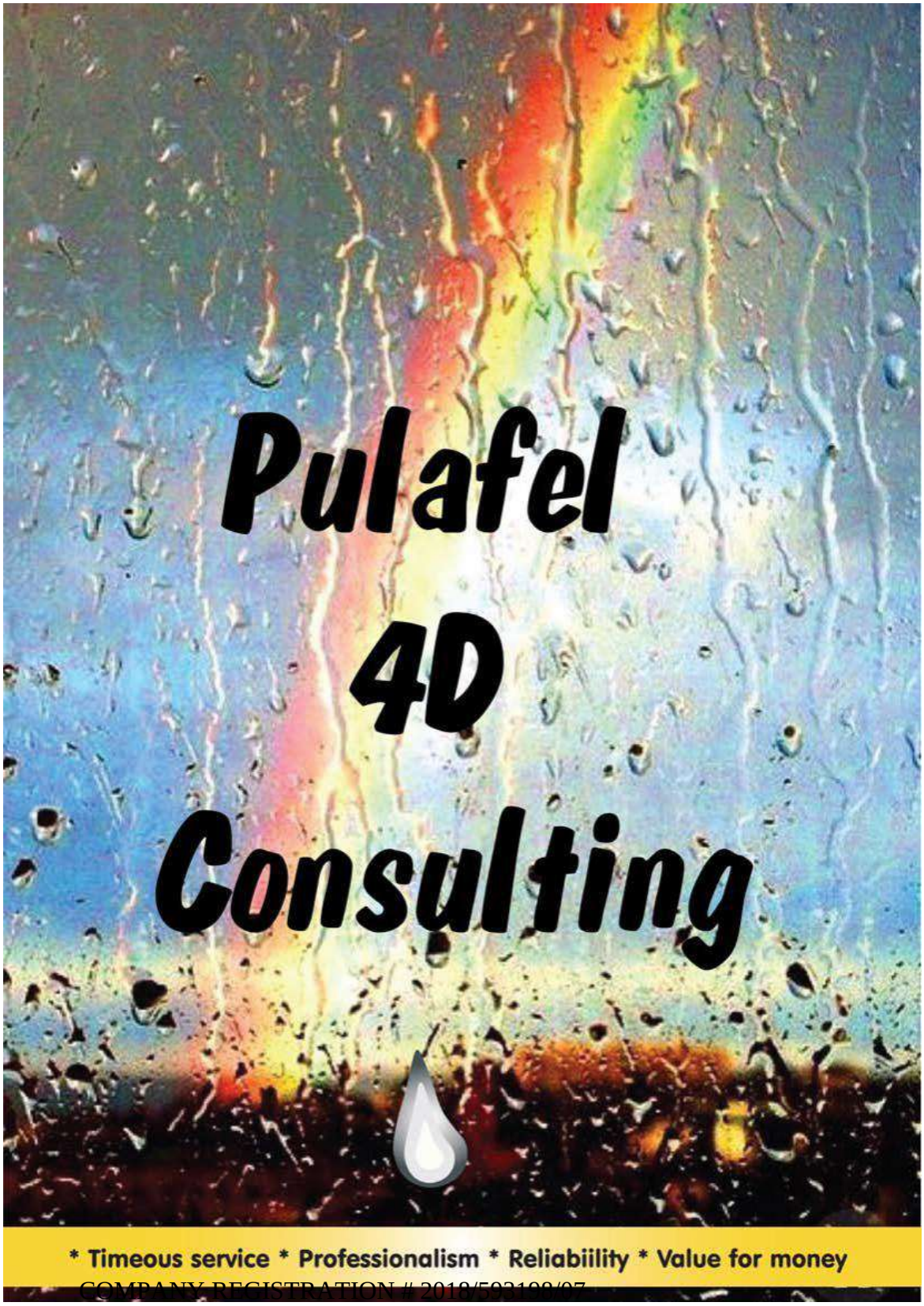

COMPANY REGISTRATION # 2018/593198/07

Desktop & Field Heritage Impact Assessment for a Diamond Prospecting Right on the Farm Stofbakkies 30 in the administrative district of Prieska, Northern Cape Province, South Africa.

Report prepared for: M & S Consulting

By

Pulafel 4D Consulting (Pty) Ltd

21 August 2023

Declaration of Independence

We declare that other from compensation for services rendered in accordance with applicable legislation, neither the professional consultants herein nor Pulafel4D Consulting have any financial or other fudiciary interest in the planned development project or the clients listed herein.

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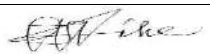
Signed	
Date	21 August 2023

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Document Control

Report Compilation	Dr Joseph Chikumbirike
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Draft 1 Submission	21 August 2023
Final Report	✓
Signed	

Assumptions, limitations, and Disclaimers

Pulafel 4D Consulting, (and all or Independent Consultants) declare that we have professional expertise in conducting heritage impact assessments, including knowledge of the NHRA Act, Regulations and any guidelines that have relevance to the proposed activity. We will comply with the Act, Regulations, and all other applicable legislation; perform the work relating to the application in an objective manner.

Our professional conduct and reporting are guided by the legal and procedural prescripts of SAHRA and regulated by the prescripts of the following professional bodies i.e., Southern African Association of Professional Archaeologists (ASAPA) and the Association of Professional Heritage Practitioners (APHP) to which our consultants and affiliates are members. Our work adheres to SAHRA's *Minimum Standards for Heritage Specialist Studies in terms of Section 38 of the National Heritage Resources Act (No. 25 of 1999).*

South Africa's historical, archaeological, and palaeontological heritage resources are unique and non-renewable as defined in section 3 of the NHRA. The 'cultural significance'' of the sites, structures, landscapes, and artefacts /objects are determined by means of aesthetic, architectural, historical, scientific, social, spiritual, linguistic, or technological values or significances (National Heritage Resources Act, 1999 (vi). The evaluation of sites, landscapes or heritage objects herein is done with reference to one or several of these aspects.

Though all possible care was taken during the intensive desktop study and the subsequent field survey, to identify sites of cultural importance within the development areas, some heritage sites could have been missed due to their subterrato access nature, or due to the dense vegetation cover or challenges related to access. It may be that some heritage materials could be discovered during the project implementation. Also, note should be taken that no subsurface investigation (i.e., excavations or sampling) was undertaken during the fieldwork. In both cases as outlined above, should any heritage features and/or objects or architectural features, stone tool scatters, artefacts, human remains, or fossils be uncovered or observed during the project implementation, operations must be stopped, and a qualified archaeologist contacted for further assessment. Observed or located heritage features and/or objects may not be disturbed or removed. In cases like these, as per the SHRA act, a heritage specialist must be able to further assess the significance of the site or objects discovered in the project implementation phase. Further mitigation measures may be recommended for approval by SAHRA.

EXECUTIVE SUMMARY

At the request of M & S Consulting, a Desktop and Field Heritage Impact Assessment was carried out on the Farm Stofbakkies 30, Prieska District, located about 3km northwest of Prieska in the Northern Cape Province, where Xhariep (Pty) Ltd has applied for a prospecting right to prospect for Diamonds. It is expected that the proposed prospecting activities could impact on cultural heritage and archaeological sites in the form of historical buildings and graves that belong to the Historical Period. However, the scope of the proposed activities, the likelihood of the impact on the archaeological heritage is considered low, especially if prospecting by way of core drilling is considered. It is considered unlikely that prospecting by way of core drilling, trenching and pitting will have a detrimental effect on the archaeological material (Early Stone Age, Middle Stone Age and Iron Age) it is assigned a site rating of Generally Protected C (GP.C). There is a **LOW** to **MODERATE** chance that trenching and pitting into the sandy overburden especially within the vicinity of natural drainage areas may impact on intact Stone Age archaeological remains and should be avoided where possible, whereas prospecting by way of core drilling is considered least likely to have a detrimental effect on potentially capped archaeological heritage resources. In this case, potential prospecting areas that are capped by well-developed wind-blown sand deposits are assigned a site rating of Generally Protected B (GP.B) and will require archaeological monitoring if trenching and pitting activities are to be conducted.

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INTRODUCTION

A desktop and field-based Heritage Impact Assessment (HIA) was carried out on the Farm Stofbakkies 30, Prieska district, located about 3 km northwest of Prieska in the Northern Cape Province (**Fig. 1**). Xhariep (Pty) Ltd has applied for a prospecting right to prospect for diamonds. The region's unique and non-renewable archaeological and palaeontological heritage sites are 'Generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority.

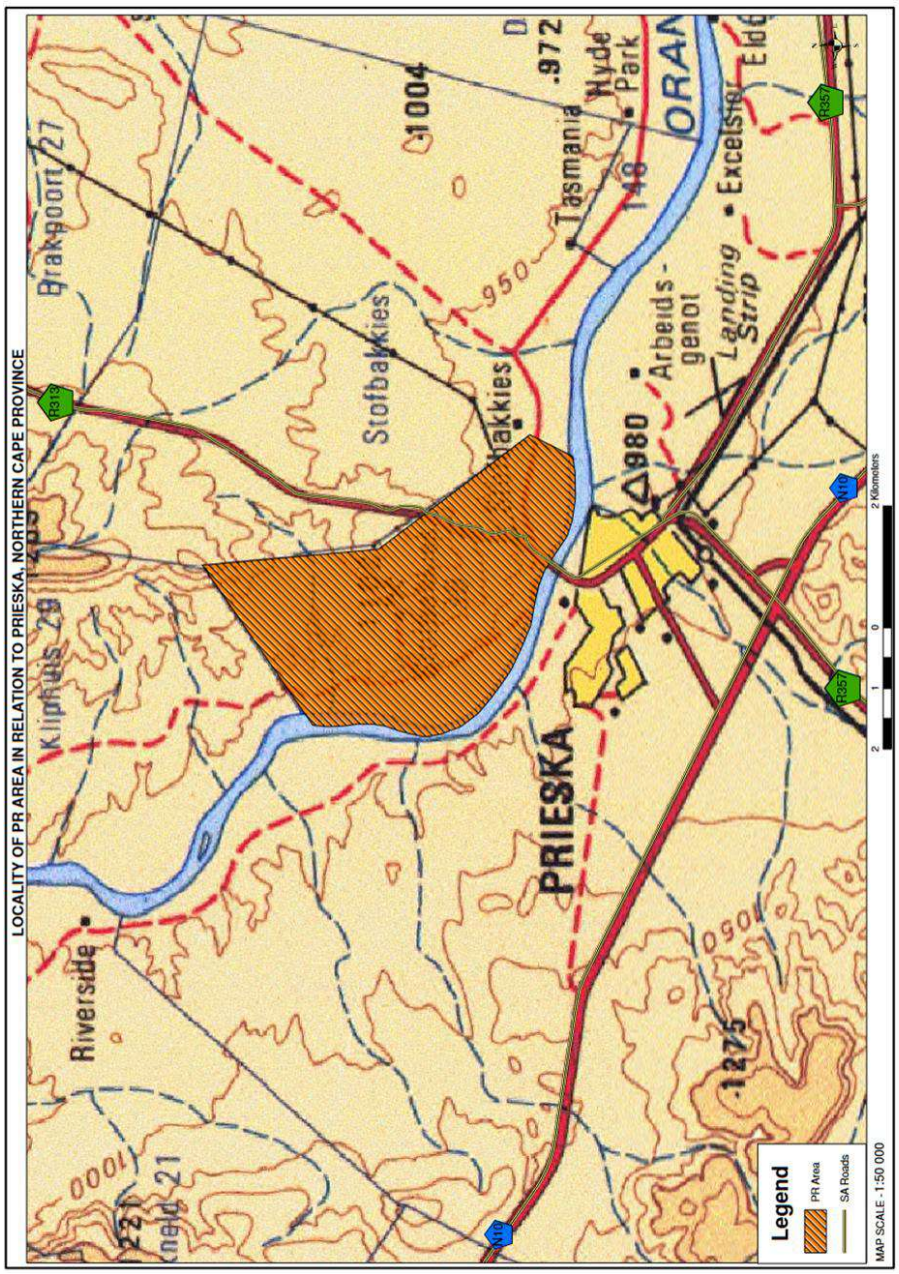

Fig. 1. Extract from 1:250 000 topographical sheet 2922 Prieska showing the approximate location of the proposed diamond prospecting activities on Stofbakkies 30 Farm just northeast of Prieska, Siyathemba Municipality, Northern Cape (orange shaded area).

Fig 1:1:250 000 scale topographic map 2922 Prieska **(Fig. 1)**

Geological Description of the Affected Area

Locality data

1: 250 000 scale geological map 2922 Prieska **(Fig. 2)**

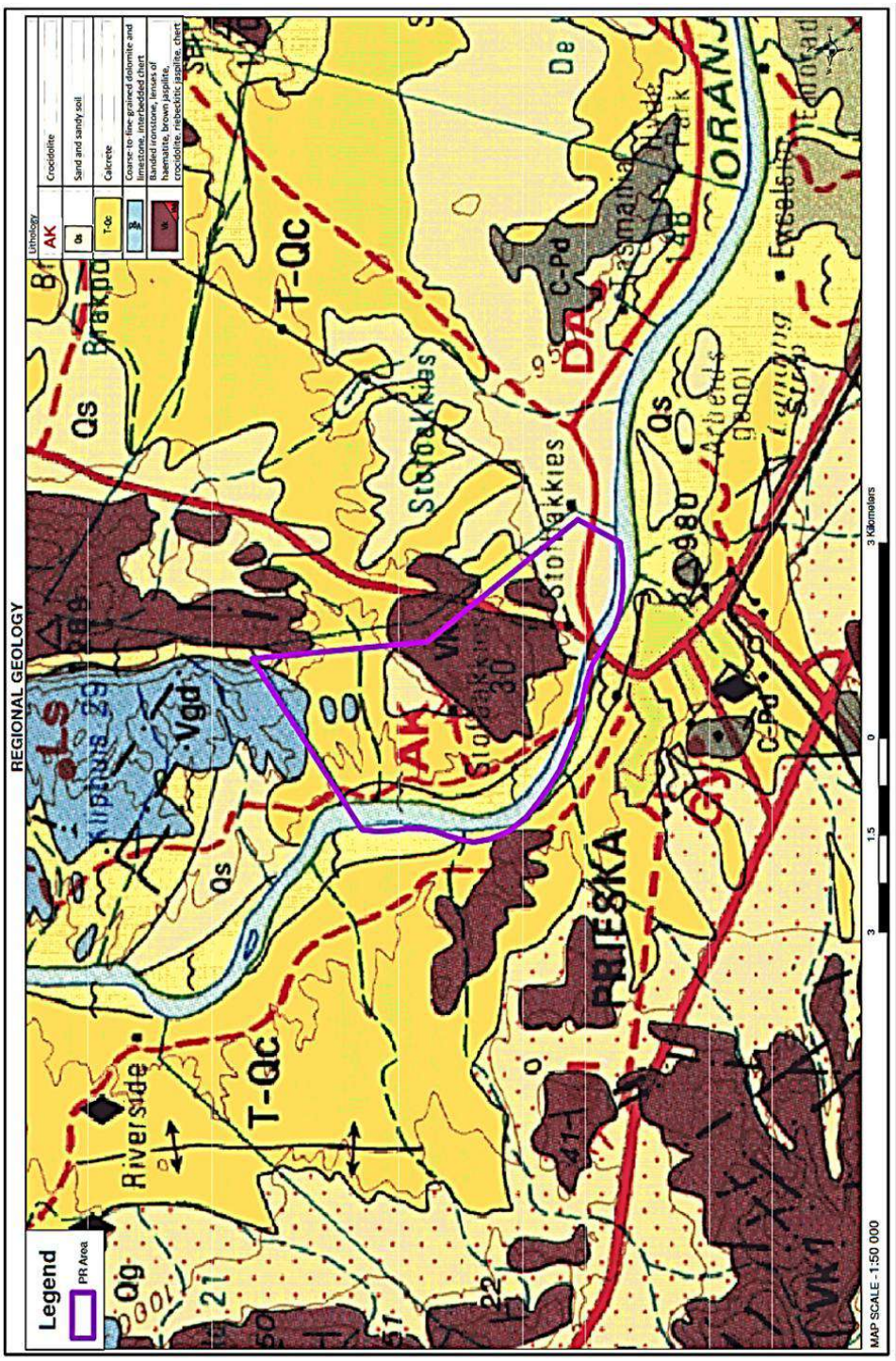

Fig. 2. Extract from 1:250 000 geology sheet 2922 Prieska (Council for Geoscince, Pretoria) showing approximate location of the proposed diamond prospecting activities on the Farm Stofbakkies 30, just northwest of Prieska, Northern Cape (outlined in purple). The study area is underlain by banded ironstone, lenses of haematite, brown jaspillite, crocidolite, riebeckitic jaspilite, chert (Vk, brown); Coarse to fine grained dolomite and limestone, interbedded chert (Vgd, pale blue); calcrete (T-Qc, darkyellow); Sand and sandy soil (Qs, light yellow) and crocidolite (AK).

The study area is characterized by undulated rocky terrain that is primarily covered by well-developed aeolian sand and sand dunes along the low-lying areas.

Description of the Physical Environment

The topography of the area is undulating characterized by Aeolian sand on top of a calcrete sub strata with sparse grass cover and shrubs. The climate can be described as arid to semi-arid with rainfall occurring from November to April. The study area is next to an area mostly characterized by agricultural mining activities.

Geological Context

According to the *Palaeotechnical Report for the Northern Cape* (Almond and Pether, 2008), The *Palaeontological Impact Assessment for the Prospecting Right Application on portions of the Farm Stofbakkies 31, northeast of Prieska, Northern Cape Province Desktop Study (Phase 1*) identified this porting of the Stofbakkies farm as lying on the very highly sensitive Campbel rand Subgroup and Kuruman Formation (Asbestos Hills Subgroup), of the Transvaal Supergroup in the northwestern part that might preserve trace fossils such as stromatolites and microbialites. According to Bamford (2023:2), the area is on highly sensitive Tertiary-Quaternary calcretes and moderately sensitive Dwyka Group tillites and the Quaternary Gordonia Formation. Thus, in terms of palaeontology Stofbakkies falls into very high sensitivity in terms of palaeontology, (p35-6), hence a specialist palaeontologist was also on the ground to conduct a field-based PIA.

The following characterise the geology of the project area:

- Gordonia Formation (KALAHARI GROUP) and surface calcrete. Mainly aeolian sands with minor fluvial gravels, freshwater fan deposits, and calcretes (T-Qc and Qs) (5.3 MYA – 11,700 years)
- Asbestos Hills Subgroup (Kuruman & Danielskuil formations (GHAAP GROUP) Banded Iron Formations (BIF) with chert bands (Vk) (c. 2.5 – 2.4 Ga)
- Campell Rand Subgroup (Kogelbeen, Gamohaan & Tsineng formations (GHAAP GROUP) Limestones, dolomites, subordinate cherts and tuffs (Vgd) (c. 2.6 – 2.5 Ga)

Most of the Precambrian bedrock outcrops in the study area are mantled by a range of – mostly unconsolidated – superficial deposits of ill-defined Late Caenozoic age. The

calcretised breccias contain angular or occasionally water-worn, poorly sorted clasts of carbonate, chert, and BIF. The Campbell Rand Subgroup (Vgd in Fig. 2) of the Ghaap Group previously included within the "Ghaapplato Formation" in older literature represented here in **Fig 2** is a very thick (1.6 - 2.5 km) carbonate platform succession of dolostones, dolomitic limestones and cherts with minor tuffs and siliciclastic rocks. It was deposited on the shallow submerged shelf of the Kaapvaal Craton roughly 2.6 to 2.5 Ga (billion years ago) (See McCarthy & Rubidge, pp. 112-118). A range of shallow water facies, often forming depositional cycles reflecting sea level changes, are represented here, including stromatolitic limestones and dolostones and cherts (Beukes 1980, Beukes 1986, Sumner 2002, Eriksson et al. 2006, Sumner & Beukes 2006).

Precambrian bedrocks are mostly covered by various, mostly unconsolidated superficial deposits of Late Caenozoic age (Almond 2018d, 2019). These younger deposits include thick mantles of colluvial to alluvial gravels, downwasted cherty surface rubble, orange-hued aeolian (wind-blown) Kalahari sands, as well as sandy to gravelly alluvial sediments (often calcretised) along stream and river valley floors.

Vegetation

The vegetation of the study area consists of scatters of grasses and shrubs (**See figures 3-6 below)**. Some of the tree species found in the area include *Accacia melifera, Accacia karroo, Rhus lancea, Rhus sp.* Also, *Ziziphus mucronata* species are found in the study area. *Boscia albitrunca* is one of the taxa found in the project area. *Boscia albitrunca* is commonly known as the Shepherd's Tree. *Boscia albitrunca* is protected under the National Forest Act. The vegetation in the study area is also characterized by riverine vegetation along the Orange riverbanks.

Figure 3: Sparse vegetation in the project area

Figure 4: Aloe and grasses growing on wind blow sand ridges/dunes

Figure 5: Fallen *Boscia albitrunca*

Figure 6: landscape view with scatters of trees and grasses

PLANNED PROJECT ACTIVITIES.

The application is for a prospecting right for diamonds. It is planned to determine the mineral resource and distribution for this project by means of non-invasive as well as invasive prospecting methods. The information obtained during the initial non-invasive field survey and evaluation process of the geological maps and data, will then be used to determine the target area and planned positions of the intended invasive prospecting. Invasive prospecting will take place via:

Description of planned non-invasive activities:

(These activities do not disturb the land where prospecting will take place)

Phase 1:

A site investigation (reconnaissance visit) of the PR Area will be undertaken to identify infrastructure and determine any potential problems that may need to be addressed.

Phase 2:

To direct the exploration programme in an efficient manner, the following shall be done:

· Desktop study – A comprehensive study will be done researching all available information. A desktop study will be undertaken of the diamond potential of the area.

· Geological mapping - The geology of the PR Area will be interpreted by using aerial photographs and satellite images to ascertain target areas for possible gravel deposits and kimberlites. The area will then be mapped in detail by a qualified and registered geologist, which map shall include the various rock types and their contacts.

· Report – A report, making recommendations regarding further investigations of the mineralized areas will be compiled.

Phases 4, 6 and 8:

Samples will be obtained at 1m intervals from all the boreholes and will be analyzed for a number of elements. In addition, samples might also be used for the following:

· Petrographic Examination. Small samples (<5kg) collected from outcrops or boreholes may be submitted for petrographic examination.

· Small amounts of material (<10kg) from outcrops and drilling will be used to carry out physical property tests such as density.

· Geotechnical tests. Geotechnical investigations such as rock quality designation (RQD) and rock strength will be conducted on some of the drill material.

Phase 9:

All the drill sampling data will then be modeled to obtain a final interpretation of the potential of the deposit. A detailed feasibility report will be compiled after drilling operations have been completed to evaluate the economic viability of the project.

Description of planned invasive activities:

(These activities result in land disturbances)

Phase 3: Percussion drilling

Percussion drilling will be used to identify the position of a suspected gravel deposit. The position of the boreholes is dependent on the results of the review of historical activities, geological mapping, desktop study and reconnaissance visit.

Twenty boreholes, approximately 50m deep each (can be depending on results), are planned. The collar position of all boreholes will be surveyed. All drilling will be short term and undertaken by a contractor using truck-mounted equipment.

Angled percussion holes are planned to locate and intersect the mineralization. A traverse line or grid drilling is used to identify and define the extent of any mineralization. The sizes of the boreholes drilled will be determined by such factors as cost, proposed sampling, availability of drilling machines and the volume of sample required, among others.

Each drill site will be rehabilitated. The boreholes will be filled with drill chips and covered with topsoil.

Phases 5 and 7: Reverse Circulation drilling

Diamond and/or Reverse Circulation will be drilled to delineate the potential economic zones of the gravel deposit. The position of the in-fill boreholes is dependent on the results of the percussion drilling phase.

Twenty boreholes, approximately 50m deep each (can be depending on results), are planned (ten boreholes during phase 5 and ten boreholes during phase 7). The eventual extent of the gravel deposit, if one exists, will determine the number of boreholes to be drilled. The collar position of all boreholes will be surveyed. All drilling will be short term and undertaken by a contractor using truck-mounted equipment.

Angled RC holes are planned to locate and intersect the mineralization. A traverse line or grid drilling is used to identify and define the extent of any mineralization. The sizes of the boreholes drilled will be determined by such factors as cost, proposed sampling, availability of drilling machines and the volume of sample required, among others.

Each drill site will be rehabilitated. All shallow boreholes (i.e., <10m) will be backfilled and leveled. All boreholes deeper than 10m will be covered with a metal plate and 1000mm of previously stored topsoil.

Description of site layout:

No offices and storerooms will be established at the site as Xhariep Plant and Mining (Pty) Ltd (hereinafter referred to as 'Xhariep') shall make use of facilities in the town of Kimberley.

LEGISLATIVE FRAMEWORK

The primary legal trigger for identifying when heritage specialist involvement is required in the Environmental Impact Assessment process is the National Heritage Resources (NHR) Act (Act No 25 of 1999). The NHR Act requires that all heritage resources, that is, all places or objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. Thus, any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures over 60 years of age, living heritage and the collection of oral histories, historical settlements, landscapes, geological sites, palaeontological sites and objects.

The Act identifies what is defined as a heritage resource, the criteria for establishing its significance and lists specific activities for which a heritage specialist study may be required. In this regard, categories of development relevant to this study are listed in Section 34 (1), Section 35 (4), Section 36 (3) and Section 38 (1) of the NHR Act as follows:

34. (1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

- destroy, damage, excavate, alter, deface, or otherwise disturb any archaeological or palaeontological site or any meteorite.
- *b)* destroy, damage, excavate, remove from its original position, collect, or own any archaeological or palaeontological material or object or any meteorite.

36 36 (3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves.

- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph *(a)* or *(b)* any excavation equipment, or any equipment which assists in the detection or recovery of metals.

38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.
- The construction of a bridge or similar structure exceeding 50m in length; • Any development or other activity which will change the character of the site

a) exceeding 5000 m² in extent; or

b) involving three or more existing erven or subdivisions thereof; or

c) involving three or more subdivisions thereof which have been consolidated within the past five years.

- The rezoning of a site exceeding 10 000 m²; or
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

A range of contexts can be identified which typically have high or potential cultural significance and which would require some form of heritage specialist involvement (**Table 1**).

Table 1: Relationship between different heritage contexts, heritage resources likely to occur within these contexts, and likely sources of heritage impacts in the central interior of South Africa.

Heritage Context	Heritage Resources	Impact
Palaeontology	Precambrian shallow marine and lacustrine stromatolites, organic-walled microfossils, Ghaap Plateau (Transvaal Supergroup) Palaeozoic and Mesozoic fossil remains, e.g. Karoo Supergroup Neogene regolith	Road cuttings Quarry excavation Bridge and pipeline construction (Quaternary alluvial deposits)

Archaeology Early Stone Age Middle Stone Age LSA - Herder Historical	Types of sites that could occur in the Free State include Localized Stone Age sites containing lithic artifacts, animal and human remains found near *inter alia* the following: River courses/springs Stone tool making sites. Cave sites and rock shelters Freshwater shell middens Ancient, kraals and stonewalled complexes Abandoned areas of past human settlement Burials over 100 years old Historical middens Structural remains Objects including industrial machinery and aircraft	Subsurface excavations including ground. levelling, landscaping, foundation preparation, road building, bridge building, pipeline construction, construction of electrical infrastructure and alternative energy facilities, township development.
Historical	Historical townscapes, e.g., Kimberley Historical structures, i.e., older than 60 years Historical burial sites Places associated with social identity/displacement, e.g., Witsieshoek Cave, Oppermansgronde Historical mission settlements, e.g., Bethulie, Beersheba, Moffat Mission	Demolition or alteration work. New development.
Natural Landscapes	Formally proclaimed nature reserves Evidence of pre-colonial occupation Scenic resources, e.g., view corridors, viewing sites, Historical structures/settlements older than 60 years Geological sites of cultural significance.	Demolition or alteration work. New development.
Relic Landscape Context	Battle and military sites, e.g., Magersfontein Precolonial settlement and burial sites Historical graves (marked or unmarked, known, or unknown) Human remains (older than 100 years) Associated burial goods (older than 100 years) Burial architecture (older than 60 years)	Demolition or alteration work. New development.

This may include formally protected heritage sites or unprotected, but potentially significant sites or landscapes (**Table 2**).

Table 2. Examples of heritage resources located in the central interior of South Africa.

Historically, archaeologically, and palaeontologically significant heritage sites & landscapes	**Examples**

Landscapes with unique geological or palaeontological history	Karoo Basin Beaufort Group sedimentary strata Glacial striations on Ventersdorp andesites Vredefort Dome World Heritage Site. Taung World Heritage Site
Landscapes characterized by certain geomorphological attributes where a range of archaeological and palaeontological sites could be located.	Vaal, Modder and Riet River valleys Pans, pandunes and natural springs of the Free State panveld. Ghaap Plateau
Relic landscapes with evidence of past, now discontinued human activities	Wonderwerk Cave Stone Age deposits Cave sites and rock shelters in the Maluti Drakensberg region (rock art) Southern Highveld pre-colonial settlement complexes. Dithakong settlement complexes Rock engravings on Ventersdorp andesites
Landscapes containing concentrations of historical structures.	Concentration camps & cemeteries from the South African War.
Historical towns, historically significant farmsteads, settlements & routes	Batho historical township area in Mangaung (Bloemfontein). Kimberley
Battlefield Sites, burial grounds, and grave sites older than 60 years.	Sannaspos Magersfontein

The involvement of the heritage specialist in such a process is usually necessary when a proposed development may affect a heritage resource and archaeological sites, whether it is formally protected or unprotected, known or unknown. In many cases, the nature and degree of heritage significance is largely unknown pending further investigation (e.g., capped sites, assemblages or subsurface fossil remains). On the other hand, it is also possible that a site may contain heritage resources (e.g., structures older than 60 years), with little or no conservation value.

METHODOLOGY

Heritage significance was evaluated through a desktop study and carried out based on existing field data, database information and published literature.

Terms of reference:

- Identify and map possible heritage and archaeological sites and occurrences using available resources.
- Determine and assess the potential impacts of the proposed development on potential heritage resources.
- Recommend mitigation measures to minimize potential impacts associated with the proposed development.

The first step in the methodology was a desktop study to establish the general heritage and archaeological background of the area and the site of the proposed development. This entailed identification and a reading and analysis of recorded records, published materials and perusal of relevant archival material. We also relied on scanning previous and recently conducted HIAs and EIAs in the study area. The SAHRIS online reports of previous and recent AIAs further buttressed the recorded heritage within and next to the project area. it was determined that several other archaeological or historical studies had been performed within the broader vicinity of the study area. Selected HIA reports and other secondary literature are referenced in this report (see Appendix 1). This enabled us a good understanding of the larger context of the general area at and around the site of the proposed development. Through document and archival analysis, we could establish the general context and confirm the previously recorded archaeological sites, historical sites and burials/ graves in the area. An archival and historical desktop study was undertaken to get a glimpse of the general historical aspects of the area, particularly related to the history of mining and settlement in the study area. Published historical maps and archival physical maps gave us a better understanding of the changes in the landscape over the years.

Literature review

There is substantial literature on the palaeontological, historical, geological and archaeological aspects related to the area and a review of such was undertaken, giving further background information regarding the area. Though no specific archival or historical or published records gave a firmer background of the history of settlement in the project area, the available literature pointed to the area as a key mining site since the 1870s. This aspect was corroborated on the ground through the physical and material evidence, during the field walk. Through the SAHRIS online database we checked for possible recorded /classified sites in and around the project area and selected recent AIA reports from the area that were studied (a bibliography is appended at the end of the report).

Fieldwork

In July 2023 Pulafel 4D Consulting carried out a physical field survey in the demarcated project area. The field work was carried out with a multidisciplinary team including a specialist palaeontologist, looking at the palaeontological aspects, in this area which has been deemed of high palaeontological sensitivity (see John Almond & John Pether, 2009). A separate PIA scoping report has been produced by the specialist palaeontologist. The fieldwork component of the study was aimed at identifying tangible remains of archaeological, historical and heritage sites of significance as well as burials and graves and possible intangible cultural heritage values. The fieldwork was undertaken by way of intensive walkthroughs of the proposed development footprint areas. The walkabout resulted in the mapping (GIS), as well as a systematic survey of the proposed project area, locating, identifying recording and photographing and demarcating sites of archaeological, historical, religious or cultural interest. the terrain within the project site is a mix of flat and hilly areas as well as riverine valleys draining into the Orange River Basin. the larger parts of the project area are undisturbed, with swathes of thick vegetation particularly is the riverine valleys. The field walkthroughs were spread across the project site, with more focus on areas were deemed to have a higher likelihood of archaeological and heritage sites. All sites identified during the fieldwork were photographically and qualitatively recorded, and their respective localities documented using a hand-held GPS device.

It is important to note that although as intensive a fieldwork coverage as possible was undertaken, sections of the study area are in areas which are densely overgrown, and some parts were previously mined with large mine tailings. This limited accessibility and visibility in those areas of the study area.

The study area is rated according to field rating categories as prescribed by SAHRA (**Table 3**).

Table 3. Field rating categories as prescribed by SAHRA.

Field Rating	**Grade**	**Significance**	**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 significance	Conservation: mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

Assumptions and Limitations

The proposed prospecting localities have not been finalized prior to the archaeological field assessment and it is likely that an apparently well-developed aeolian sand overburden may hamper Stone Age archaeological visibility within the study area.

Desktop Survey: Recent Research in /near the Area.

Several previous heritage studies were conducted in the general study area (SAHRIS). Recent and previous studies in and in the vicinity of the area have deemed the area as of high sensitivity paleontologically and archeologically (John Almond & John Pether, 2009). Most recently, (past five years), several HIA investigations done near and adjacent to Stoffbakkkies 30, and the larger Prieska area, have also shown how the landscapes in this area have heritage resources consisting of archaeological remains, graves and cemeteries, ruins of old /historic settlements as well as remnants and environmental vestiges of abandoned mining activities. John Almond & John Pether, 2009.'s *Palaeontological Heritage of The Northern Cape,* comprehensively documented the palaeontological heritage resources in the Northern Cape Published literature and recent HIA studies near the project area identified Early, Middle and Later Stone Age assemblages as well as historical structures and artefacts (Morris 1995). The 2023 *Environmental Impact Assessment Report and Environmental Management Programme Repor*t. [EIA/EMP Report for Thunderflex 78 (Pty) Ltd (Stofbakkies 31, Prieska- Portion 3, Portion 4, Portion 5, Portion 7, Portion 9, Portion 13, and Remainder of the Farm Stofbakkies 31); adjacent to the current project area identified several archeologically and historical sites and graves and identified parts of Stofbakkies 30 being of relative Archaeological and cultural Heritage (p29). Further to this, an HIA by Matenga E. 2023*: Heritage Impact Assessment (Walk-down) and Palaeontological Impact Assessment (Walk-down) for a Prospecting Right Application on Portion, Portion 4, Portion 5, Portion 7, Portion 9, Portion 13, and Remainder of the Farm Stofbakkies 31 near Prieska in the Siyathemba Local Municipality, Northern Cape Province,* (AHSA) Archaeological and Heritage Services Africa (Pty) Ltd, identified Stone Age material being widely distributed on the spurs and in the valleys, comprising hand axes, cleavers, scrapers, blades, cores, and flakes typologically dating from the Early Stone Age through the Middle Stone Age to the Late Stone Age period (Matenga 2023). Matenga also suggested that the scattered distribution pattern seems to indicate general hunter-gatherer activity in the area over time and that the Later Iron Age occurrence of potsherds close to the riverbanks may indicate a transitional precolonial mixed economy in the semi-arid karoo plains of the Northern Cape.

A Brief Historical Context of the area

Historically, the general area in and around Prieska, along the Orange Rver Basin (ORB) on the eve of colonial occupation, was associated with the Tlhaping, a segment of the Tswana people. However, the early 19th century was a turning point with an increasingly precarious security situation developing and causing internal displacements (Matenga 2003). The changes in the area were spurred by the Difaqane, and later by the Griqua who sought to occupy the area at the confluence of the Vaal and Orange in the 19th century. Settling in what became Griqualand West, and therein comes the historical connection between the Tlhaping and the Griqua. Then came the Afrikaners who arrived in the area moving from the Cape as the colonial frontiers expanded from the Cape inwards, leading to further dislocations. It is, however, the discovery of diamonds and other minerals in the Northern Cape that spurred further colonial inroads into the area, leading to the area which became known as Griqualand West to be subsequently incorporated into the Cape Colony in the 1880s. Further conflict ensued with many Tswana groups which escalated when the Korana and Griqua communities and the British government got involved, leading in 1872 to the British proclaimed Griqualand West as a crown state.

The project site lies on the North Bank of the Orange River, directly across the Prieska, separated by the Orange River and connected by the Frans Loots Bridge **(Figure 7).** The town of Prieska was established in 1878. It developed from a place to which farmers migrated when the pans were full after rains. It was administered by a village management board from 1882 and attained municipal status in 1892. Thus, the project area is located in the vicinity of the town, and other farms in the area.

Figure 7: A view of the town of Prieska located on the southern banks of the Orange River seen from the project area across, on the northern banks of the Orange River

Mining's "Bitter" Heritage

A central feature of the historical and contemporary narratives around Prieska, is the legacy of mining. Archival sources and secondary literature show extensive recorded evidence of Record mining and heritage of pain related to asbestos mining in the area. Mainly between the early 20th c until about the 1980s (Waldman 2012). Asbestos mining in South Africa started in the late 19th and early 20th century, mainly in mines in the Northern Cape (McCulloch 2003). Several companies ran an asbestos mining in the Northern Cape, and specifically in and around the Prieska. Several asbestos mines located in the area north and south of Prieska, included the Koegas as well as the "Stoffbakkies Old Mine". According to reports, the history of crocidolite in South Africa dates back to the years between 1803 and 1806 when a German geologist, H. Lichtenstein, on an expedition into the Orange River valley, came across an exposure of asbestos near Prieska. However, the actual mining of crocidolite in the Cape Province commenced in 1893 when the Cape Asbestos Company acquired surface and mineral rights on a portion of land at Koegas (Genis 1961). Mining then spread to

other area in the Northern Cape including Danielskuil and the Kururman areas and others (Van Zyl 2017; Genis 1961). Research by J.H. Genis (1961), shows that the mining of Blue Asbestos in and around Prieska beginning the end of the 19th century was partly centred around Koegas Mine that was opened by Cape Asbestos Company Limited in 1893, reaching its peak in production around the period 1921 to 1930. The mine eventually became the largest crocidolite mine in the world. In the early 1930s, after the plant closed, the tailings were removed and retreated at Stofbakkies operation across the Orange River (Van Zyl 2017; Genis 1961).

Thus, the study area has a complex history and heritage of asbestos mining. In addition to the environmental effects, decades-long exposure to asbestos and asbestos products has resulted in an epidemic of asbestos-related disease (ARD) in South Africa. Workers, their families and rural communities living near asbestos mines and dumps are the victims of this epidemic (Waldman 2012; Abratt, Vorobiof, and White 2004; Kisting 2000). In the period from 1893 to 1980 the asbestos mines of the north-west Cape and the north-eastern Transvaal were important sources of employment (McCulloch 2003; 2005).The methods of extraction were simple; and in many mines until the early 1950s the basic labour unit was the family. Even by South African standards labour conditions for black and coloured workers were harsh. A mixture of political skills and the isolation of the mines allowed British-owned companies and their subsidiaries to escape the strictures of the various Mines (McCulloch 2005). Recent legal claims made by thousands of South African victims of asbestos against multinational asbestos corporations underscore the importance of Jock McCulloch's book on the history of asbestos mining in South Africa (McCulloch 2002). In 2003 a small community group, 'The Concerned People Against Asbestos (CPA)' based at Prieska, won an international court case against a mining conglomerate, that changed the way in which multinational corporations should behave in relation to the effects of mining activities on local communities (McCulloch 2005). This highlights how contested the development of mining is, historically, and in the contemporary period, in this area.

FIELDWORK FINDINGS

Built Environment, Burial Grounds and Graves,

Table 4: Identified Built Environment/Graves and Burials

Site Number	Latitude	Longitude	Type/Description	Mitigation/Action
068	29 ^{o} 39. 139’	022 ^{o} 44. 626’	Old building/foundations with bended stone	Avoid
069	29 ^{o} 39. 035’	022 ^{o} 44. 281’	Settlement: old Farmhouse	Avoid
070	29 ^{o} 39. 004’	022 ^{o} 44. 321’	Gravesite 1: with collapsed fencing	Avoid/ Buffer
071	29 ^{o} 38. 682’	022 ^{o} 43 886’	Quarrying site /man-made rock damming	Avoid
072	29 ^{o} 38. 308’	022 ^{o} 44. 136’	Gravesite 2: ±22-Stone marked graves/ midway between the settlement and the old mining site	Avoid/ Avoid/ Buffer
073	29 ^{o} 38. 086’	022 ^{o} 44. 385’	Old mine site-Open quarries/ Tailings; loadings structure/abandoned machinery	Avoid
078	29^{o} 37. 866’	022 ^{o} 43. 783’	Shooting practice-contemporary use	Avoid/Relocate

Figure 8: Google Map with Field track and identified sites.

Fig.3. Google Earth image of the field area showing the points where field information was recorded (s1-s12)

Figure 9: Google Map with location of identified built environment and graves

Built Heritage and Historic Buildings

During the field walk, several built environment sites were identified in the project area (Figures 8 and 9). These included foundations of abandoned settlements, and physical remnants of mining activities. Though no archival confirmations of the age of these sites was firmly established, the available information related to the settlement history of the area, do confirm that the abandoned buildings, mining tailings, and mining infrastructure are older than 60 years, possibly associated with the history of mining activities in the project area. The following figures shows a n extensive settling inclusive of foundations of old houses (Figure 10), cattle posts (figure), a partly standing building (Figure)

Figure 10 : Remnants of Old Settlement

The foundations are mainly made from stone, possibly quarried from the nearby hills. One of the structures is a brick and concrete two roomed bungalow style house, which looks newer than the abandoned foundations, and could have been the main house, and perhaps the last to be used.

Figure 11: Old settlement: abandoned farmhouse.

Figure 12: Old settlements foundations

Collectively the expanse of the settlement indicates a relatively large settlement possibly related to either the mining activities at the old mine, or other farming activities in this plot/farm.

Figure 13: Old Settlement – Possible Cattle post

Figure 14 : Stone structure/feature.

Figure 15: Ceramics on the surface around the stone feature

Figure 16: Rectangular structure/ foundations

Figure 17: Circular structure or feature (possibly a house foundation)

Feature 18: Stone cairn or feature (could be an unmarked grave)

Figure 19: storehouse of dangerous chemicals and explosives, several foundations

Figure 20: collapsed brick structure, with old mine tailings in the background

Figure 21: Mineral ore (Crocidolite), the coin is serving as a scale.

Figure 22: Mineral ore (crocidolite)

Figure 23: House structure constructed in banded iron stone blocks

Figure 24: Old Cattle post

Graves and Burials

Two grave sites were identified **(See figures 25-30**). The first gravesite 1(**Figures 25-27)**, located near the abandoned settlement consisted of 2 marked graves, both with headstones, one of which is a partly broken concrete, while Gravesite 2 (Figures 28-30) contains not less than 22 identified graves). There is, on both sites, a possibility of other graves covered by the sandy soils and thick vegetation.

Figure 25: Grave site 1, with 2 visible graves

Figure 26 : grave 1 in stone and concrete with collapsed headstone

Figure 27: Gravesite 1 - Grave with partly collapsed concrete headstone.

The second grave site, located about 2-3 km from the abandoned settlement. A count of the marked graves (stones and headstones) gave a number of ± 22. The graves are located at an elevated hilly area, in a sandy parchment, which may point to the possibility of more graves buried under the loose karoo sands. No further information, from the desktop and archival study had identified this gravesite, and thus it is not clear whether these are associated with the mining or farming activities in the project area. However, given the numbers, its highly likely that the graves could be associated with the history of mining activities identified in the area.

Figure 28: Gravesite 2 – Several unmarked stone graves/burials, most partly covered by the vegetation and the sandy soils.

Figure 29: Gravesite 2, showing graves partly submerged by sand and thick vegetation.

Figure 30 : Gravesite 2- Grave, stones, partly covered by grass and trees.

Mining's "Heritage"

Mining and mineral exploration operations have played a significant role in the project area's recent and historical land usage. In the project region, large mine tailings, ore loading facilities, and abandoned mining equipment are common (see figures 31–32 below), supporting the extensive mining history that is mentioned in several archival and secondary records pertaining to asbestos mining in the project area.

Figure 31: View of mining tailings (abandoned mine)

Figure 32: Abandoned ore loading infrastructure, with tailings in the background and crocidolite on the surface.

Figure 32: Abandoned mining equipment

Other contemporary land uses

Within the project area, animal farming and recreational target shooting have been identified as current land uses (See Figures 33 and 34).

Figure 33: Target shooting equipment

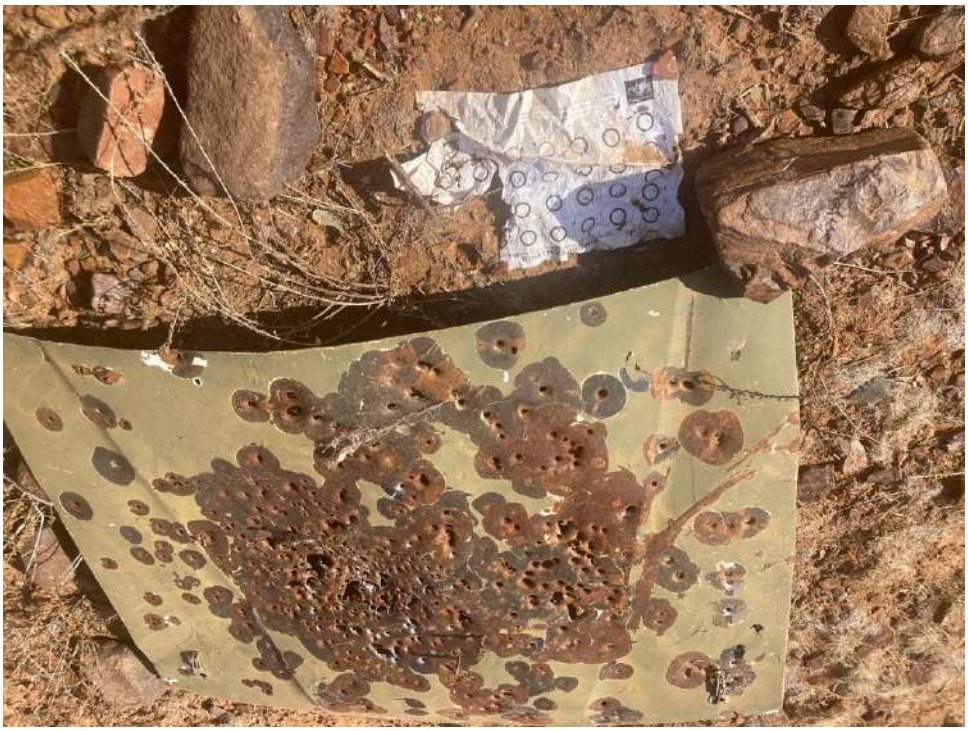

Figure 34: Target practice guide and old vehicle bonnet used for target shooting

Figure 35: Animal loading pens located a few hundreds of meters from the Orange Riverbank

Figure 35 : Telecommunications mast indicating current land use

Figure 36: Land under crop production with irrigation system in place

ARCHAEOLOGY

Background, Impact Statement and Recommendation

The Stone Age archaeological footprint in the region is represented by Early, Middle and Later Stone Age sites which are often associated with pans, while the landscape in general is characterized by low density surface scatters (Beaumont 1990, 1995;

Kiberd 2006). Holocene deposits containing LSA artefacts are known from the rock shelters Blue Pool Cave, Ochre Cave, Powerhouse Cave, Witkrans Cave, Little Witkrans and Black Earth Cave, which are also located in Ghaap Plateau travertine at Norlim (Taung). Several MSA and LSA sites are documented around Witsand. The LSA sites have yielded Wilton assemblages with formal lithics dominated by backed pieces including segments and scrapers. Between Kimberley and Griekwastad (Dikbosch), a rock shelter located in travertine deposits of the Ghaap Plateau, has yielded LSA artefacts associated with some faunal remains. According to van Riet Low (1941), rock engravings have been recorded in the younger valley fills along the steeper slopes located near the eastern and south-eastern margins of Sandfontein 356. In addition, rock art sites have been recorded on several farms around Prieska, including Kleindoring, Omdraaisvlei and Wonderdraai. Historical ruins and graveyards associated with the asbestos mining industry during the first half of the 20th century are located at Kliphuis and Engeldewilgeboomfontein, north of Prieska.
Archaeological and historical evidence suggest that the most southerly distribution of Late Iron Age Tswana settlements in the region during the 18th century AD ranged between the Langeberge and what is known today as Witsand (Humphreys 1976). The farm Nokanna, situated about 35 km north of Witsand, equates with the former BaTlaping capital of Nokaneng, the place where Chief Mothibi was born around 1775 (Maingard 1933).

The rocky areas show an overall paucity of stone tools. It is considered unlikely that prospecting by way of core drilling, trenching and pitting will have a detrimental effect on this component, and it is assigned a site rating of Generally Protected C (GP.C). Furthermore, the extent and position of the prospecting localities within the study is not pinned down yet, so it is difficult to assess potential negative impact, if any, with regards to the occurrence of subsurface remains, especially since Stone Age archaeological visibility is hampered by the aeolian sand overburden that covers large parts of the valleys between the rocky outcrops within the study area. There is a low to moderate chance that trenching and pitting into the sandy overburden especially within the vicinity of natural drainage areas may impact on intact Stone Age archaeological remains and should be avoided where possible, whereas prospecting by way of core drilling is considered least likely to have a detrimental effect on potentially capped archaeological heritage resources. In this case, potential

prospecting areas that are capped by well-developed wind-blown sand deposits are assigned a site rating of Generally Protected B (GP.B) and will require archaeological monitoring if trenching and pitting activities are to be conducted.

Archaeological Finds

Archaeological materials found during the fieldwork consisted of lithic materials of the Middle Stone Age (MSA) and the Late Stone Age (LSA). Stone structures such as stone cairns belonging to the Historical Period were recorded as well. The table below shows the sites located during the fieldwork.

Site #	Latitude	Longitude	Period	Rating
Site 1	29 39.028	022 44.653’	Lithic materials: broken flake	Middle Stone Age (MSA)/ and the Late Stone Age (LSA).
Site 2	29 38.757’	022 44.443	Two lithic materials	Middle Stone Age (MSA)/ and the Late Stone Age (LSA).
Site 3	29 38.730’	022 43.989’	Lithic tools/flakes	Middle Stone Age (MSA)/ and the Late Stone Age (LSA).
Site 4	29 37.802’	022 44.038’	Lithic materials-cores (Fauresmith)	Middle Stone Age (MSA)/ and the Late Stone Age (LSA).
Site 5	29 37.785’	022 44.027’	Lithic tools	Middle Stone Age (MSA)/

				and the Late Stone Age (LSA).
Site 6	29 37. 123’	022 43.644’	Two circular stone structures	Possibly historical
Site 7	29 37.016	022 43.730’	Collapsed circular stone structure	Historical
Site 8	29 38.894’	022 44.285’	Stone cairn, white porcelain, glass, metal objects	Historical

Table 5: Identified Archaeological sites in the project area.

Figure 37: Lithic material (Site 1)

Figure 38: Site 2 (flakes)

Figure 39: Site 3 (Flakes and cores)

Figure 40: Site 4 (Flake/core material)

Figure 41: site 5 (flakes)

Figure 42: Site 6 (flake,scraper)

Figure 43: Site 7 (core)

Figure 44: Site 8 (lithic materials- flakes and blade)

Figure- 45: Site 9 (lithic materials (flakes)

Figure 46: Site 10 (lithic materials- flakes and blades)

Potential Impact

The recorded Stone Age lithics are scattered too sparsely to be of significance apart from mentioning them in this report. Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. Mitigation measures as recommended in this report should be implemented during all phases of the project.

Pre-Construction phase

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of infrastructure. These activities can have a negative and irreversible impact on heritage features if any occur. Impacts include destruction or partial destruction of non-renewable heritage resources.

Construction Phase

During this phase, the impacts and effects are similar in nature but more extensive than the pre-construction phase. Potential impacts include destruction or partial destruction of non-renewable heritage resources.

Operation Phase

No impacts are expected during the operation phase.

Conclusion and recommendations

According to Beaumont et al (1995) “thousands of square kilometers of Bushmanland are covered by a low-density lithic scatter” and are referred to as background scatter (Orton 2016), generally of low heritage significance. Stone Age scatters and isolated finds of low heritage significance were recorded during HIA’s in the area (e.g., Gaigher 2013, Fourie 2014, van der Walt 2015 and 2018) and similar, isolated finds that can be attributed to background scatter. These are characterized by a mantle of aeolean sand on top of a calcrete substrata and finds are mostly found where the calcrete protrudes through the sand cover. A substantial number of lithic materials were noted but artefacts are mostly dating to the MSA with faceted striking platforms. Graves were recorded in the prospecting area.

No adverse impact on heritage resources is expected by the project and it is recommended that the project can commence on the condition that the following recommendations are implemented as part of the EMPr and based on approval from SAHRA.

RECOMMENDATIONS FOR CONDITION OF AUTHORISATION

The following recommendations for Environmental Authorisation apply and the project may only proceed based on approval from SAHRA:

Recommendations:

• Implementation of a Chance Find Procedure for the project

• Grave Sites 1 and 2 and should be indicated on development plans and avoided with a 30m buffer.

CHANCE FIND PROCEDURES

Heritage Resources

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefore chance find procedures should be put in place as part of the EMPr. A short summary of chance find procedures is discussed below and monitoring guidelines for this procedure also provided.

This procedure applies to the prospecting company's employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Prospecting crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

• If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by Xhariep (Pty) Ltd, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and

report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.

• It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.

• The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

REASONED OPINION

The overall impact of the project is considered to be low and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the project.

POTENTIAL RISK

Potential risks to the proposed project are the occurrence of intangible features and unrecorded cultural resources (of which graves are the highest risk). This can cause delays during prospecting, as well as additional costs involved in mitigation and possible layout changes.

MONITORING REQUIREMENTS

Day to day monitoring can be conducted by the Environmental Control Officers (ECO). The ECO or other responsible persons should be trained along the following lines:

• Induction training: Responsible staff identified by the developer should attend a short course on heritage management and identification of heritage resources.

• Site monitoring and watching brief: As most heritage resources occur below surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are from pre-construction and construction

activities. The ECO should monitor all such activities daily. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

REFERENCES

Abratt, R.P, Vorobiof D.A, and White N. 2004. Asbestos and mesothelioma in South Africa, *Lung Cancer*, Volume 45, Supplement, pp S3-S6.

Almond, J.E. & Pether, J. 2008. *Palaeontological heritage of the Northern Cape. Interim SAHRA technical report,* 124 pp. Natura Viva cc, Cape Town.

Beaumont, P.B. & Morris, D. 1990. *Guide to archaeological sites in the Northern Cape. Kimberley:* McGregor Museum

Beaumont, P.B., Smith, A.B. & Vogel, J.C. 1995. Before the Einiqua: the archaeology of the frontier zone. In: Smith, A.B. (ed.*) Einiqualand: studies of the Orange River frontier: 236-264*. Cape Town: University of Cape Town Press.

Beukes, N.J., 1987. Facies relations, depositional environments, and diagenesis in a major early Proterozoic stromatolitic carbonate platform to basinal sequence, Campbellrand Subgroup, Transvaal Supergroup, southern Africa. *Sedimentary Geology* 54, 1-46.

Eriksson, P.G., Altermann, W., Hartzer, F.J., 2006. The Transvaal Supergroup and its pre-cursors. In: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J., (Eds). *The Geology of South Africa. Geological Society of South Africa,* Johannesburg / Council for Geoscience, Pretoria. pp 237-260.

Genis, J.H.1961. The Genesis Of' The Blue Amphibole As.Bestos Of" The Union Of South Africa . unpublished PhD thesis. Capetwon: UCT.

Kisting S. 2000. The Asbestos Legacy: A Collective Response. *Indicator SA,* Volume 18, Number 2, pp58-61

McCulloch, J. 2005. Beating the Odds: The Quest for Justice by South African Asbestos Mining Communities. *Review of African Political Economy*, 32(103), 63–77.

McCulloch, J. 2003. Women Mining Asbestos in South Africa, 1893-1980. *Journal of Southern African Studies,* 29(2), 413–432.

McCulloch J. 2002. *Asbestos Blues: Labour, Capital, Physicians and the State in South Africa. African Issues Series*. Oxford: James Curry, and Indianapolis: Indiana University Press

Morris, A.G. 1995. The Einiqua: an analysis of the Kakamas skeletons. In: Smith, A.B. (ed.) *Einiqualand: Studies of the Orange River Frontier*: 110-164. Cape Town: UCT Press.

Parsons, I. 2003. Lithic expressions of Later Stone Age lifeways in the Northern Cape. South *African Archaeological Bulletin* 58: 33-37.

Ross, R. 2002. *A concise history of South Africa*. Cambridge: Cambridge University Press.

Van Zyl P A 2017. *History Of Asbestos Mining in South Africa*. Asbestos Relief Trust: Johannesburg

Waldman Linda 2012. *The Politics of Asbestos: "Understandings of Risk, Disease and Protest"*. Routledge.

Appendix 1: Select previous/ recent HIA surveys in /near the project area.

Paleo Field Services. 2023. Phase 1 Heritage Impact Assessment of the Prieska Power Reserve Wonderpan Solar 1 Facility and associated 33 kV transmission line near Prieska, NC Province. Langenhovenpark: Kimberley

Matenga, E. 2022. Heritage Impact Assessment (including Palaeontological Desk Assessment) for a Mining Right Application on the Remaining Extent of Portion 1 (Paals Werf) of the farm Saxendrift 20, near Prieska, Northern Cape.

Green-Box Consulting, 2021. Prieska Power Reserve PV Plant & Associated Infrastructure, Northern Cape: Phase 1: Environmental Impact Assessment Process - Draft Scoping Report

Matenga, E. 2021. Phase I Heritage Impact Assessment (including Palaeontological Desktop Assessment) for a Prospecting Right Application on the Remaining Extent of portion 1 (Oranje Oord) of the Farm Brakkies 384, and Portion 2 (Portion of Portion 1) of the Farm Brakkies 384 near Douglas, Northern Cape.

Matenga, E. 2019. Phase I Heritage impact assessment (including palaeontological assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed Mine Prospecting on a Portion of the Remaining Extent of the Farm Remhoogte 152 Prieska, Northern Cape.

Matenga, E. 2019. Phase I Heritage impact assessment (including palaeontological assessment) in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed Mine Prospecting on the Farm Katlani 236 near Douglas, Northern Cape

Matenga E. 2019. Phase I Heritage Impact Assessment (including Palaeontological Assessment) in terms of section 38 of the National Heritage Resources Act (No 25/1999) for the proposed Mine Prospecting on the Remaining extent of Portions 13 and 9 of the of the Farm Rietfontein 11, Prieska District, Northern Cape Province.

Matenga, E. 2018. Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed mine prospecting and application for a mining right on a portion of the remaining extent of the Farm Kransfontein 19 & portion 2 (de rust) of the Farm Kransfontein 19, Prieska District, nort

Matenga, E. 2017. Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act

(No 25/1999) for the proposed Mine Prospecting on the Remaining Extent of Portion 1 of the Farm Viegulands Put 42, Prieska District, Northern Cape Province.

Orton, J. 2016. Heritage Impact Assessment for Four Proposed Borrow Pits on Remainder of Farm Vogelstruisbult 104/1, Prieska Magisterial District, Northern Cape.

De Cock, S & G Narainne. 2016. Integrated Heritage Impact Assessment in terms of section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999) for the proposed development of Humansrus Solar PV Facility 3 on the Farm Humansrus 147, Prieska District and Pixley Ka Seme District.

Mlilo, T. 2018. Phase I Archaeological Impact Assessment for the proposed 958m 22kv De-Villiers Powerline in the Douglas Area within Siyancuma Local Municipality in the Northern Cape Province.