Phase 1 Heritage Impact Assessment of the remainder of Portion 5 of the farm Uitkomst 420, Upington, NC Province.

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Executive Summary

A Phase 1 Heritage Impact Assessment was carried out on Portion 5 of the farm Uitkomst 420 near Upington in the Northern Cape Province where intended development will require the removal of sand from a concentrated area covering a shallow river bed. The field assessment provided no above-ground evidence of prehistoric structures, buildings older than 60 years, or material of cultural significance or *in situ* archaeological and palaeontological sites within the study area. Two modern cemeteries are located at the site, but are situated outside the proposed development. It is recommended that the cemeteries are generally protected by a buffer zone of at least 20 meters. The proposed development footprint and existing access roads are not considered palaeontologically or archaeologically vulnerable and is assigned a rating of Generally Protected C (GP.C).

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Introduction

A Phase 1 Heritage Impact Assessment was carried out on Portion 5 of the farm Uitkomst 420 near Upington in the Northern Cape Province (**Fig. 1**), where intended development will require the removal of sand from a concentrated area covering a shallow river bed.

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. As many such heritage sites are threatened daily by development, both the environmental and heritage legislation require impact assessment reports that identify all heritage resources including archaeological and palaeontological sites in the area to be developed, and that make recommendations for protection or mitigation of the impact of the sites.

Archaeological Impact Assessments (AIAs) and Palaeontological Impact Assessments (PIAs), or overarching Heritage Impact Assessments (HIAs) are most often specialist reports that form part of the wider heritage component of Environmental Impact Assessments (EIAs) required in terms of the National Environmental Management Act or of the Environment Conservation Act by the provincial Department of Environment Affairs; or Environmental Management Plans (EMPs) required by the Department of Minerals and Energy.

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 listed in Section 38 (1) of the NHR Act are:

- 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;
- Exceeding 5000 m² in extent;
- Involving three or more existing erven or subdivisions thereof;
- Involving three or more subdivisions thereof which have been consolidated within the past five years;
- Costs of which will exceed a sum set in terms of regulations by the South African Heritage Resources Agency (SAHRA).
- The rezoning of a site exceeding 10 000 m².
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

If a heritage resource is likely to be impacted by a development listed in Section 38 (1) of the NHR Act, a heritage assessment will be required either as a separate HIA or as the heritage specialist component (AIA or PIA) of an EIA.

The significance or sensitivity of heritage resources within a particular area or region can inform the EIA process on potential impacts and whether or not the expertise of a heritage specialist is required. 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**). This may include formally protected heritage sites or unprotected, but potentially significant sites or landscapes (**Table 2**). The involvement of the heritage specialist in such a process is usually necessary when a proposed development may affect a heritage resource, 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. In most cases it will be necessary to engage the professional opinion of a heritage specialist in determining whether or not further heritage specialist input in an EIA process is required. This may involve site-significance classification standards as prescribed by SAHRA (**Table 3**). Alternatively, useful sources of information on heritage resources in South Africa can also be obtained through SAHRA's national database of heritage resources, including existing heritage survey information as well as other published or secondary source material on the overall history of a particular area or site.

Methodology

The significance of the affected area was evaluated through a desktop study and carried out on the basis of existing field data, database information and published literature. This was followed by a field assessment by means of a pedestrian survey of the power line route. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes. Relevant archaeological and palaeontological information, maps, Google Earth images and site records were consulted and integrated with data acquired during the on-site inspection.

The task also involved identification and assessment of possible archaeological heritage within the proposed project area, in accordance with section 9(8) and appendix 6 ("Specialist reports") of the NEMA EIA Regulations, 2014 , whereby the specialist report takes into account the following terms of reference:

- Identify and map possible heritage 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 study area is rated according to field rating categories as prescribed by SAHRA (**Table 3**).

Description of the Affected Area

Geology

Portion 5 of the farm Uitkomst 420 is underlain by weathered Keimoes Suite granites, blanketed by gritty to gravelly, brown top soils that are composed of an admixture of weathered bedrock, calcretes and Quaternary wind-blown sands. The area in general is made up of flat to undulating terrain incised by shallow alluvial features (**Fig. 2**).The underlying granite bedrock is not palaeontologically significant.

Locality data

1 : 50 000 scale topographic map 2821AD Upington Oos

1 : 250 000 scale geological map 2820 Upington

The study area (general site coordinates 28°24'11.55"S 21°21'33.27"E) is located south of the N14 national road and north of the Orange River, about 6km northeast of Upington (**Fig 3**). Intended development at the site will involve the removal of sand from a concentrated area of about 65 ha covering a drainage line underlain at depth by calcretes and well-developed sandy deposits (**Fig. 4 & 5).**

Site coordinates of the proposed development footprint (see **Fig. 4**):

1) 28°23'9.76"S 21°21'30.14"E
2) 28°24'36.36"S 21°21'40.49"E
3) 28°24'19.20"S 21°21'28.11"E
4) 28°23'17.28"S 21°21'22.38"E

Background

A rich Middle Miocene vertebrate site is located in proto-Orange River gravel deposits on the Namibian side of the Orange River at Arrisdrift, about 40 km northeast of Oranjemund. There are currently no records of Neogene vertebrate fossil remains from alluvial contexts associated with the Orange River around Upington.

The Middle Orange River region has been populated continuously during prehistoric times Early Stone Age artefacts have been recorded *in situ* at Kalkgaten on the farm Ratel Draai whle Middle Stone Age and Later Stone Age sequences have been recorded from a number of cave sites on the farms Zoovoorbij, Droëgrond and Waterval in the Upington district. Archaeological and historical evidence also show that the region was extensively occupied by Khoi herders and San hunter-gatherers during the last 2000 years. Khoi groups such as the Einiqua occupied the area around

and east of the Augrabies Falls while the Korana occupied the Middle-Upper Orange River further to the east. A large number of burial cairns were excavated near the Orange River in the Kakamas area and appear to be related to Korana herders.

Field Assessment

Results from a foot survey of the study area suggest that impact on potential palaeontological heritage resources within the overlying Quaternary sediments is unlikely. A few lithics were recorded as individual surface occurrences, but no above-ground evidence was found of intact Stone Age archaeological assemblages or sites. The pedestrian survey also revealed no evidence of rock art or prehistoric structures within the confines of the study area. Two modern cemeteries are located at the site, but are situated outside the proposed development footprint (**Fig. 6 & 7**). Both cemeteries are fenced off and visible.

Impact Statement and Recommendation

It is recommended that the cemeteries are generally protected by a buffer zone of at least 20 meters. According to Section 36(3) of the National Heritage Resources Act 25 of 1999 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.

The field assessment provided no above-ground evidence of prehistoric structures, buildings older than 60 years, or material of cultural significance or *in situ* archaeological and palaeontological sites within the study area (**Table 4**). The proposed development footprint and existing access roads are not considered palaeontologically or archaeologically vulnerable and is assigned a rating of Generally Protected C (GP.C). However, it is also noted that the farm is located within a region that has previously yielded ample archaeological as well as historical evidence of the early movement and settlement of Khoi herders and San hunter-gatherers along the Orange River during the last 2000 years. The potential occurrence of isolated and unmarked graves or subsurface

finds not recorded during this survey can therefore never be excluded, so it is advised that SAHRA and a qualified archaeologist are informed immediately in the event of a potential sighting.

References

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Tables and Figures

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.
History	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.

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 Rock engravings and glacial striations on Ventersdorp andesites Vredefort Dome World Heritage Site. Taung World Heritage Site
Landscapes characterised 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
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

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

Table 4. Summary of Impact in terms of Extent (the size of the area that will be affected by the impact), Intensity (the anticipated severity of the impact), Duration (the timeframe during which the impact will be experienced), Probability, Confidence, Mitigation and Site Rating.

Impact	Extent	Intensity	Duration	Probability of impact	Confidence	Mitigation	Rating
Impact of proposed development on palaeontological heritage	Local	High	Permanent	Improbable; Non-fossiliferous bedrock Sterile superficial deposits	High	None	Generally Protected C (GP.C)
Impact of proposed development on archaeological heritage	Local	High	Permanent	Improbable: No aboveground evidence of *in situ* features	High	None	Generally Protected C (GP.C)
Impact of proposed development on cemeteries	Local	None	Permanent	None	High	Conservation and a buffer zone of at least 20 meters	Local Significance (LS)

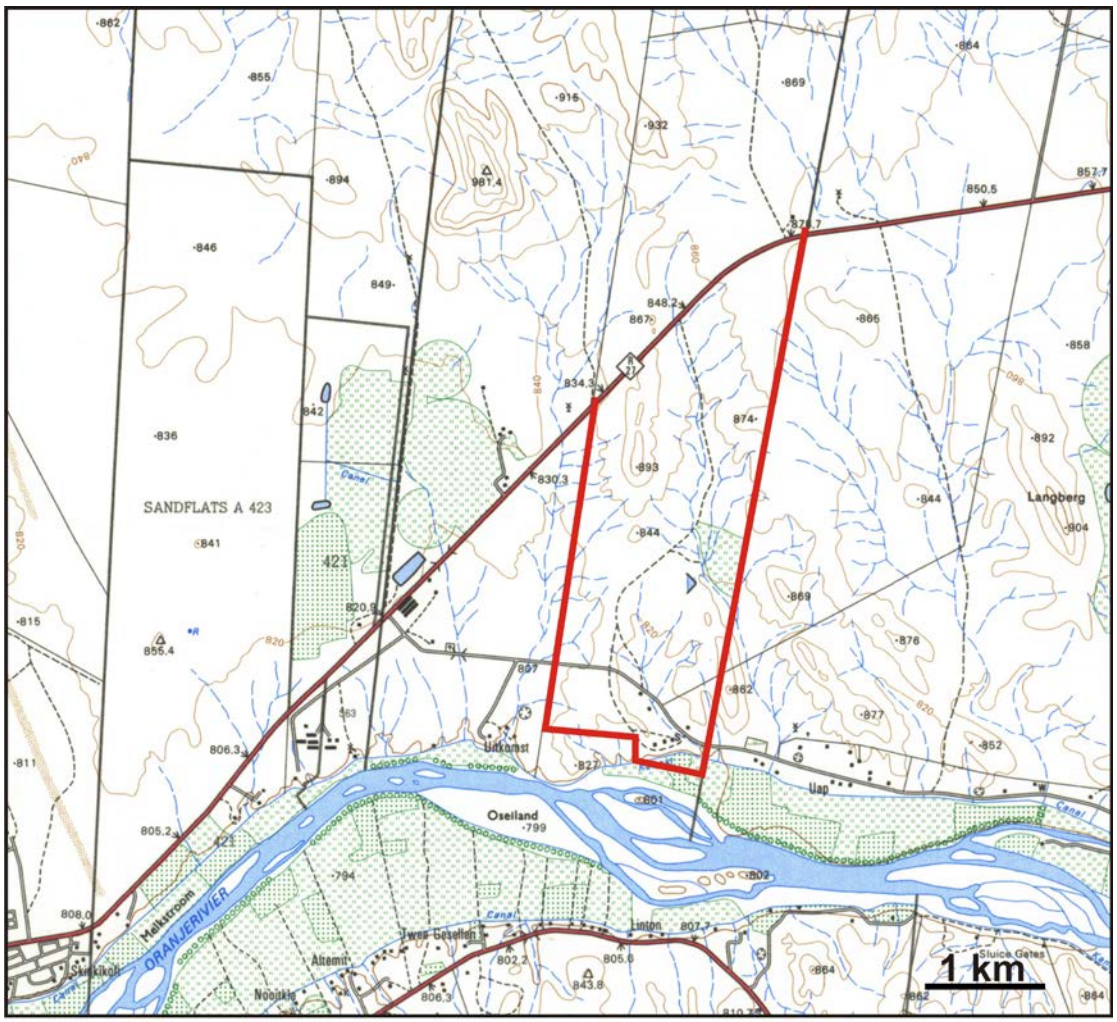

Figure 1. Portion 5 of the farm Uitkomst 420 (portion of 1:50 000 scale topographic map 2821AD Upington Oos).

Figure 2. The study area is underlain by weathered granites (left), blanketed by gritty to gravelly, brown top soils that are composed of an admixture of weathered bedrock, calcretes (top right), and Quaternary wind-blown sands (centre right). The area in general is made up of flat to undulating terrain incised by shallow drainage lines (bottom right). Scale: 1 = 10 cm.

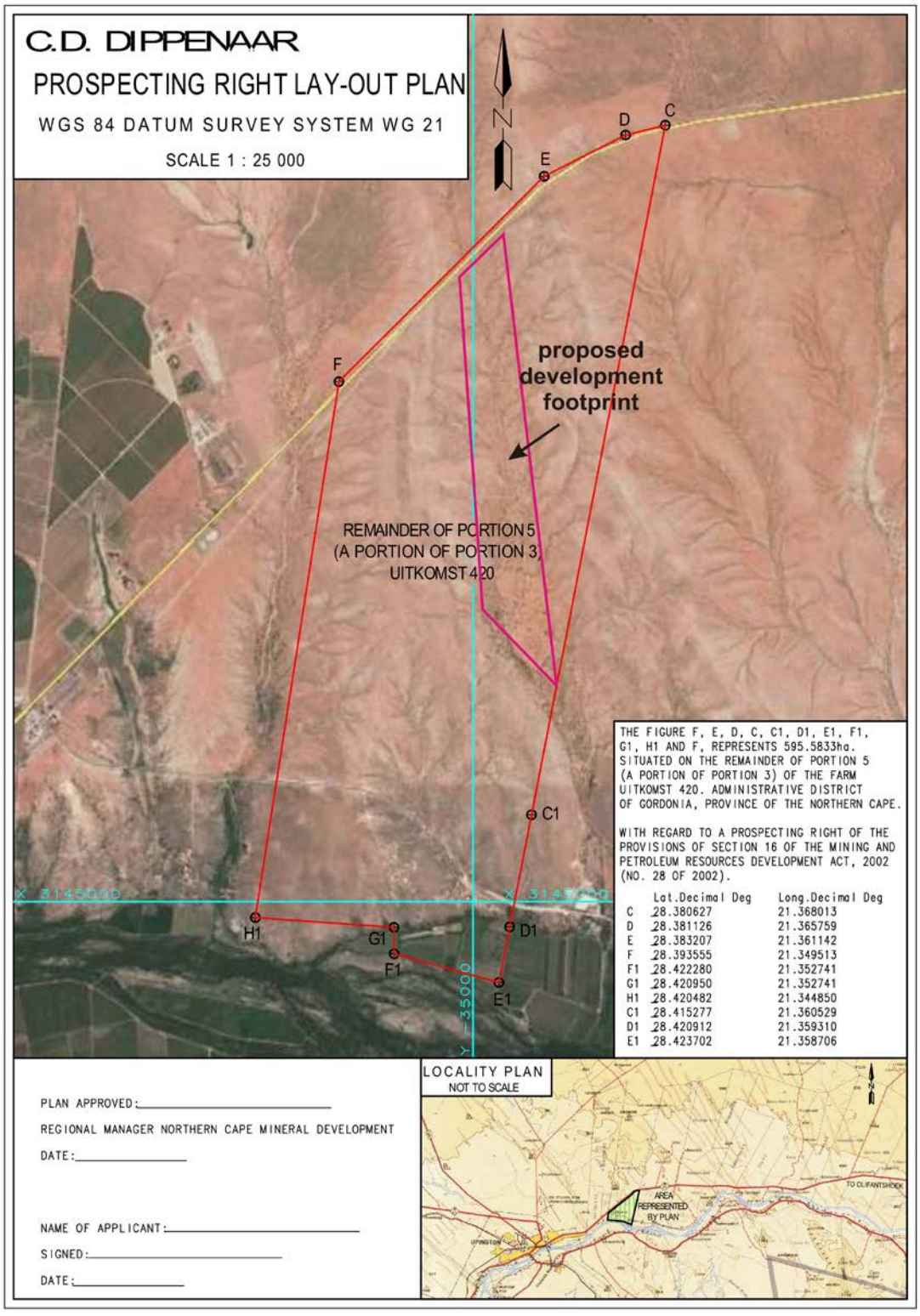

Figure 3. Aerial view of the study area.

Figure 4. Layout of the proposed development footprint .

Figure 5. The proposed development footprint covers a drainage line that is underlain by calcretes (above and below left) and well-developed sandy deposits. Scale: 1 = 10 cm.

Figure 6. Two marked cemeteries, looking north and northeast respectively (top and centre). One of the most recent graves dates back to 2002 (bottom).

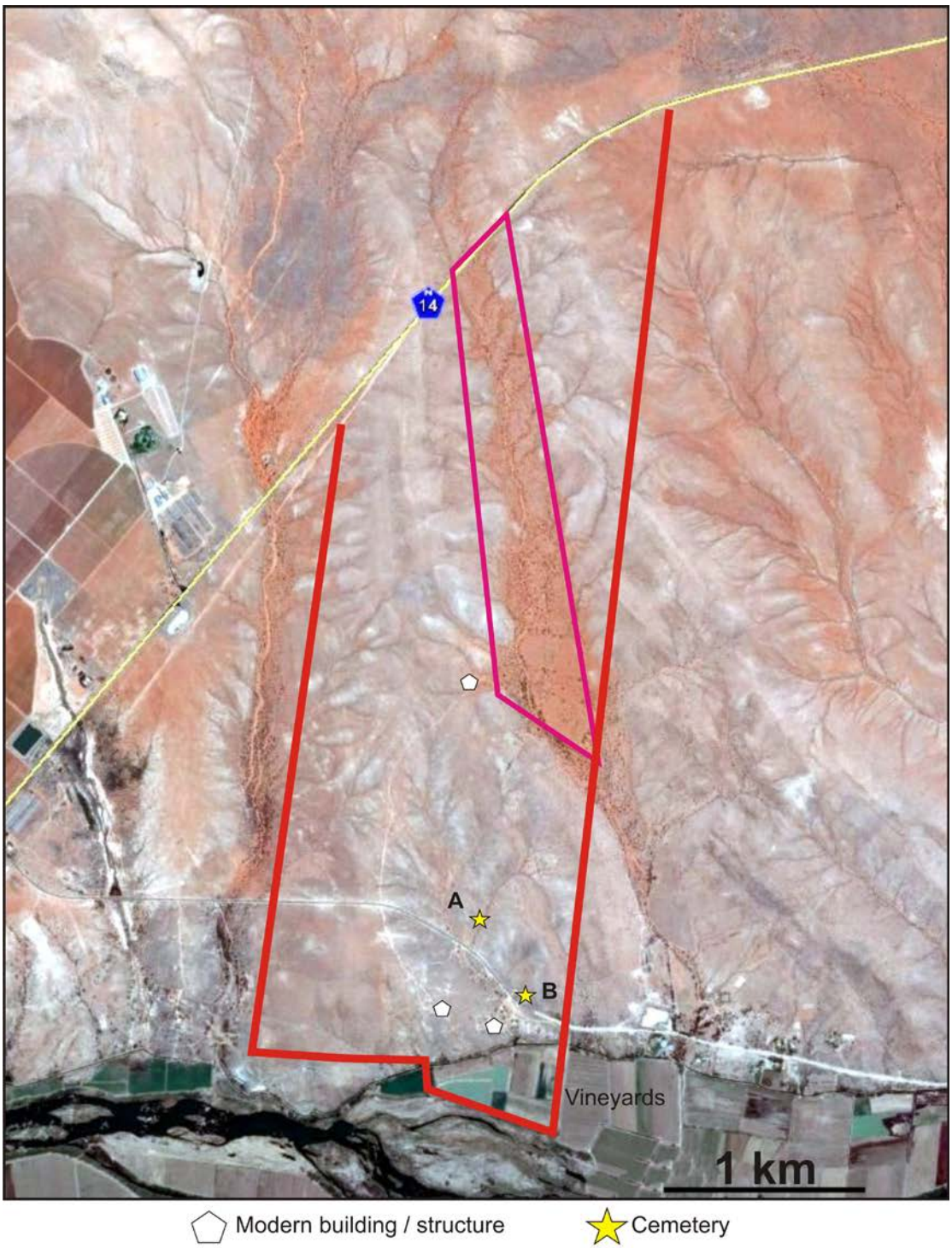

Figure 7. Two cemeteries, (A) 28°24'47.7"S 21°21'15.2"E and (B) 28°24'57.7"S 21°21'17.14"E, are located outside the proposed development footprint.