carrying out the study	Informal consultation in fieldwork.
(p) A summary and copies if any comments that were received during any consultation process	Not applicable. To date no comments regarding heritage resources that require input from a specialist have been raised.
(q) Any other information requested by the competent authority.	Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	No protocols or minimum standards for HIAs or PIAs

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EXECUTIVE SUMMARY

The Department of Water and Sanitation (DWS) is currently implementing Phase 2 of the Olifants River Water Resources Development Project (ORWRDP-2) in the Limpopo Province. The ORWRDP-2 is now known as the Olifants Management Model Programme – Bulk Raw Water Supply (OMMP-BRWSP). The OMMP-BRWSP has been divided into several phases, to be implemented according to need and available resources. These phases are numbered from 2A to 2I and are in various stages of completion. This report considers Phase 2F: Pipeline from Havercroft Junction to Olifantspoort (44 km). The Lebalelo Water User Association (LWUA) is the implementing agent for this development.

OMMP-BRWSP has amended the approved pipeline routes for each phase and have proposed additional infrastructure be included in the project. The changes to Phase 2F trigger the need for a Heritage Impact Assessment (HIA) Process as per the requirements of Section 38(1) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). The Zutari Ndodana Joint Venture (ZNJV) are the Environmental Impact Assessment (EIA) Practitioners for this development. ZNJV appointed PGS Heritage (Pty) Ltd (PGS) as the independent heritage consultant to undertake this HIA process.

PGS undertook a survey of the proposed development footprints through three site visits: one in November 2024 and two in January 2025. The two site visits in January included 'Local Guides', nominated by the Traditional Authorities, to accompany the field teams during the site visits and provide information, where possible.

PGS identified 17 heritage resources during the site survey across the Project area, 14 of which are found in the Phase 2F Project area. These sites comprise:

- Modern built heritage resources, including five modern structures (**Oli1, Oli2, Oli3, Oli4 and Oli5**), one example of a stone property boundary (**Oli8**) and one example of a temporary stone structure used when harvesting firewood (**Oli9**). **Oli1** corresponds to a hut feature noted in the 1964 topographical map of the area;
- Two burial grounds (**Oli6 and Oli17**);
- One modern church that was used by the members of the local community, but which is currently not in use (**Oli7**); and
- Archaeological resources, comprising four Iron Age grinding stones (**Oli10, Oli11, Oli12 and Oli13**).

Church Site **Oli7** and the Not Conservation Worthy (NCW) sites **Oli9, Oli10, Oli11, Oli12 and Oli13** are located outside the proposed infrastructure footprints. No impacts to these sites are foreseen.

Oli2, Oli3, Oli4 and Oli5 are located within the proposed pipeline footprints – **Oli5** is located within the proposed pipeline itself, and the other sites within the temporary servitudes. **Oli8** is within the proposed Klipfontein Dam footprint. As such, the development is expected to directly negatively impact (i.e. destroy) these sites. These sites are all NCW, and no further mitigation measures are required.

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Oli1, **Oli6** and **Oli17** are all of high significance and are located within the proposed development footprints (the former two in temporary servitudes and Oli17 within the proposed pipeline route). These sites are at risk of direct negative impacts (i.e. destruction). To avoid these impacts, PGS recommends that OMMP-BRWSP establish and implement a 30 m no-go buffer zone between the proposed infrastructure and sites **Oli1**, **Oli6** and **Oli17**.

Where these no-go buffer zones cannot be implemented, PGS recommends OMMP-BRWSP appoints a suitably qualified professional to:

- Determine whether a Grave Relocation Process is feasible for affected burial grounds (i.e., **Oli6** and/or **Oli17**) and, if so, to undertake this process, including obtaining all required permits as required in terms of Section 36 of the NHRA;
- Undertake a social consultation process to identify the residents of the 1964 hut feature and confirm the presence or absence of burials at **Oli1**:
 - Where any graves are identified (where the absence of burials cannot be confirmed), **Oli1** must be treated in the same manner as **Oli6** and **Oli17**.
 - Where the absence of any graves at this site is confirmed, the significance of this site can be revised.

To avoid or minimise impacts to heritage resources that may be present in the project area, but which are not yet identified, PGS recommends that the OMMP-BRWSP develop and implements a Chance Finds Procedure (CFP) as described in **Section 6.2** of this report. This CFP must be implemented by LWUA as the implementation agent for this development. The CFP must further be implemented by all contractors and subcontractors brought in as part of the construction and operation of this project.

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TERMINOLOGY AND ABBREVIATIONS

Archaeological resources

This includes:

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- 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 South African Heritage Resources Agency (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.

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 a 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

Early Stone Age

The archaeology of the Stone Age between 700 000 and 2 500 000 years ago.

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Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance as stated under Section 3 of the NHRA and can include (but not limited to);

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, and
- sites of significance relating to the history of slavery in South Africa;

Holocene

The most recent geological time period which commenced 10 000 years ago.

Late Stone Age

The archaeology of the last 30 000 years associated with fully modern people.

Late Iron Age (Early Farming Communities)

The archaeology of the last 1000 years up to the 1800's, associated with iron-working and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age between 30 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

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Table 1: List of Abbreviations used in this Report

Abbreviations	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
BA	Basic Assessment
CFP	Chance Finds Procedure (or Protocol)
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs (<i>now known as DFFE, see below</i>)
DFFE	Department of Forestry, Fishing and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA practitioner	Environmental Impact Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GPS	Global Positioning System
GSSA	Genealogical Society of South Africa
HIA	Heritage Impact Assessment
HMP	Heritage Management Plan
HWC	Heritage Western Cape
I&AP	Interested & Affected Party
IAIAsa	International Association for Impact Assessments South Africa
LSA	Late Stone Age
LIA	Late Iron Age
LIHRA	Limpopo Heritage Resources Authority
LWUA	Lebalelo Water Use Association
MSA	Middle Stone Age
MIA	Middle Iron Age
NEMA	National Environmental Management Act, 1998 (Act No 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
OMMP-BRWSP	Olifants Management Model Programme – Bulk Raw Water Supply
ORWRDP-2	Olifants River Water Resources Development Project – Phase 2
PHS	Provincial Heritage Site
PIA	Palaeontological Impact Assessment
PPP	Public Participation Process
PTO	Permission to Occupy
ROD	Record of Decision
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

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Abbreviations	Description
WTW	Water Treatment Works
ZNVJ	Zutari Ndodana Joint Venture

Table 2: List of Abbreviations used in reference to Heritage Significance

Field Rating	Description	Equivalent Grade
NS	National Significance	Grade 1
PS	Provincial Significance	Grade 2
LS	Local Significance	Grade 3A
LS	Local Significance	Grade 3B
GP.A	Generally Protected A	Grade 4A
GP.B	Generally Protected B	Grade 4B
GP.C	Generally Protected C	Grade 4D
-	Not Conservation Worthy (refer to Section 3.1.1)	NCW

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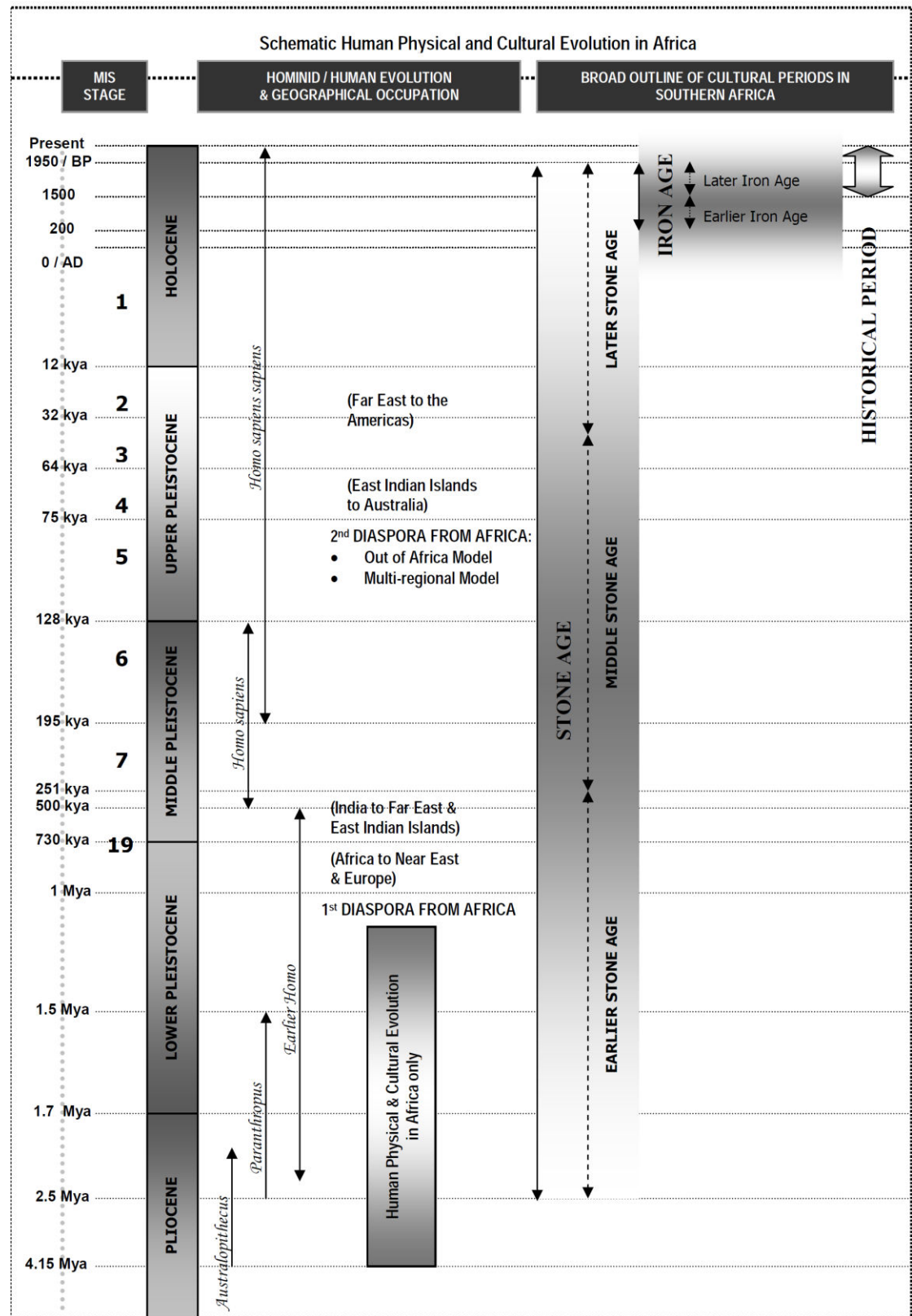


Figure 1: Human and Cultural Timeline in Africa

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1 INTRODUCTION

The Department of Water and Sanitation (DWS) is currently implementing Phase 2 of the Olifants River Water Resources Development Project (ORWRDP-2) in the Limpopo Province. The then-Department of Environmental Affairs (DEA) – now known as the Department of Forestry, Fishing and the Environment (DFFE) – provided the ORWRDP-2 with a positive Record of Decision (ROD) in 2006. This ROD was then revised later in the same year. The ORWRDP-2 has since changed to become the Olifants Management Model Programme – Bulk Raw Water Supply (OMMP-BRWSP).

The OMMP-BRWSP has been divided into several phases, to be implemented according to need and available resources. These phases are numbered from 2A to 2I and are in various stages of completion. The proposed development includes the Phase 2D: Pipeline from Steelpoort to Mooihoek (24 km). The Lebalelo Water User Association (LWUA) are the implementing agents for this Project.

The Environmental Authorisation (EA) and Environmental Management Programme (EMPr) for Phase 2F was approved in 2017. Since then, the pipeline routes for each phase have been amended and additional infrastructure has been proposed. This report considers the potential impacts to heritage resources that may arise from the updated layout of the Phase 2F pipeline and associated infrastructure (refer to **Section 2** for a description of the project).

The changes to Phase 2F triggered the need for a Heritage Impact Assessment (HIA) Process as per the requirements of Section 38(1) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). The Zutari Ndodana Joint Venture (ZNJV) is the Environmental Impact Assessment (EIA) Practitioner for this Project. ZNJV appointed PGS Heritage (Pty) Ltd (PGS) as the independent heritage consultant to undertake this HIA process.

1.1 Scope of the Study

The study aims to identify heritage sites and finds that may occur in the proposed project area. The HIA aims to assist the developer in managing the discovered heritage resources responsibly and to protect, preserve, and develop them within the framework provided by the NHRA.

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1.2 Specialist Qualifications

PGS compiled this HIA report.

The staff at PGS has a combined experience of nearly 90 years in the heritage consulting industry. PGS and its staff have extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

Coen Nienaber, the heritage unit manager and principal heritage specialist, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is also accredited with the Cultural Resources Management (CRM) Section of the same association. He has 19 years of experience in the heritage assessment and management field. He holds a B.A. from the University of Pretoria specialising in Archaeology and Anthropology, a B.A. (Hons.) in Archaeology (cum laude) and a BSc (Hons) in Anatomy specialised in Physical Anthropology as well as a MSc in Environmental Management from the same institution.

Shannon Hardwick, co-author of this report, holds a Masters degree (MSc) in Archaeology from the University of the Witwatersrand and has seven years' experience as a heritage consultant. She is a registered member of ASAPA and the International Association for Impact Assessment South Africa (IAIASa).

Duncan Mclean, assistant with fieldwork on this project, holds an Honours degree (BAHons) in Archaeology from the University of Pretoria and has one year of experience as a heritage consultant. His application to ASAPA is currently in progress.

1.3 Assumptions and Limitations

This section details the exclusions, assumptions and limitations encountered during this HIA process.

1.3.1 Heritage Survey Results

Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources identified during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors account for this, including:

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- The subterranean nature of some heritage resources (such as archaeological artefacts or graves). In many cases, these heritage resources do not have surface indicators suggesting their presence or their significance; and
- The existing vegetation cover, which can obscure heritage resources or surface indicators of subterranean heritage resources.

As a result, it is always possible that the fieldwork findings made in this report are not a complete indication of all the archaeological and heritage fabric from within the study area. Any observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. The Chance Finds Procedure (CFP) must be consulted and implemented in such cases (refer to **Section 6.2**).

Chance Finds may include infant burials. Historically, stillborn infants, miscarriages, and infants who passed shortly after birth were traditionally buried underneath the mother's house, typically underneath the kitchen. This was understood to provide safety and protection to the young child in the afterlife. Historical homesteads¹ are linked to such burials. Some families have carried on these traditions into more modern times, and some continue to the present. Remains of modern homesteads may therefore also carry the potential to include infant graves.

1.3.2 Site Access

Access to the study area was provided by most of the landowners, and the heritage team was able to survey most of the farms and farm portions. **Figure 3** presents the ownership of the properties within the Project area. Access to the footprints themselves ranged from areas being easily surveyed to areas that were difficult to get to. The latter was a result of many factors, including:

- Existing infrastructure, specifically houses and small shops, present in the study area. It is understood that the Traditional Authorities provide "Permission to Occupy" (PTO), in which an area of land is assigned to a family for their home. Such areas were fenced off (or otherwise demarcated) prior to the construction of the structures. Beyond those existing houses, some were being constructed, and additional plots had been fenced off, limiting access to the footprints;
- Informal dirt roads connect the houses, shops and other structures to each other. Unusually hard rainfall in the weeks prior to the survey had damaged or destroyed some of these roads, which limited routes to access parts of the footprints. This did not affect the farm

¹ This will affect the Cultural Significance of identified historical homesteads. Refer to **Section 4.3** for more information.

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properties making up the Phase 2F project area as much as it affected those of Phase 2D;
and

- Some roads (formal and informal) had been closed off at the time of the survey. Most of these roads had not been used for some time, and could not be used at the time of the survey. This also limited access to the footprints.

1.3.3 Additional Limitations and Assumptions

The following additional assumptions and limitations apply to this report:

- The heritage survey focused on the new layout of Phase 2F, i.e., the amended routing design and additional proposed infrastructure. PGS assumes that the approved footprints were assessed in the previous HIA process supporting the existing EA and EMPr. As such, these footprints were not assessed in the field in their entirety, including where access points were proposed within the approved servitudes². Sites which were not surveyed in the field were those that were within 25 m of the approved servitude; and
- No palaeontological studies were included in the present scope of work. A palaeontologist has been appointed to complete a Palaeontological Impact Assessment (PIA) process separate to this HIA.

1.4 Legislative Context

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

- Government Notice (GN) 648 of the Government Gazette 45421- general requirements for undertaking an initial site sensitivity verification where no specific assessment protocol has been identified;
- Appendix 6 of the National Environmental Management Act 1998 (Act No 107 of 1998) (NEMA); and
- The NHRA.

² Please note that these areas were assessed using desktop-based information and are included in the Impact Assessment. Refer to Section 1.3.2 above for a description of the challenges with accessing parts of the Project area and Section 4.3 provides descriptions of the Project area at the time the survey was completed. Figure 18 presents the tracklogs taken during the site survey and indicate which access points were assessed in the field.

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1.4.1 Notice 648 of the Government Gazette 45421

Although minimum standards for archaeological (2007) and palaeontological (2012) assessments were published by South African Heritage Resources Agency (SAHRA), GN 648 requires sensitivity verification for a site selected on the national web based environmental screening tool for which no specific assessment protocol related to any theme has been identified. The requirements for this GN are listed in **Table 3** and the applicable section in this report noted.

Table 3: Reporting requirements for GN648

GN 648	Relevant section in report
2.2 (a) a desktop analysis, using satellite imagery;	Section 4.3
2.2 (b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.	Section 4.1
2.3(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool;	Section 4.1
2.3(b) contains motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity;	Section 4.1

1.4.2 NEMA – Appendix 6 requirements

The HIA report has been compiled considering the NEMA EIA Regulations, 2014 (as amended) Appendix 6 requirements for specialist reports as indicated in the table on **page v** in this report. For ease of reference, the table highlights the report sections where these requirements have been addressed.

1.4.3 The National Heritage Resources Act

- The following sections of the NHRA apply:
 - Protection of Heritage Resources – Sections 34 to 36; and
 - Heritage Resources Management – Section 38

The NHRA is utilised as the basis for the identification, evaluation, and management of heritage resources and in the case of Cultural Resource Management (CRM) those resources specifically impacted on by development as stipulated in Section 38 of NHRA. This study falls under Section 38(8) and requires comment from the relevant heritage resources authority. Regarding this development, the applicable authority would be the Limpopo Heritage Resource Agency (LIHRA) as well as SAHRA.

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Section 24(2) of the NEMA requires environmental authorisation from the environmental authority for certain activities that have been identified and must undergo an EIA or Basic Assessment (BA) process. Similarly, Section 38 of the NHRA lists specific development activities that require notice to the heritage resources authority to determine if an HIA process is necessary. Approval from the heritage authority is mandatory before proceeding with the development activities.

To avoid redundancy and facilitate coordination between NEMA and NHRA requirements, Section 38(8) of the NHRA states that if the development activities listed in Section 38(1) require an EIA under NEMA, a separate HIA and approval from the heritage resources authority are unnecessary. However, the environmental authority must ensure that the heritage resources authority's requirements for HIA are fulfilled and that its comments and recommendations are considered before granting environmental authorisation.

Therefore, if an EIA is required for the development activities listed under Section 38 of the NHRA, separate HIA and EIA processes may not be followed, and different decisions may not be issued under NHRA and NEMA. The EIA process will be followed, and if the heritage resources authority requires HIA, it must be conducted as one of the EIA specialist studies.

The environmental authority must ensure that the heritage resources authority's requirements for the assessment are met. A separate heritage approval may not be issued, but the environmental authority must consider the heritage resources authority's comments and recommendations before granting or refusing environmental authorisation.

It must however be noted that if no environmental process is required, but the proposed development still triggers the requirements for and HIA under section 38(1) of the NHRA, SAHRA or the relevant provincial heritage authority will be the authorising authority. This entity could then require a full HIA completed considering the requirements for public participation and stakeholder engagement as contemplated in the regulations under the NHRA.

1.4.4 Requirements of Appendix 6 of the National Environmental Management Act

The HIA process considers the NEMA Appendix 6 requirements for specialist reports as indicated in the table on **page v** of this report.

2 TECHNICAL DETAILS OF THE PROJECT

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The OMMP-BRWSP is located in the eastern part of the Limpopo Province, between Mokopane, Marble Hall and Steelpoort. Phases 2D and 2F are located on the Eastern Limb of the project, along with Phases 2E and 2H.

The Phase 2F pipeline begins at the Havercroft Junction and continues in a northerly and westerly direction to Olifantspoort. Phase 2F is located within the Greater Tubatse and Lepelle Nkumpi Local Municipalities within the Capricorn and Greater Sekhukhune District Municipalities.

This report focuses on Phase 2F, which comprises a 44 km long pipeline conveying water to the Olifantspoort Water Treatment Works (WTW). The proposed pipeline will start near the Havercroft Junction and will separate from the R37 to take a more direct route to the Olifantspoort WTW. Where possible, the pipeline will follow existing gravel roads along the proposed route.

The EA required for the development to go ahead was received in May 2017. This authorisation was valid for five years and lapsed in June 2022. DWS and ZNJV undertook a Public Participation Process (PPP) in April 2022, which resulted in the amendment of Condition 7 of the EA, which stipulated that the activity must commence within ten years of the authorisation date, i.e. before 2 May 2027. After this date, the authorisation will lapse, and the development will require a new application for EA to go ahead.

The current BA process considers the amended pipeline layout, as well as access and internal roads that are proposed across the Phase 2F pipeline. These access roads will be used during the construction phase of the Project and may be kept for use during maintenance activities in the operational phase. **Figure 2** provides a close-up of the current and approved pipeline layout and the additional proposed infrastructure. **Figure 3** indicates the proposed access roads and shows the properties making up the Project Area.

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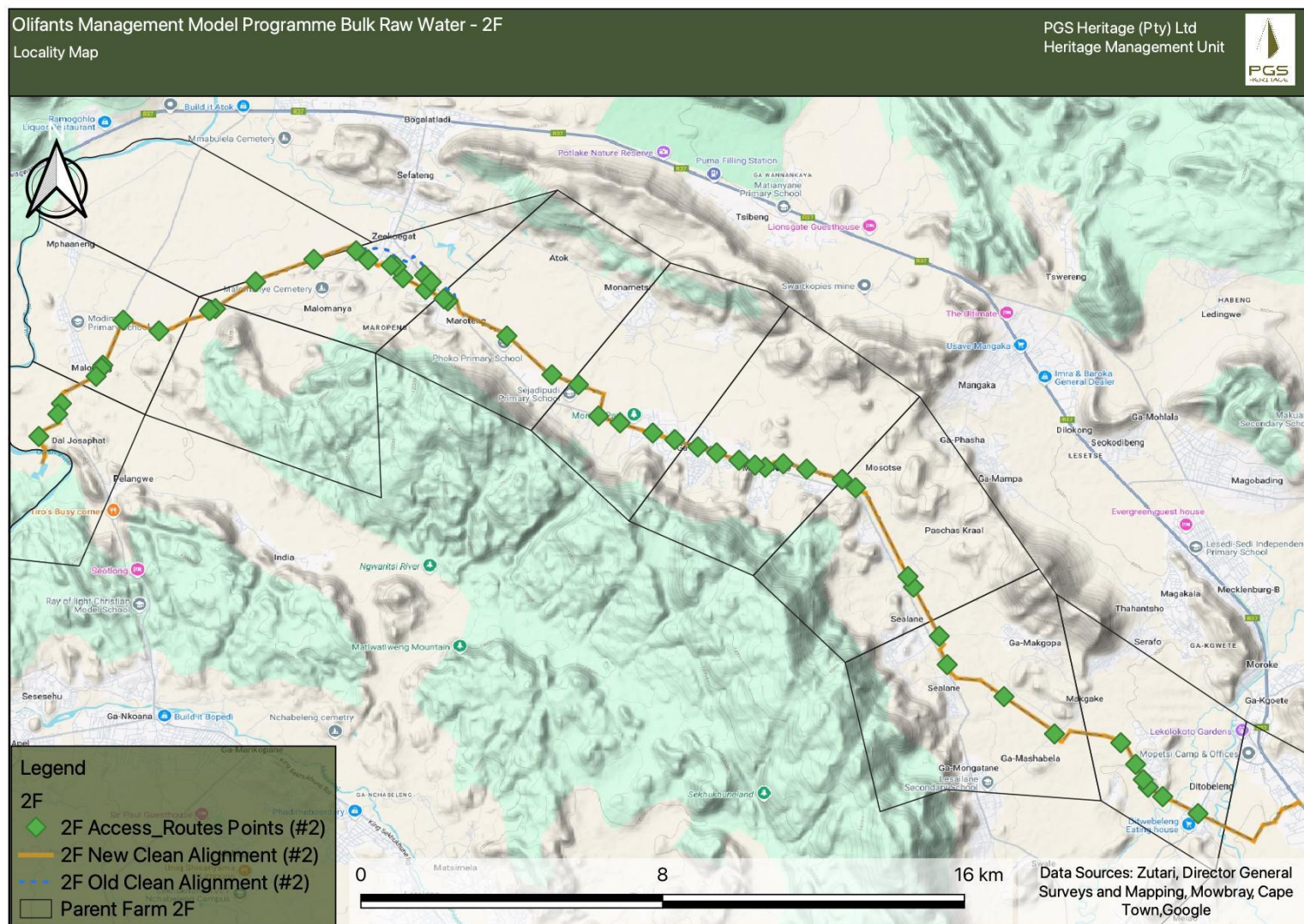


Figure 2: Local Setting and Proposed Project Layout (Shown in Orange. Access Points are indicated by green diamonds)

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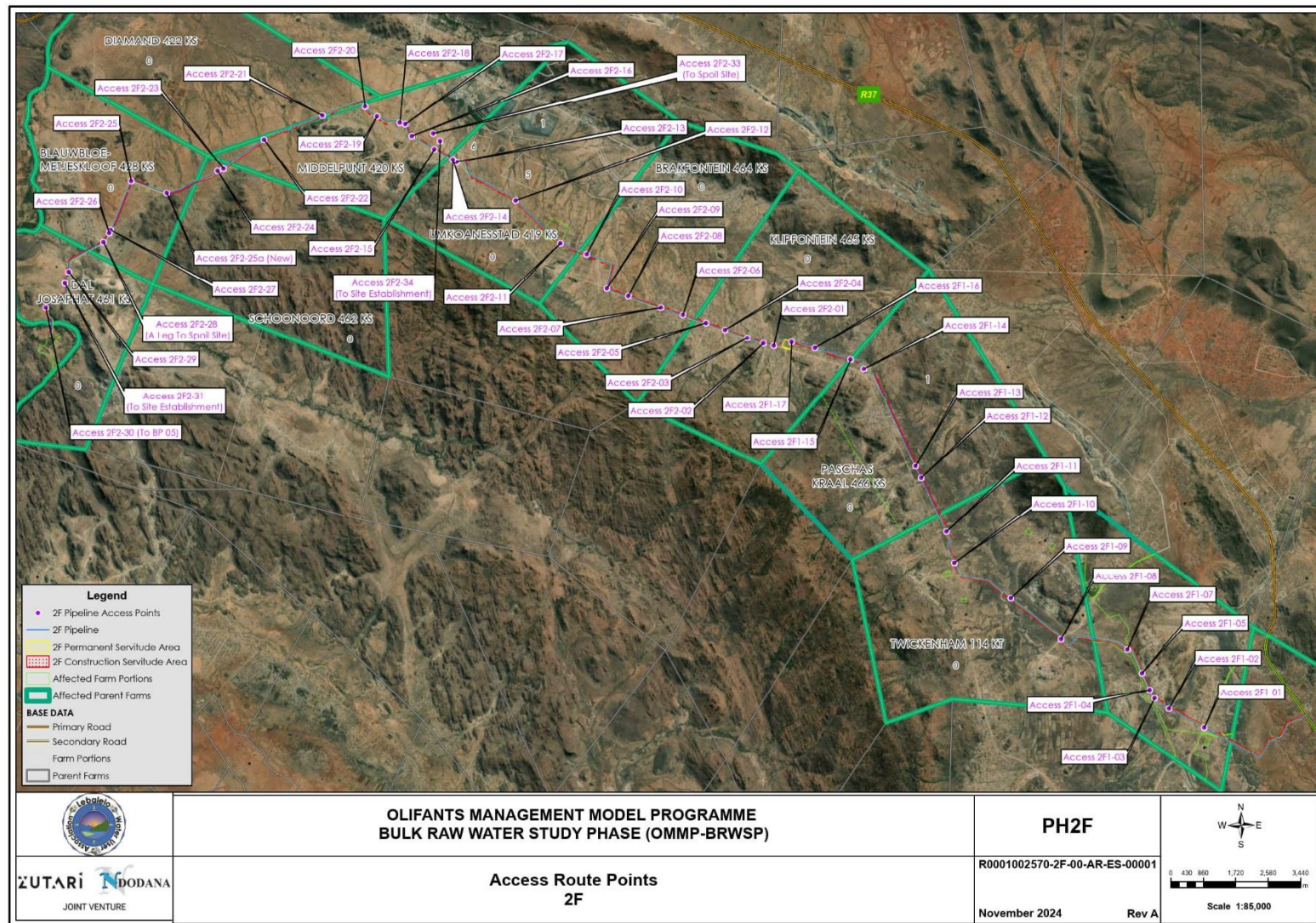


Figure 3: Landownership across the Phase 2F Pipeline and Infrastructure Layout (as received via email on 5 January 2025)

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3 ASSESSMENT METHODOLOGY

The section below outlines the assessment methodologies utilised in the study.

3.1 Methodology for Assessing Heritage Site Significance

PGS compiled this HIA report for the proposed Phase 2F pipeline and additional infrastructure near Steelpoort in the Limpopo Province. The applicable maps, tables, and figures are included, as stipulated in the NHRA and the NEMA. The HIA process consists of three steps:

Step I – Literature Review and Desktop Study:

The background information to the field survey leans, to a large extent, on the archival and historical cartographic material assessed as part of the study as well as a study of the available literature relevant to the project area. The database of the Genealogical Society of South Africa (GSSA) was also examined for records of graves or burial grounds identified previously in the study area.

Step II – Physical Survey:

A physical survey was conducted by a combination of vehicle and pedestrian access through the proposed project area during three surveys. These include:

- A survey on 14 November 2024 by two qualified archaeologists (Shannon Hardwick and Chene Ackerman) and a field technician (Tshepho Sambo). This survey was cut short, due to disruption by some members of the local community; and
- A survey between 14 and 17 January by two qualified archaeologists (Shannon Hardwick and Duncan McLean). The heritage team was accompanied by 'Local Guides' recruited from the local communities on different properties; and
- Additional fieldwork on 27 and 28 January by the same two qualified archaeologists, Shannon Hardwick and Duncan McLean, also accompanied by Local Guides as needed.

This survey aimed to locate and document heritage sites falling within and adjacent to the proposed development footprint. Where such resources were identified, these were recorded through a handheld GPS device, photographs and written records captured through ArcGIS Survey 123 software. The results of the survey are presented in **Section 4.3** and **Appendix B**.

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Step III – Reporting:

The final step involved the recording and documentation of relevant heritage resources identified in the physical survey, the assessment of these resources in terms of the HIA criteria and report writing, as well as mapping and constructive recommendations.

The significance of heritage sites is based on four main criteria:

- Site integrity (i.e., primary vs. secondary context),
- Amount of deposit and range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter):
 - Low - <10/50m²;
 - Medium - 10-50/50m²; or
 - High - >50/50m²;
- Uniqueness; and
- Potential to answer present research questions.

Impacts on these sites by the development are evaluated as follows:

3.1.1 Site Significance

The site significance classification standards used are based on the heritage classification of Section 3 in the NHRA and developed for implementation keeping in mind the grading system approved by SAHRA for archaeological impact assessments.

SAHRA (2006) prescribed the site significance classification standards, which were approved by ASAPA for the Southern African Development Community (SADC) region. **Table 4** presents a summary of these classifications.

Table 4: Site Significance Classification as prescribed by SAHRA

Field Rating	Grade	Significance	Minimum Recommended Mitigation
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High/Medium	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium	Recording before destruction
Generally Protected C (GP.C)	Grade 4D	Low	Destruction

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Heritage Western Cape (HWC) then developed their classification and rating system (2016) (**Table 5** and **Table 6**). This report makes use of this classification and rating system.

Table 5: Rating System for Archaeological Resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Langebaanweg (West Coast Fossil Park), Cradle of Humankind	May be declared as a National Heritage Site managed by SAHRA. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Highest Significance
II	Heritage resources with special qualities which make them significant, but do not fulfil the criteria for Grade I status. Current examples: Blombos, Paternoster Midden.	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Exceptionally High Significance
III	Heritage resources that contribute to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. Current examples: Varschedrift; Peers Cave; Brobartia Road Midden at Bettys Bay	Resource must be retained. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Resource must be retained where possible where not possible it must be fully investigated and/or mitigated.	Medium Significance
IIIC	Such a resource is of contributing significance.	Resource must be satisfactorily studied before impact. If the recording already done (such as in an HIA or permit application) is not sufficient, further recording or even mitigation may be required.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant or the consultant and approved by the authority.	No research potential or other cultural significance

Table 6: Rating System for Built Environment Resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance.	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance

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Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
	Current examples: Robben Island		
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority.	Exceptionally High Significance
II	Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance
IIIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a streetscape or direct neighbourhood.	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for	No research potential or other cultural significance

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Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
		structures in this category if they are older than 60 years.	

3.2 Methodology used in Determining the Significance of Environmental Impacts

ZNJV have a standardised impact assessment methodology for use by all specialists in the EIA process. To ensure consistency amongst the impact assessments, PGS has used the methodology provided by ZNJV in this assessment. This methodology is described in **Appendix A**.

4 CURRENT STATUS QUO

This section describes the baseline cultural heritage landscape and condition at the time of the assessment.

4.1 Site Description

As described in **Section 1.3**, significant portions of the Project Area have been settled by members of the local communities. These settlements include houses, small petty-trading type shops and services associated with the houses and informal roads between the houses. Schools, including primary and secondary or high schools, are located amongst the houses and shops.

Also present within the Project Area are more formal roads, including the Regional Road R37, and other infrastructure such as powerlines and power pylons. More formal businesses in the area include various mines and commercial outlets, such as petrol stations and hardware stores. Bridges and culverts of varying sizes are located across the watercourses present in the study area.

Significant portions of the study area have been affected by soil erosion, creating large dongas and gulleys in the landscape. Informal sand mining operations have been undertaken in this area, and are the likely cause of this erosion, which has likely been exacerbated by recent heavy rains. It appears that these sand mines have not been used for some time.

Figure 4 to Figure 15 presents the general conditions present within the study area.

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Figure 4: Electrical Infrastructure within the Proposed Pipeline Route



Figure 5: Houses under construction within the Project Area



Figure 6: View of the Landscape and Vegetation



Figure 7: An informal road and view of the vegetation



Figure 8: Example of the Erosion Gulleys present in the Project Area



Figure 9: Example of the Erosion Gulleys present in the Project Area

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Figure 10: Example of a larger Business Establishment within the Project Area



Figure 11: One of the more recent bridges constructed by the Local Community



Figure 12: A Soccer Field and smaller Shop associated with a House



Figure 13: A Road within the Project Area which is no longer in use



Figure 14: An example of the Houses present in the Study Area



Figure 15: Another example of the Houses present in the Study Area

Goats and cattle graze amongst the houses and other infrastructure. No cultivation of crops was noted while on site, although some small vegetable gardens may be present within some of the stands.

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4.2 Overview of the Study Area and Surrounding Landscape

Table 7 below presents an overview of the archaeological and historical past relevant to the study area. **Figure 1** summarises these timeframes graphically.

Table 7: An overview of the Archaeological and Historical Past

Date	Description
2.5 million – 250 000 years ago	The Stone Age in southern Africa is divided into three periods, which are defined by the different stone tool types present at the time and the hominin species who created them (Deacon & Deacon, 1999; Mitchell, 2002). The Earlier Stone Age (ESA) is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earlier phase is known as Oldowan and is associated with crude flakes and hammer stones. It dates to approximately 2 million years ago. The second technological phase is the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial hand axe. The Acheulian dates to approximately 1.5 million years ago. <i>Australopithecus</i> and early <i>Homo</i> species are associated with these stone tool industries (Esterhuysen & Smith, 2007).
250 000 to 40 000 years ago	The Middle Stone Age (MSA) is the second oldest phase identified in South Africa's archaeological history. Flakes, points and blades manufactured by means of the so-called 'prepared core' or Levallois technique characterise this time period. Other characteristics are the use of good raw materials as are the use of bone tools and ochre as well as the presence of pendants (Clark, 1982; Deacon & Deacon, 1999). These stone tool industries are associated with <i>archaic Homo sapiens</i>.
40 000 years ago to the historic past	The Later Stone Age (LSA) is the third archaeological phase and is associated with an abundance of very small artefacts known as microliths. The stone tools of the LSA were specialised (i.e., specific tools were made for specific purposes) (Mitchell, 2002). Archaeological assemblages associated with this period include diagnostic tools such as scrapers and segments. These assemblages can include bone tools as well. A well-known feature of the LSA is rock art, which can be expressed as rock paintings or engravings.
500 to 1800 CE	The Farming Community or Iron Age period includes the movements of Bantu-speaking agro-pastoralists into southern Africa and is divided into Early and Late Farming Community periods (Early and Late Iron Age) (Maggs, 1974; Huffman, 2007, Makhura, 2007). The archaeology of this period is characterised by: ▪ Ceramics, which fall into different facies depending on their decoration and shape; ▪ Evidence for the domestication of animals (such as dung deposits and animal remains); and ▪ Stonewalling and stonewalled settlements, which can vary in size and pattern.

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Date	Description
Historical Period (1500 CE to 1994)	The historical period is commonly regarded as the period characterised by contact between Europeans and Bantu-speaking African groups and the written records associated with this interaction. Specific events relevant to the current study and development area are described below.
1817-1826 CE (approximately)	The Mfecane / Difaqane was a period of extraordinary social and political change, mobilisation and violence across the Highveld. The Zulu kingdom, led by Shaka, pushed Mzilikazi and his Ndebele kingdom out of their territory, which led to knock-on displacements and disruptions across much of present-day South Africa (Landau, 2010).
1835	The Great Trek (or Groot Trek): groups of Afrikaners initiated a move from the Cape into the South African interior with the aim to establish a state independent from the British. The Robert Schoon Party was the first to depart the Cape in 1836 (Delius & Cope, 2007).
1899-1902	The South African War or the Second Anglo-Boer War occurs, as the result of building tensions and conflicting political agendas between the Boers and the British.

4.2.1 Archival and Historical Maps

The examination of historical data and cartographic resources represents a critical tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Relevant topographic maps and satellite imagery were studied to identify structures, possible burial grounds or archaeological sites present in the footprint area.

Historical topographic maps (1:50 000) for the year 1964 (Steelpoort and Mecklenburg) were available for utilisation in the background study. These maps were assessed to observe the development of the area, as well as the location of possible historical structures and burial grounds. The study area was overlain on the map sheets to identify structures or graves situated within or immediately adjacent to the study area that could possibly be older than 60 years and thus protected under Section 34 and 36 of the NHRA.

A hut feature is included in the First Edition topographical maps. This feature corresponds to the location of one of the identified heritage sites (**Oli1**) described in **Section 4.3**.

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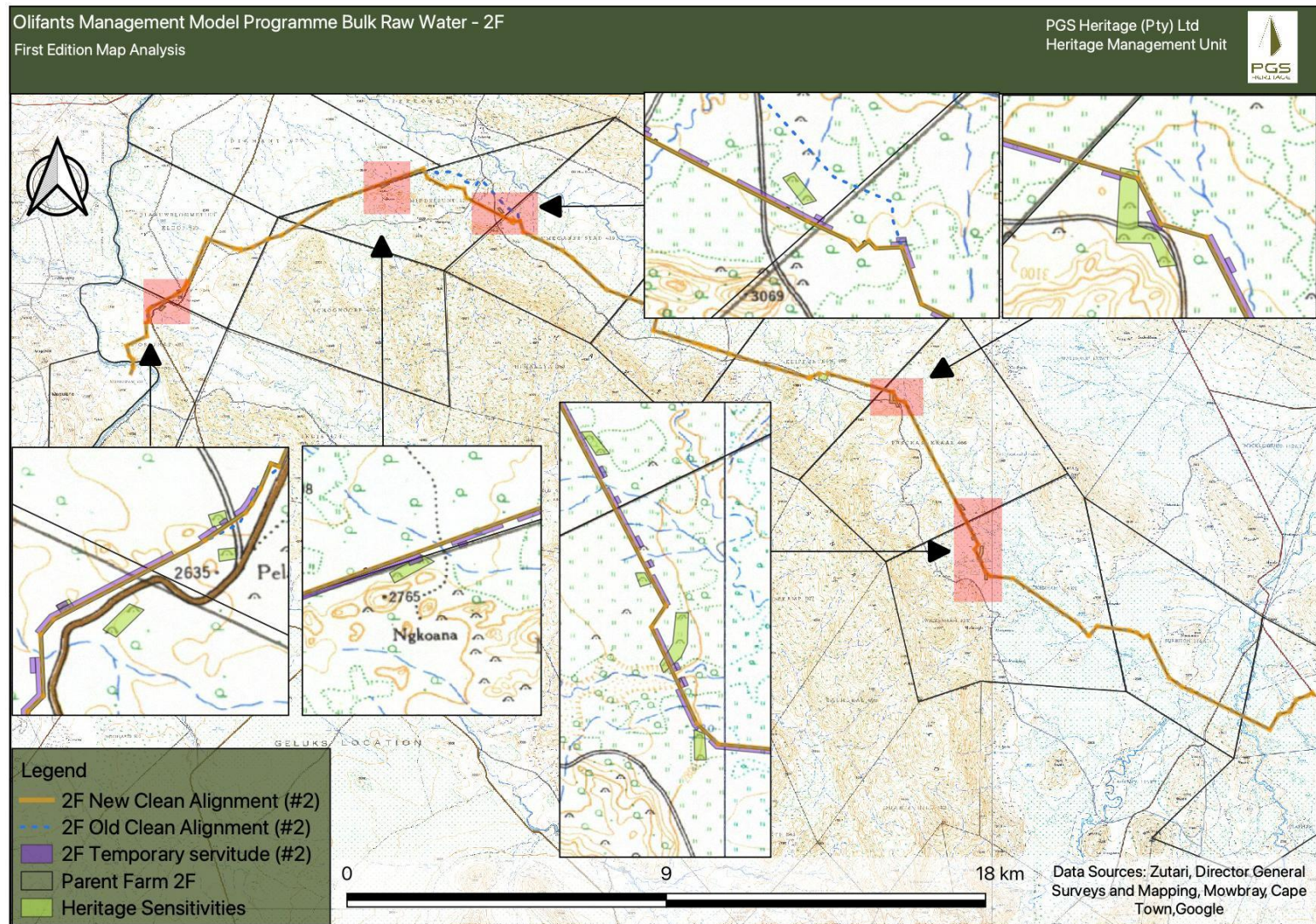


Figure 16: Extracts of the First Edition Steelpoort and Mecklenburg Topographical Map (1964)

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4.2.2 Previous Heritage Impact Assessment Reports from the Study Area and Surrounds

Several archaeological and heritage studies have been undertaken within the study area. The reports on these studies were obtained through the South African Heritage Resources Information System (SAHRIS). It must be noted that the list of studies provided here only represents some of the archaeological and heritage work which has taken place within the study area. These previous reports include the following:

- Kruger (2019): The Glencore Eastern Mines Expansion project comprised the expansion of the underground mining operations and additional supporting infrastructure, which would be on the surface. The proposed development footprints combined covered an area of approximately 65 ha. **Kruger recorded 10 sites during the field visit. These sites included two small Iron Age settlement areas, four burial sites and stonewall structures of unknown age.** This may include a Historical Period occupation site.
- Pelser (2022): Pelser assessed Portions 1 to 6 of the farm Steelpoortdrift 365 KT. The proposed development comprises the establishment of an opencast vanadium mine on these properties, with the necessary supporting infrastructure, including a concentrator. Pelser recorded 16 sites during the field visit, six of which had not been identified or recorded to date. Including the results from all surveys done up to the time of reporting, **a total of 70 heritage sites were present on the abovementioned properties and included burial grounds and graves, Stone Tool scatters and Initiation Sites (*phiris*).**

4.2.3 Heritage Screening

The DFFE National Web-based Environmental Screening Tool must be consulted during an EIA process to establish the potential environmental sensitivities and inform the study plan, as per Regulation 16(1)(v) of the EIA Regulations 2014, as amended, promulgated under the NEMA.

Figure 17 presents the results of the environmental screening assessment for the archaeological and cultural heritage theme. According to the screening tool report, in this case, the proposed development occurs within an area of low archaeological and cultural heritage sensitivity, although areas of high and very high sensitivity occur in proximity to the proposed footprints. The development's location is within an already-disturbed landscape, combined with the presence of sensitive heritage resources (such as burial grounds and graves). PGS agrees with the overall rating of low sensitivity with areas of high sensitivity in between.

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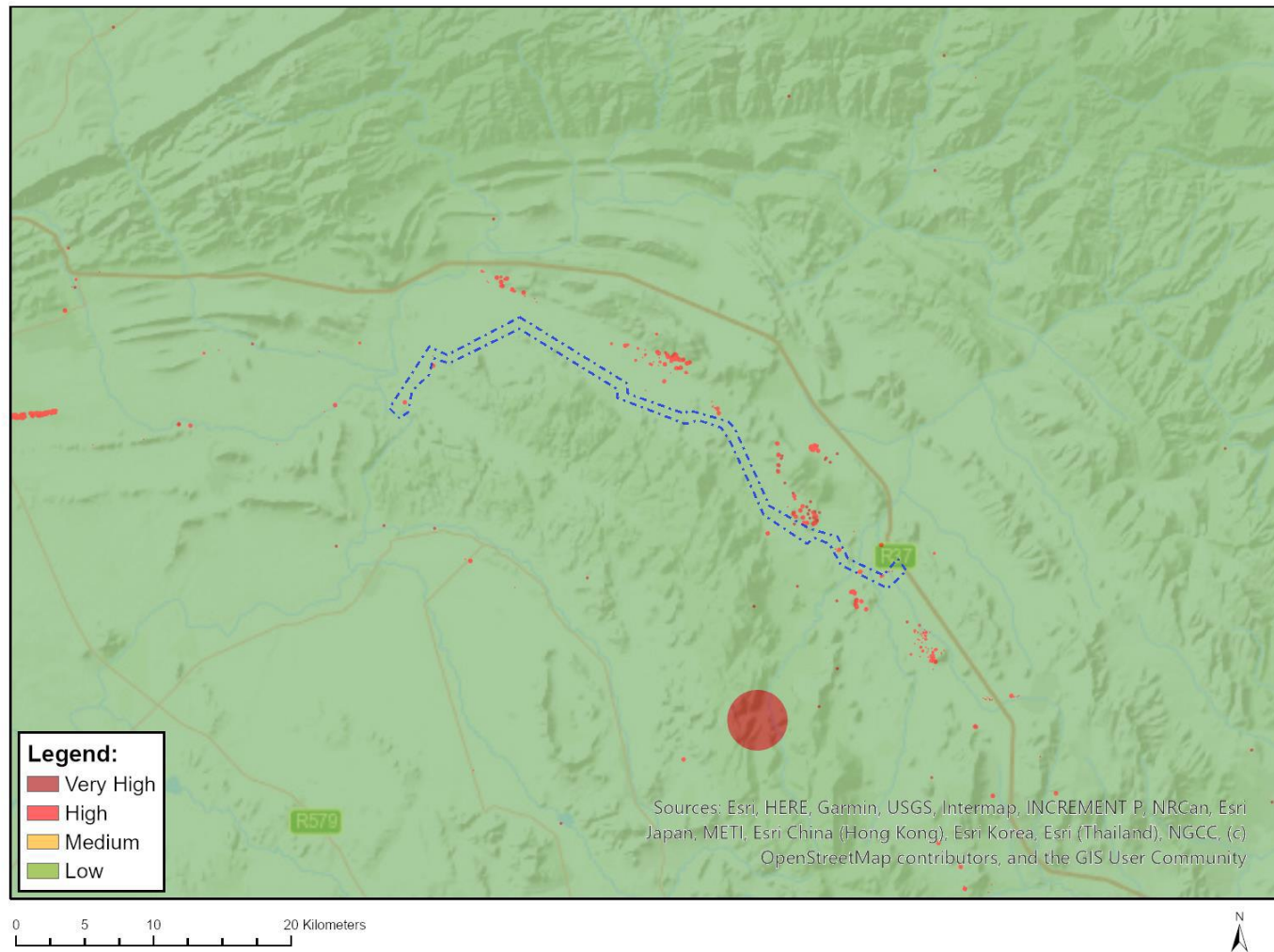


Figure 17: Screening Tool Map indicating a Low Sensitivity Rating for Archaeology and Cultural Heritage for the Project Area with Areas of High Sensitivity (broad outline of the study area in blue)

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4.2.4 Heritage Sensitivity

Analysis of maps and satellite imagery enabled the identification of possible heritage sensitive areas. By superimposition and analysis, it was possible to rate these structures according to age and thus their level of protection under NHRA. **Table 8** lists the possible tangible heritage sites identified in the vicinity of the study area and the relevant legislative protection.

Table 8: Tangible Heritage Site in the Study Area.

Name	Description	Legislative protection
Archaeology	Older than 100 years	NHRA Sections 3 and 35
Structures	Possibly older than 60 years	NHRA Sections 3 and 34
Burial grounds	Graves	NHRA Sections 3 and 36

Additionally, evaluation of satellite imagery has indicated the following areas that may be sensitive from a heritage perspective. The analysis of the studies conducted in the area assisted in the development of the following landform type to heritage find matrix (**Table 9**).

Table 9: Landform Type to Heritage Find Matrix

LANDFORM TYPE	HERITAGE TYPE
PTO Stands and residential areas	Burial grounds and graves
Farmsteads	Historical and/or archaeological material

4.3 Fieldwork findings³

PGS completed the physical survey of the area under consideration during three site visits. These comprised:

- A survey on 14 November 2024 by two qualified archaeologists (Shannon Hardwick and Chene Ackerman) and a field technician (Tshepho Sambo). This survey was cut short, due to disruption by some members of the local community; and
- A survey between 14 and 17 January by two qualified archaeologists (Shannon Hardwick and Duncan McLean); and
- Additional fieldwork on 27 and 28 January by the same two qualified archaeologists, Shannon Hardwick and Duncan McLean.

³ Site in this context refers to a place where a heritage resource is located and not a proclaimed heritage site as contemplated under Section 27 of the NHRA.

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The latter two surveys included ‘Local Guides’ as nominated by the relevant Traditional Authorities applicable to the different properties. These Local Guides accompanied the fieldwork team through the surveys and indicated the locations of burial grounds (or other points of interest) where these were present near the proposed infrastructure. The Local Guides were also available to answer questions and most, if not all, had lived on the properties their whole lives.

During this survey, the team recorded tracklogs through a handheld GPS device. Any identified heritage resources were recorded through photographs, GPS waypoints and notes captured on the Survey 123 software. **Figure 18** presents these tracklogs. **Figure 19** and **Table 10** below presents the heritage resources identified during this survey. Photographs, and more detailed descriptions of the identified heritage resources are included in **Appendix B**.

PGS identified 17 heritage resources during the site survey across both Phase 2D and 2F. Of these, 14 are found in the Phase 2F Project area, including:

- Archaeological resources, comprising four Iron Age grinding stones;
- Modern built heritage resources, including five modern structures, one example of a stone property boundary and one example of a stone structure commonly used when harvesting firewood;
- Two burial grounds (cemeteries); and
- One modern church that was used by the members of the local community but is currently not in use.

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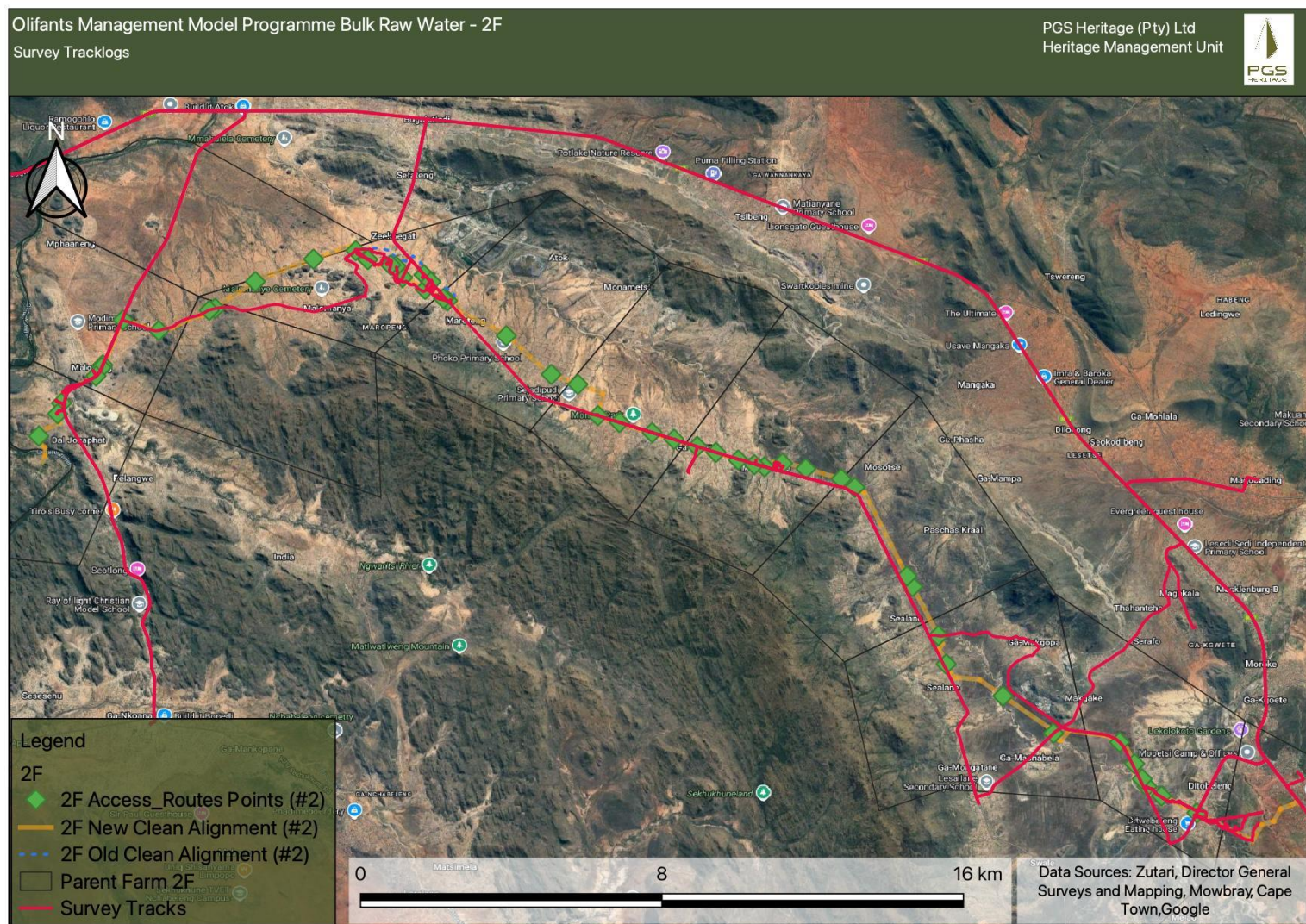


Figure 18: Fieldwork Tracklogs (Phase 2F pipeline route indicated in orange, tracklogs in red)

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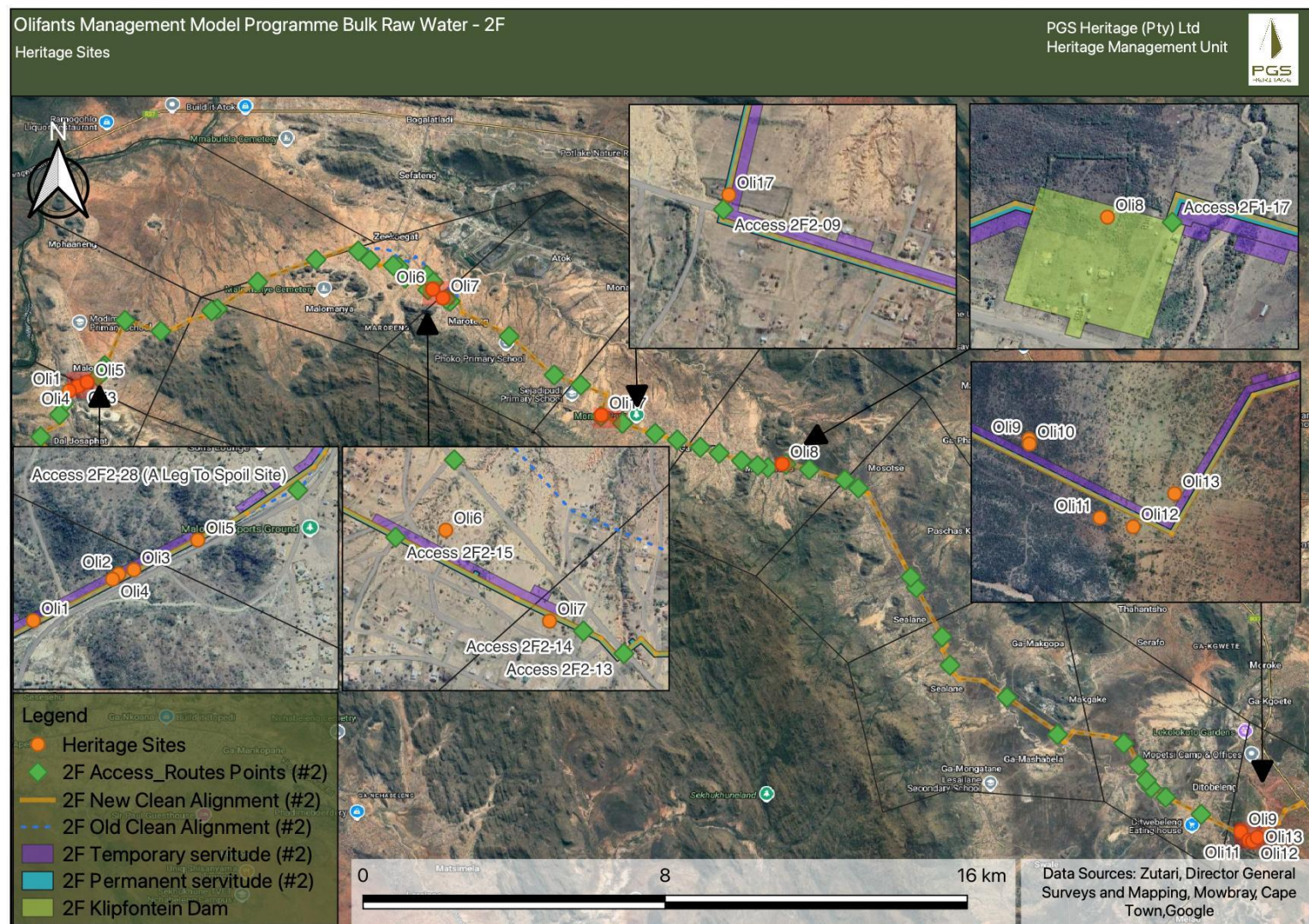


Figure 19: Heritage Resources identified within the Phase 2F Project Study Area

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Table 10: Heritage Resources Identified during the Field Survey of the Phase 2F Project Area

Site No	Site Co-ordinates		Time Period	Brief Site Description	Grading	Heritage Significance
	X	Y				
Oli1	-24.33314	29.76694	Historical / Modern	This site is likely a recent structure with concrete stairs at the front, concrete flooring and large flat and rounded sandstones mixed with concrete to form the base. Only the base remains The location correlates with the location of a hut feature noted on the 1964 topographical map. The modern structure was likely built over what remained of the structure noted in the topographical map.	High	Grade 3 - A (IIIA)
Oli2	-24.33182	29.76936	Modern	The site appears to be a concrete slab. However, it is heavily overgrown and mostly destroyed and as such no other indicators of what it could be are present.	N/A	NCW
Oli3	-24.3317	29.76979	Modern	Appears to be a rectangular sand/mudbrick structure with four rooms. The sand has been compacted and mixed with small stones. The outside walls are possibly made from mudbrick. The structure has mostly been destroyed and only some wall bases remain.	N/A	NCW
Oli4	-24.33196	29.76918	Modern	Two recent standalone structures both with single stone coursing represents this site. All that presently remains are the stonewall bases and there appears to only be one compartment for both. Both are heavily overgrown.	N/A	NCW
Oli5	-24.33086	29.7716	Modern	This site comprises a large recent mudbrick structure with a red cement base. There are 6 compartments with most of the compartments being almost totally destroyed except for one section which has semi-intact mudbrick walling.	N/A	NCW
Oli6	-24.30656	29.8619	Historical / modern	A cemetery with approximately 230 graves is present comprising of 14 rows with approximately 20 graves in each row. Most of the graves are formally-dressed and indicated with headstones. Some graves include metal 'cages' or fences and others are marked by soil mounds. The oldest identified headstone is 1889 and the youngest 2019, although the soil mounds may be more recent. The Local Guide indicated that the cemetery is still in use.	High	Grade 3 - A (IIIA)

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Site No	Site Co-ordinates		Time Period	Brief Site Description	Grading	Heritage Significance
	X	Y				
Oli7	-24.30889	29.86455	Modern	An old church with an associated structure to its right and associated “decorations” to the south is present at this site. The Local Guide identified this site and provided some information, indicating that it is no longer in use. The church is constructed of bricks and cement with metal lintels while the structure to the right has been largely demolished. A possible grave was observed near the church. Additional graves are potentially present.	High	Grade 3 - A (IIIA)
Oli8	-24.35223	29.95323	Historical / modern	This site comprises a low line of stones indicating a farm boundary. This boundary may still be indicating the boundary between neighbouring houses.	N/A	NCW
Oli9	-24.44822	30.07299	Modern	Dual lowlines of stones forming a platform to keep harvested wood off the wet ground and away from termites are present here. Members of the community harvesting firewood across the Project area commonly construct such features. A similar structure is situated just to the east of this feature.	N/A	NCW
Oli10	-24.44836	30.073	Iron Age	Half of a lower grinding stone	Negligible	NCW
Oli11	-24.45056	30.07511	Iron Age	A complete upper grinding stone.	Negligible	NCW
Oli12	-24.45083	30.07609	Iron Age	A lower grinding stone.	Negligible	NCW
Oli13	-24.44985	30.07733	Iron Age	Lower grinding stone.	Negligible	NCW
Oli17	-24.33955	29.90592 ⁴	Modern	A graveyard of at least 2 visible graves located in a maize field. The Local Guide contacted the Next-of-Kin to arrange access, but the landowner had locked the access gate at the time of the survey and could not be contacted to provide access. Due to this lack of access, the fieldwork team could not confirm the age or the size of this burial ground.	High	Grade 3 - A (IIIA)

⁴ This location is approximate, as access to the property on which the graves are located could not be arranged at the time of the survey.

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4.3.1 Archaeological Artefacts and Sites

Some general background scatters of Stone Age lithics and Iron Age potsherds were observed on several properties within the project area. Given the erosion prevalent on site, it is likely that these artefacts have been washed out of their original context and are *ex situ*. They therefore present minimal information potential. Given this, and their presence across much of the study area, individual scatters were not recorded. Their presence is, however, noted as it represents the possibility of an *in situ* site being encountered during Project-related activities. **Figure 20** and **Figure 21** below present some photographs of these resources.



Figure 20: Background Scatter of Stone Tools



Figure 21: Background Scatter of Ceramic Potsherds

Four examples of Iron Age grinding stones were identified during the site surveys (**Oli10**, **Oli 11**, **Oli12** and **Oli13**). No other indicators of Iron Age settlement were observed. This suggests that the grinding stones may be out of their depositional context and are of limited information potential. As such, PGS considers them to be of negligible heritage value and are deemed NCW.

4.3.2 Modern Structures

Oli1, **Oli2**, **Oli3**, **Oli4** and **Oli5** all represent the remains of structures that are no longer in use. These appear to be modern and are not likely to be older than 60 years of age. This is supported by information from the Local Guide for this property, who indicated that she knew who used to live in these houses and described them as moving to a different property within the area. While she could not remember exactly when the houses were built or abandoned, it seems to be within a relatively recent timeframe.

Historical homesteads are afforded **high significance**, as they are often associated with burials. This applies specifically to miscarriages, stillborn babies and young infants who may pass away

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after being born. Traditionally, these burials are placed underneath the house (usually the kitchen) to provide the spiritual protection of the child in the afterlife. However, the same Local Guide described above, indicated that this is not practiced within her community and that all infant burials are included in one specific cemetery which serves the community under the Traditional Authority. This cemetery is located on a different property outside of a potential impact from the proposed infrastructure and so was not inspected by the fieldwork team.

This notwithstanding, the location of **Oli1** corresponds to the location of the hut feature indicated in the 1964 topographical maps (refer to **Section 4.2.1** above). It is likely that the modern structure identified at **Oli1** was built over what remained of the hut feature. It is possible that the hut feature represents a historical homestead and therefore may have potential for infant burials to be present. As such, **Oli1** is considered to be of high significance and a Grade 3 A (Grade III A) rating.

Given their age and the limited potential for infant burials to have occurred here, PGS considers **Oli2, Oli3, Oli4, and Oli5** resources to be of no heritage value (as they are below the minimum threshold to be considered heritage structures under Section 34 of the NHRA) and are therefore NCW.

Similarly, because they are modern structures, **Oli8** and **Oli9** are considered NCW. **Oli8** represents a low line of stones to demarcate property boundaries, and **Oli9** represents a temporary stone structure used at present by members of the community harvesting firewood in the local green areas.

Oli7 represents the remains of a church that was used by members of the community on the farm Middelpunt 420 KS. The Local Guide relevant to this property identified the site, which includes the remains of the church itself, an additional structure, and some features he referred to as 'decorations' linked to the church. A feature that may represent a grave was identified at this site. Given its previous use as a sacred site, and its current potential for graves, PGS considers this site to be of high significance and a Grade 3A heritage resource.

4.3.3 *Burial Grounds and Graves*

Oli6 is a cemetery of (an estimated) 230 graves. While some graves are marked by soil mounds, most are formally dressed with legible headstones. The cemetery appears to have been in use since 1889 and, according to the Local Guide, is still in use today.

Most of the graves are centred towards the middle of the demarcated boundary of the cemetery, and it appears that the area has been fenced off to allow for additional graves in the future.

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However, it must be noted that there is at least one grave located next to the fence line, and there may be more examples of this placement within the cemetery.

Oli17 is a smaller burial ground, although the size could not be confirmed by the fieldwork team⁵. It includes at least two visible headstones, and no information about these graves could be ascertained.

The high heritage significance of graves is globally accepted. Graves are intrinsically unique and irreplaceable and carry high social importance. For this reason, they are afforded a **high significance** value in this assessment and have been assigned a Grade 3 A (Grade III A) rating.

5 IMPACT ASSESSMENT

The impact assessment rating is based on the rating scale as contained in **Appendix A. Table 11** presents the impact assessment as it would happen without any mitigation measures in place and contrasts that scenario with the mitigation measures in place. This analysis considers the impact of the amended pipeline layout and additional infrastructure associated with the Phase 2F pipeline on identified heritage resources. This impact assessment further considers the significance of the identified heritage resources and their spatial relationship to the proposed infrastructure and project activity. **Oli7** is located outside the proposed infrastructure footprints, and no impact (direct or indirect) to this site is foreseen.

Similarly, **Oli9, Oli10, Oli11, Oli12, and Oli13** are located outside the proposed infrastructure footprints. No impacts to these sites are foreseen.

Oli2, Oli3, Oli4, and Oli5 are located within the proposed pipeline footprints – **Oli5** is located within the proposed pipeline itself, and the other sites within the temporary servitudes. **Oli8** is located in the proposed Klipfontein Dam footprint. As such, the development is expected to directly negatively impact (i.e. destroy) these sites.

As described in **Section 3.1.1** above, no additional actions are required in terms of the NHRA for a heritage resource that is NCW or which has negligible heritage value. The recording of such sites and including these records in an HIA report are considered appropriate mitigation to conserve data through these records. As such, this report does not consider the potential impacts to heritage resources that are NCW.

⁵ Access could not be arranged for the specific field within which the site was located at the time of the survey. The Local Guide contacted the Next-of-Kin, who informed us that the farmer had locked the access gate and the farmer could not be contacted.

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Table 11: Summary of the Impact Assessment on Heritage Resources of High Significance

IMPACT DESCRIPTION: Direct Impact on Heritage Resources Oli1, Oli6 and Oli17				
Predicted for project phase:	Pre-construction	Construction	Operation	Decommissioning
PRE-MITIGATION				
Dimension	Rating	Motivation		
Duration	Long-term	A direct or indirect impact on these heritage sites would be permanent.	Consequence: Extremely detrimental	Significance: Very high - negative
Extent	Regional	The effects of a direct impact on the burial grounds or individual graves may attract negative attention from a wider region, including (at a minimum) Next-of-Kin living outside the study area.		
Intensity	Very high - negative	Given the significance of these sites, any impact to these features will be of very high intensity.		
Probability	Certain	Given the location of the identified heritage sites in relation to the proposed footprint, the Project will directly impact these resources.		
MITIGATION:				
PGS recommends OMMP-BRWSP implement a 30 m no-go buffer zone around all four sites to avoid the potential direct impact to these heritage resources. This may require changes to the proposed infrastructure footprints. These sites must be conserved in situ through the development and implementation of a Heritage Management Plan (HMP). Where the in-situ conservation and implementation of the 30 m buffer zone is not feasible for either or both sites, OMMP-BRWSP must undertake a stakeholder engagement process to determine: ▪ The feasibility of undertaking a Grave Relocation Process to relocate the graves included in Oli6 and/or Oli17 to avoid impacting them. Such a process must be completed following the requirements of Section 36 of the NHRA, as well as other applicable laws and by-laws; and ▪ The owners or residents of the original hut feature (or historical homestead) at Oli1, and to confirm the presence or absence of graves or infant burials at this site. Where the family confirms the absence of any graves at this site (such as through a police affidavit), the significance of this structure can be revised to NCW. Where the presence of graves is confirmed (or where the absence cannot be confirmed), Oli1 must be treated in the same manner as Oli6 and Oli17; PGS considers the <i>in situ</i> preservation of these resources as the preferable option in the post-mitigation scenario below. Section 6 below presents more details on the mitigation measures recommended.				
POST-MITIGATION				
Dimension	Rating	Motivation		
Duration	Medium-term	<i>In situ</i> conservation and management of these sites would produce benefits that will extend to the medium term, at a minimum.	Consequence: Slightly beneficial	Significance: Low - positive
Extent	Site-specific	The <i>in situ</i> conservation and management of the sites will affect only the affected sites.		

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Intensity	Low positive	-	The <i>in situ</i> conservation of these sites will constitute a small, but positive, change to these sites.	
Probability	Fairly likely		Should the abovementioned mitigations be put into place, it is likely that the benefits to the heritage sites will occur.	

6 MANAGEMENT RECOMMENDATIONS AND GUIDELINES

The following section must be read in conjunction with **Table 13** of this report.

6.1 Construction and Operational Phases

The project will encompass a range of activities during the construction phase, including ground clearance, establishment of construction camp areas and small-scale infrastructure development associated with the project.

It is possible that cultural material will be exposed during construction and may be recoverable, keeping in mind that delays can be costly during construction, and as such must be minimised. Development surrounding infrastructure and construction of facilities results in significant disturbance, however foundation holes do offer a window into the past and it thus may be possible to rescue some of the data and materials. It is also possible that substantial alterations will be implemented during this phase of the project, and these must be catered for. Temporary infrastructure developments, such as construction camps and laydown areas, are often changed or added to the project as required. In general, these are low impact developments as they are superficial, resulting in little alteration of the land surface, but still need to be catered for.

During the construction phase, it is important to recognize any significant material being unearthed, making the correct judgment on which actions should be taken. It is recommended that the following CFP must be implemented.

6.2 Chance Finds Procedure

- A heritage practitioner / archaeologist should be appointed to develop a heritage induction program and conduct training for the Environmental Control Officer (ECO) as well as team leaders in the identification of heritage resources and artefacts **during the implementation of the EMPr.**
- An appropriately qualified heritage practitioner / archaeologist must be identified to be called upon in the event that any possible heritage resources or artefacts are identified.
- Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities halted.

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- The qualified heritage practitioner / archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the impact on the heritage resource.
- The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the materials and data are recovered.
- Construction can commence as soon as the site has been cleared and signed off by the heritage practitioner / archaeologist.

6.3 Possible Finds During Construction

The study area occurs within a generally disturbed and developed area, which includes burial grounds and graves as identified during the desktop and fieldwork phase. Soil or vegetation clearance for infrastructure as well as the proposed construction activities, could uncover the following:

- Unmarked burial grounds and graves; and
- Archaeological resources with information potential.

6.4 Timeframes

It must be kept in mind that mitigation and monitoring of heritage resources discovered during construction activity will require permitting for collection or excavation of heritage resources and lead times must be worked into the construction time frames. **Table 12** gives guidelines for lead times on permitting.

Table 12: Lead times for permitting and mobilisation

Action	Responsibility	Timeframe
Preparation for field monitoring and finalisation of contracts	The contractor and service provider	1 month
Application for permits to do necessary mitigation work	Service provider – Archaeologist and SAHRA	3 months
Documentation, excavation and archaeological report on the relevant site	Service provider – Archaeologist	3 months
Handling of chance finds – Graves/Human Remains	Service provider – Archaeologist and SAHRA	2 weeks
Relocation of burial grounds or graves affected by the development	Service provider – Archaeologist, SAHRA, local government and provincial government	6 months

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6.5 Heritage Management Plan for EMPr implementation

Table 13: HMP for EMPr implementation

Area and site no.	Mitigation measures	Phase	Timeframe	The responsible party for implementation	Monitoring Party (frequency)	Target	Performance indicators (monitoring tool)
General project area	Implement the CFP in cases where possible heritage finds are uncovered.	Construction	During construction	Applicant ECO Heritage Specialist	ECO (monthly / as or when required)	Ensure compliance with relevant legislation and recommendations from SAHRA under Sections 34-36 and 38 of NHRA	ECO Monthly Checklist/Report
Burial grounds and graves	All burial grounds and graves must be retained and avoided with a buffer zone of 30 m as per SAHRA guidelines. If this is not possible, the graves could be relocated after completion of a detailed grave relocation process, that includes a thorough stakeholder engagement component, adhering to the requirements of Section 36 of the NHRA and its regulations as well as the National Health Act and its regulations and any provincial legislation.	Pre-construction Construction	During Construction	Applicant ECO Heritage specialist	ECO Monthly	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 36 and 38 of NHRA	ECO Monthly Checklist/Report

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7 CONCLUSIONS AND RECOMMENDATIONS

During the surveys of the OMMP-BRWSP Phase 2D and Phase 2F Project area PGS identified 17 heritage resources of varying value and significance. Of these, 14 were identified within the Phase 2F footprint area. These include:

- Modern built heritage resources, including five modern structures (**Oli1**, **Oli2**, **Oli3**, **Oli4** and **Oli5**), one example of a stone property boundary (**Oli8**) and one example of a temporary stone structure used when harvesting firewood (**Oli9**). **Oli1** corresponds to a hut feature noted in the 1964 topographical map of the area;
- Two burial grounds (**Oli6** and **Oli17**);
- One modern church that was used by the members of the local community, but which is currently not in use (**Oli7**); and
- Archaeological resources, comprising four Iron Age grinding stones (**Oli10**, **Oli11**, **Oli12** and **Oli13**).

PGS recommends that OMMP-BRWSP establish and implement a 30 m no-go buffer zone between the proposed infrastructure and the following heritage resources:

- **Site Oli1**, which includes the hut feature marked in 1964, and may have potential graves and/or infant burials present; and
- Burial Grounds **Oli6** and **Oli17**.

Church Site **Oli7** is located outside the proposed development footprints and no impact to this site is foreseen.

Where the abovementioned no-go buffer zones cannot be implemented, PGS recommends OMMP-BRWSP appoints a suitably qualified professional to:

- Determine whether a Grave Relocation Process is feasible for affected burial grounds (i.e., **Oli6** and/or **Oli17**) and, if so, to undertake this process, including obtaining all required permits as required in terms of Section 36 of the NHRA;
- Undertake a social consultation process to identify the residents of the 1964 hut feature and confirm the presence or absence of burials at **Oli1**:
 - Where any graves are identified (where the absence of burials cannot be confirmed), **Oli1** must be treated in the same manner as **Oli6** and **Oli17**.
 - Where the absence of any graves at this site are confirmed, the significance of this site can be revised.

The remaining heritage resources listed above are considered NCW and no further mitigation actions are required.

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To avoid or minimise impacts to heritage resources that may be present in the project area but which are not yet identified, PGS recommends that the OMMP-BRWSP develops and implements a CFP as described in **Section 6.2** above. This CFP must be implemented by LWUA as the implementation agents for this development. The CFP must further be implemented by all contractors and subcontractors brought in as part of the construction and operation of this project.

It is the combined considered opinion of the heritage specialists that the proposed project will have a direct impact on several identified heritage resources rated as being of high heritage significance. With the implementation of the recommended mitigation measures, the overall impact on heritage resources will be reduced to acceptable levels during the activities of the project.

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8.3 Internet

Chief Directorate: National Geo-spatial Information (CDNGI) Geospatial Portal, accessible at:

<http://www.cdngiportal.co.za/CDNGIPortal/>

South African Heritage Resources Information System (SAHRIS), accessible at:

<https://sahris.sahra.org.za/>

8.4 Google Earth

All the aerial depictions and overlays used in this report are from Google Earth.

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APPENDIX A

ENVIRONMENTAL IMPACT METHODOLOGY



1 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) METHODOLOGY

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

1.1 METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

This section briefly outlines the proposed method for assessing the significance of the potential environmental and socio-economic impacts identified during the construction, operational and decommissioning phase.

For each predicted impact, criteria are applied to establish the significance of the impact based on likelihood (probability) and consequence, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place.

The criteria that contribute to the consequence of the impact are **INTENSITY** (the degree to which pre-development conditions are changed); the **DURATION** (length of time that the impact will continue); and the **EXTENT** (spatial scale) of the impact. The sensitivity of the receiving environment and/or sensitive receptors is incorporated into the consideration of consequence by appropriately adjusting the thresholds or scales of the intensity, duration and extent criteria, based on expert knowledge. For each impact, the specialist applies professional judgement to ascribe a numerical rating for each criterion according to the ratings provided. The consequence is then established using the formula:

$$\text{Consequence} = \text{intensity} \times (\text{duration} + \text{extent})$$

Depending on the numerical result of this calculation, the impact's consequence would be classified as one of the following:

- ▶ Extremely; highly; moderately; slightly detrimental;
- ▶ Negligible; or
- ▶ Slightly, moderately, highly or extremely beneficial.

To determine the significance of an impact, the probability (or likelihood) of that impact occurring is also taken into account. In assigning probability, the specialist must take into account the likelihood of occurrence and the degree of uncertainty and detectability of the impact. Significance is calculated according to the following formula:

$$\text{Significance} = \text{consequence} \times \text{probability}$$

Depending on the numerical result of this calculation, the impact would fall into a significance category of one of the following:

- ▶ Very Low;
- ▶ Low (negative or positive);
- ▶ Moderate (negative or positive);
- ▶ High (negative or positive);
- ▶ Very High (negative or positive).



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1.2 METHODOLOGY FOR IDENTIFICATION OF MITIGATION MEASURES

The mitigation hierarchy (Figure 1) illustrates the actions which can be undertaken to respond to negative impacts and the preference given to mitigation measures. The topmost measures are preferred, and the preference for mitigation measures decreases the further one moves down the hierarchy.

For each impact assessed, mitigation measures will be proposed to reduce and/ or avoid negative impacts and enhance positive impacts. The mitigation measures identified by the specialists will be reviewed for feasibility with the proponent and then incorporated into the Environmental Management Programme (EMPr) during the EIA Phase to ensure that they are implemented throughout the lifecycle of the proposed project. The EMPr would become a legally binding document should this project receive an Environmental Authorisation.

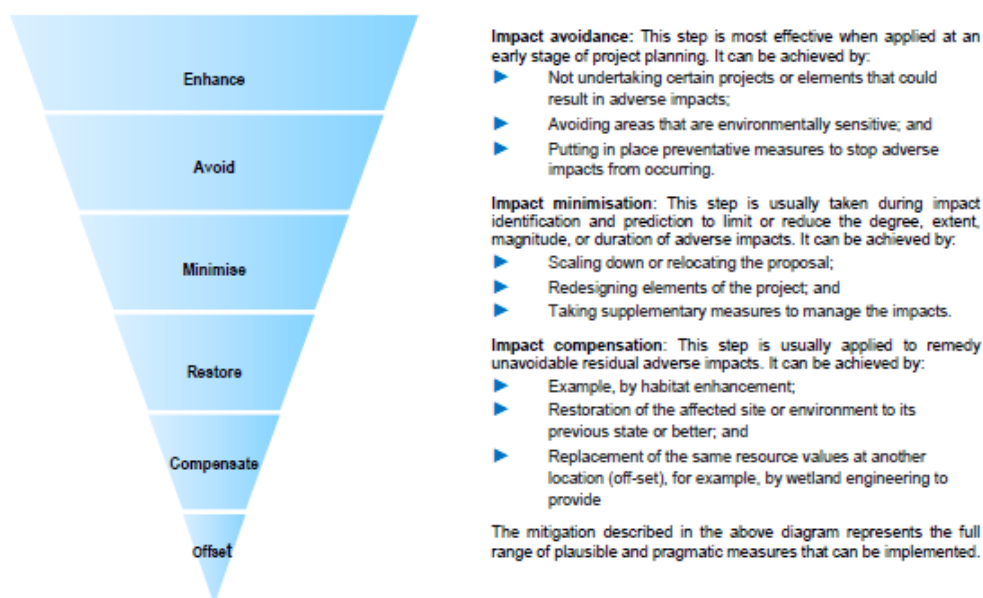


Figure 1: Mitigation Hierarchy

1.3 ASSESSMENT OF CUMULATIVE IMPACTS

A "cumulative impact" is defined in the EIA regulations, 2014 as the '*past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities*'.

Examples of cumulative impacts include those resulting where several hydroelectric projects are constructed or planned on the same river or within the same watershed, multiple oil and gas projects or mines are developed in proximity, or several wind farms are constructed or planned within the same flyway or region. In other cases, cumulative impacts occur from the combined effects over a given resource of a mix of different types of projects, for example, the development of a mining site, access roads, transmission lines, and other adjacent land uses.

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APPENDIX B
SITE DESCRIPTION FORMS

Site coordinates		
site_nr	X	Y
Oli1	-24.33314	29.76694
Oli2	-24.33182	29.76936
Oli3	-24.3317	29.76979
Oli4	-24.33196	29.76918
Oli5	-24.33086	29.7716
Oli6	-24.30656	29.8619
Oli7	-24.30889	29.86455
Oli8	-24.35223	29.95323
Oli9	-24.44822	30.07299
Oli10	-24.44836	30.073
Oli11	-24.45056	30.07511
Oli12	-24.45083	30.07609
Oli13	-24.44985	30.07733
Oli17	-24.33955	29.90592 ⁶

⁶ This location is approximate, as access to the property on which the graves are located could not be arranged at the time of the survey.

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli1	-24.33314	29.76694	This site is likely a recent structure with concrete stairs at the front, concrete flooring, a mix of large flat and rounded sandstones mixed with concrete to form the base. All that remains is the base.	N/A	NCW



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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli2	-24.33182	29.76936	The site appears to be a concrete slab. However, it is heavily overgrown and destroyed and as such no other indicators of what it could be are present.	N/A	NCW
  					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli3	-24.3317	29.76979	Appears to be a rectangular sand/mudbrick structure with four rooms. The sand has been compacted and mixed with small stones. Outside walls are possibly made from mudbrick. Structure has been destroyed, only some wall bases remain.	N/A	NCW
  					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli4	-24.33196	29.76918	Two standalone recent structures both with single stone coursing. All that remains are the stonewall bases and there appears to only be one compartment for both. Both are heavily overgrown.	N/A	NCW
  					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli5	-24.33086	29.7716	A large recent mudbrick structure with a red cement base. There are 6 compartments with majority of the compartments being destroyed bar on section which has semi-intact mudbrick walling.	N/A	NCW
					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli6	-24.30656	29.8619	A cemetery with approximately 230 graves. There are 14 rows with 20 graves approximately in each row. Most of the graves are well-dressed and demarcated with headstones. Some graves include metal ‘cages’ or fences and others are marked by soil heaps. The oldest headstone is 1889 and the youngest is 2019, although the soil heaps may be newer. The Local Guide indicated that the cemetery is still in use.	High	Grade 3 - A (IIIA)
					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli7	-24.30889	29.86455	An old church with an associated structure to its right and associated “decorations” to the south. The Local Guide identified this site and provided some feedback, indicating that it is no longer in use. The church is made up of bricks and cement and metal lintels and the structure to the right has been demolished. A potential grave was observed near the church. There is potential for additional graves to be present.	High	Grade 3 - A (IIIA)
					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli8	-24.35223	29.95323	This site comprises a line of low-lying stones indicating a farm boundary. This boundary may still be in use, as boundary between neighbouring houses.	Negligible	NCW
  					

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Site Number	X	Y	Brief Site Description		Significance	Heritage Rating
Oli9	-24.44822	30.07299	Dual low-lying rows of stones forming a platform to keep harvested wood off the wet ground and away from termites. This is practiced by members of the community harvesting firewood across the Project area. Another one is found just to the east of this.		Negligible	NCW
						

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli10	-24.44836	30.073	Half of a lower grinding stone	Negligible	NCW
					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli11	-24.45056	30.07511	A complete upper grinding stone.	Negligible	NCW
  					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli12	-24.45083	30.07609	A lower grinding stone.	Negligible	NCW
					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli13	-24.44985	30.07733	Lower grinding stone.	Negligible	NCW
 					

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Site Number	X	Y	Brief Site Description	Significance	Heritage Rating
Oli17	-24.33955	29.90592	A graveyard of at least 2 visible graves located in a maize field. The Local Guide contacted the Next-of-Kin to arrange access, but the landowner had locked the access gate at the time of the survey and could not be contacted to provide access. Due to this lack of access, the fieldwork team could not confirm the age or the size of this burial ground. The borehole pictured below is located near to the cemetery, but within the road servitude. This borehole was established in 1998.	High	Grade 3 - A (IIIA)
					

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APPENDIX C
PGS TEAM CVS

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COEN NIENABER

Bio-Archaeologist

PROFILE

My professional career include research, lecturing, consulting, and leading large-scale, international projects focused on graves and human remains across Southern and Eastern Africa and Europe as a humanitarian, conflict, and forensic archaeologist, specializing in bio-archaeology and anthropology. From 2008 to 2015, I was the coordinator for archeology at the University of Pretoria's Forensic Anthropology Research Centre and I founded and managed a bio-archaeology and archaeological geophysics consultancy under Business Enterprises at University Pretoria (BE@UP). Between 2017 to 2024 I worked as a forensic archaeologist at the Netherlands Forensic Institute. I am currently Senior archaeologist and Unit Manager at PGS, continuing my commitment to heritage resources management and forensic investigation.

CONTACT

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coen@pgsheritage.co.za



EDUCATION

University of Pretoria
1995
BA Hon Archaeology

University of Pretoria
1999
BA Hon Physical anthropology

University of Pretoria
2018
MSc Environmental Management

WORK EXPERIENCE

PGS Heritage - Heritage Resources Archaeologist - Unit Manager
2025- present
Heritage Resources Management archaeologist responsible for heritage resources impact assessment.

Netherlands Forensic Institute, Medical Investigation Team, Division Specialist Services and Expertise, Netherlands Ministry of Justice and Security - Forensic Archaeologist
2017 - 2024
Forensic archaeologist tasked with forensic case work; accredited expert witness for Dutch Courts; continued education and research and development.

Bio-Archaeological Analysis and Archaeological Geophysics Unit, Business Enterprises at University of Pretoria - Lead consultant (Principal Investigator) and Unit Manager
2015 - 2017

Forensic Anthropology Research Centre University of Pretoria - Coordinator for Archaeology
2008 - 2015
Forensic archaeology and humanitarian projects involving human remains, repatriation, project management and implementation of grave relocation and heritage resource management projects, graves and archaeology research, community service and continued education.

Department of Anatomy University of Pretoria - First Technical Assistant, 1997 - 2008
Museum curation; anthropology; physical anthropology; paleo-anthropology; archaeology; forensic archaeology; collections management; cultural resources management; grave relocation; repatriation; contract and project management; public participation and social consultation.

PROFESSIONAL AFFILIATION

Accredited Professional Archaeologist - ASAPA
Association of Southern African Professional Archaeologists
Association of Southern African Professional Archaeologists Cultural Resource Management Section. Accreditation: Principal Investigator - Grave Relocation; Laboratory specialist - Human Remains Analysis; Field Supervisor - Iron Age Archaeology, Colonial Period Archaeology
ENFSI - European Network of Forensic Sciences Institutes working groups
EMFA - European Meeting on Forensic Archaeology
EAA - European Association of Archaeologists
NVFA - Dutch Association of Physical Anthropologists



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

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SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

OLIFANTS MANAGEMENT MODEL PROGRAMME BULK RAW WATER STUDY PHASE (OMMP-BRWSP): PROPOSED PHASE 2F PIPELINE RE-ALIGNMENT AND ASSOCIATED INFRASTRUCTURE, IN THE FETAKGOMO TUBATSE AND LEPELLE NKUMPI LOCAL MUNICIPALITIES, WITHIN THE CAPRICORN AND GREATER SEKHUKHUNE DISTRICT MUNICIPALITIES, IN THE LIMPOPO PROVINCE.

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

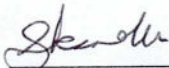
Title of Specialist Assessment	Heritage Impact Assessment
Specialist Company Name	PGS Heritage (Pty) Ltd
Specialist Name	Shannon Hardwick
Specialist Identity Number	8901020020088
Specialist Qualifications:	MSc Archaeology
Professional affiliation/registration:	ASAPA, IAIAA
Physical address:	906 Bergarend Street, Waverly, Pretoria
Postal address:	PO Box 32542, Totiusdal, 0134
Postal address	As above
Telephone	012 332 5305
Cell phone	083 554 7808
E-mail	contact@pgsheritage.co.za

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Shannon Hardwick declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and;
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

PGS Heritage (Pty) Ltd

Name of Company:

20/06/2025

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, _ Shannon Hardwick _____, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

[Signature]
Signature of the Specialist

PGS Heritage (Pty) Ltd
Name of Company

20/06/2025
Date

[Signature] SPO MS MOGANE
Signature of the Commissioner of Oaths

2025-06-20
Date

