

# HERITAGE IMPACT ASSESSMENT

In terms of Section 38(8) of the NHRA for the

**Proposed upgrade to the existing railway infrastructure at the Wessels Mine  
near Hotazel in the Northern Cape**

**Prepared by CTS Heritage**



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**For**

**SLR Consulting**

**June 2021**



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## EXECUTIVE SUMMARY

### 1. Site Name:

Wessels Mine Railway Infrastructure

### 2. Location:

Near Hotazel in the Northern Cape

### 3. Locality Plan:

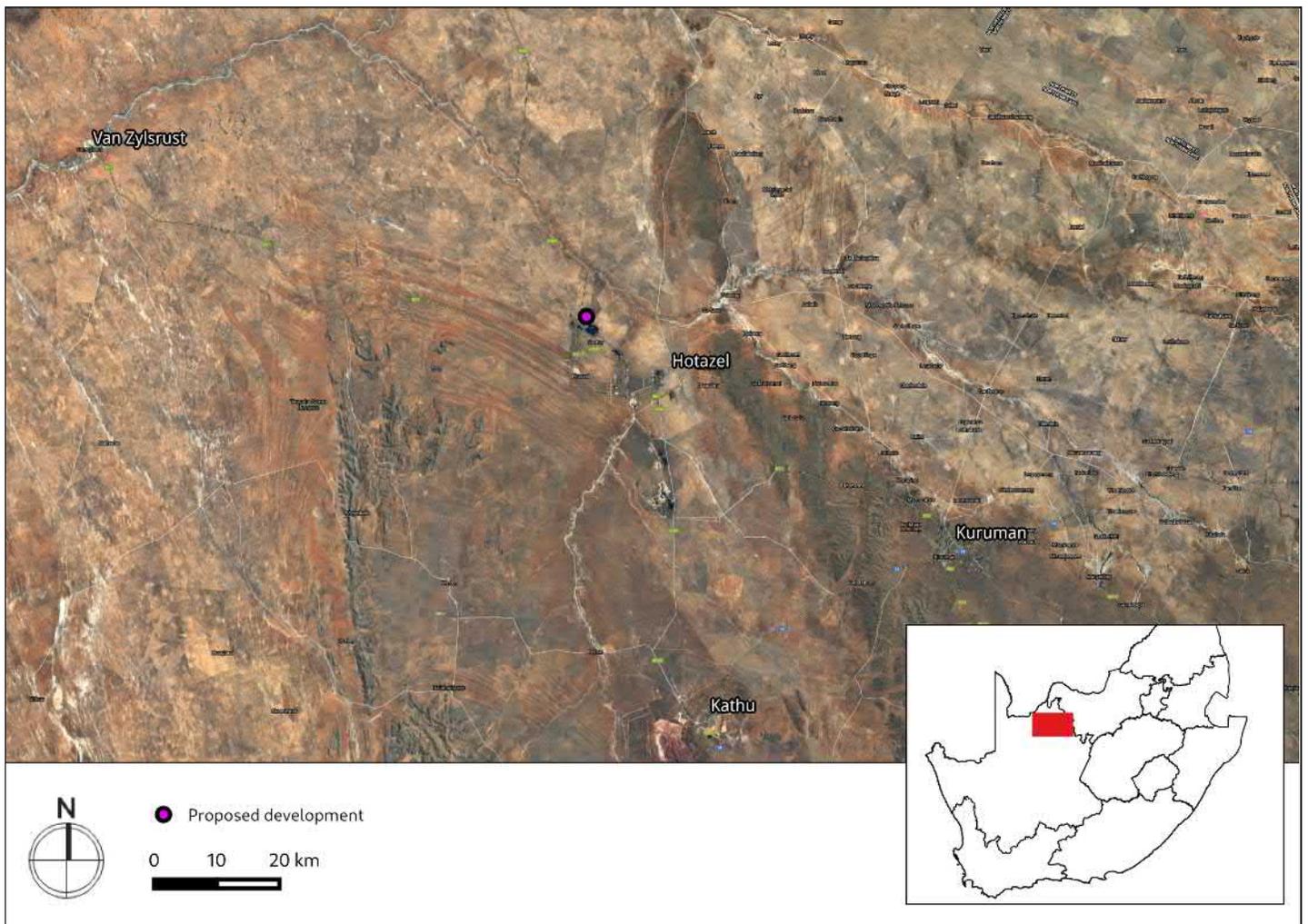


Figure 1: Location of the proposed development site

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#### *4. Description of Proposed Development:*

South32 intends to upgrade the existing railway infrastructure at the Wessels Mine. The upgrade will consist of modifications to the staging rail lines and the design of a new rail balloon. The extension of the railway into the new railway balloon measures at approximately 2 500 m long and 25 m wide and would result in the clearing of indigenous vegetation (more than 1 hectare, but less than 20 hectares). Additionally, the railway would cross a section of the existing tailings dam and would thus result in the removal of approximately 15 000 – 25 000 m<sup>3</sup> of material from the tailings area, which would then be deposited on another existing tailings dam. The new railway extension would be located within the existing Mining Right (MR) boundary at the Wessels Mine and amendments to the mine's Water Use Licence (WUL) are not required.

#### *5. Heritage Resources Identified:*

No heritage resources were identified within the area proposed for development. No graves were located or identified in the field assessment. Furthermore, no intangible heritage resources were identified. Interviews with mining officials revealed no known oral histories associated with this area or remnants of graves or symbolic heritage.

#### *6. Anticipated Impacts on Heritage Resources:*

Due to the nature of the landscape and disturbed site footprint, it is unlikely that the proposed development will negatively impact on significant heritage resources.

#### *7. Recommendations:*

There is no objection to the proposed development on heritage grounds and the following is recommended:

1. No mitigation is required prior to construction commencing.
2. The attached Chance Fossil Finds Procedure (Appendix 3) must be implemented during the construction phase of development, and included in the EMPr
3. If any archaeological resources or unmarked human remains are uncovered or exposed during excavations these must immediately be reported to the South African Heritage Resources Agency (SAHRA) (Att: Ms Natasha Higgitt 021 462 4502). Burials must not be removed until inspected by a professional archaeologist.



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## **1. INTRODUCTION**

### **1.1 Background Information on Project**

South32 intends to upgrade the existing railway infrastructure at the Wessels Mine. The upgrade will consist of modifications to the staging rail lines and the design of a new rail balloon. The extension of the railway into the new railway balloon measures at approximately 2 500 m long and 15 m wide and would result in the clearing of indigenous vegetation (more than 1 hectare, but less than 20 hectares). Additionally, the railway would cross a section of the existing tailings dam and would thus result in the removal of approximately 15 000 – 25 000 m<sup>3</sup> of material from the tailings area, which would then be deposited on another existing tailings dam. The new railway extension would be located within the existing Mining Right (MR) boundary at the Wessels Mine and amendments to the mine's Water Use Licence (WUL) are not required.

### **1.2 Description of Property and Affected Environment**

The environment consists of flat sandy plains covered with vegetation towards the east. The largest part of the environment is currently used for mining activities. The eastern section of the site footprint is situated just outside of the mine perimeter (fencing 0f 2,4m high). This section is located on open farmland and is undisturbed, except for a few cement abandoned foundations and one prospecting borehole. This area is mostly flat and sandy.

Towards the north and south of the balloon, the terrain has previously been very disturbed by various mining activities such as borrow pit excavations, road construction, construction of clear areas to process areas and loading zones. There is also a large mining heap just east of the mining plant. The area is also scattered with old machinery and industrial debris in certain areas. It is obvious that the mine altered this landscape through the years by means of construction and ground movement operations.

The entire site is very disturbed except for the eastern section of the loop/balloon which is situated in an undisturbed landscape. This undisturbed area covers a minimal area of approximately 1-2 ha. Noted disturbances include:

- Various two track gravel/sand roads throughout the site.
- Excavated borrow pits, quarries are present at several places on the site, especially around the mine plant.
- Large areas cleared for processing and loading of ore.
- Various disturbed areas previously used for construction activities, abandoned cement foundations in



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certain areas and the presence of previous prospecting boreholes.

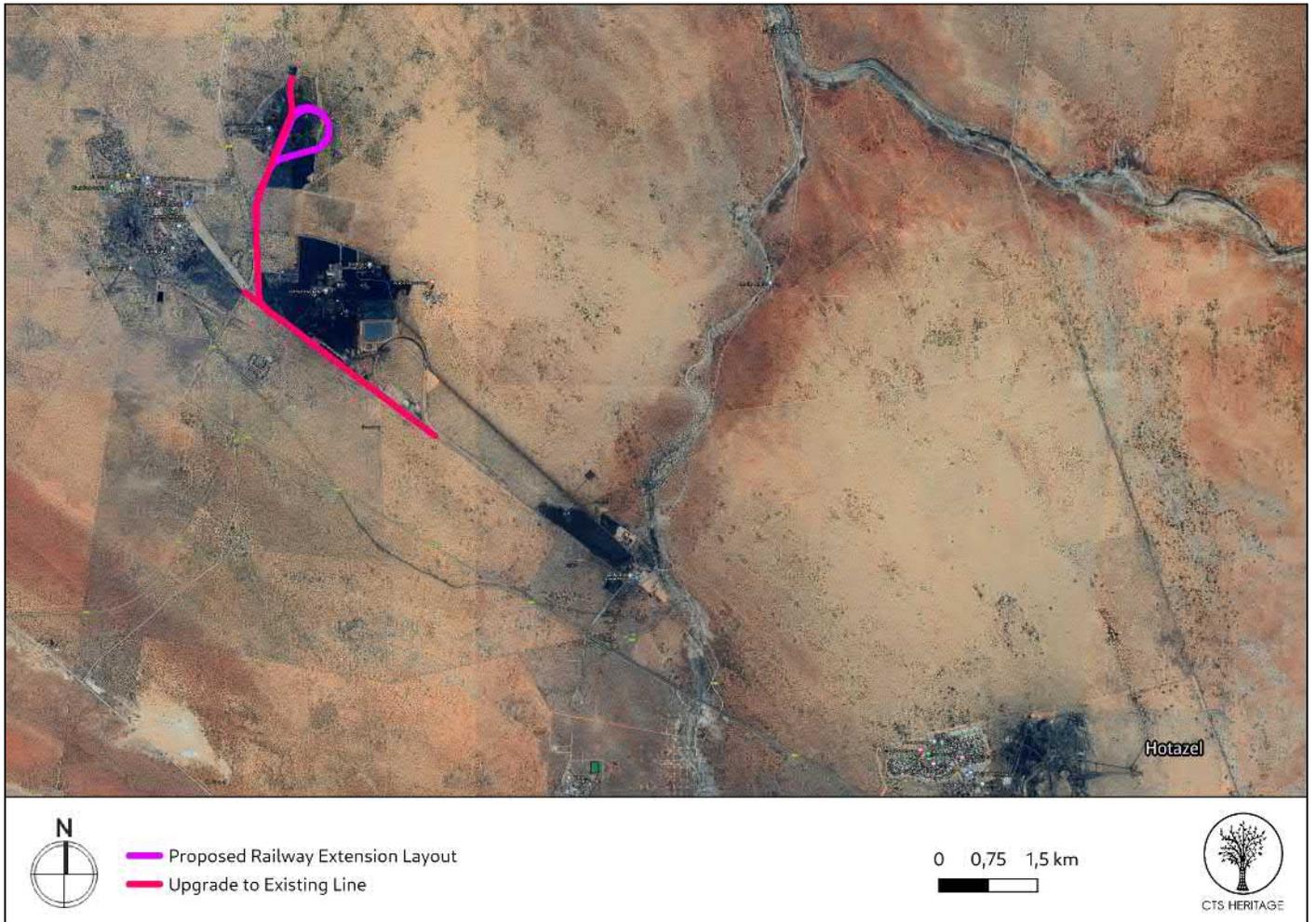


Figure 1.1: Proposed location of development and alternatives

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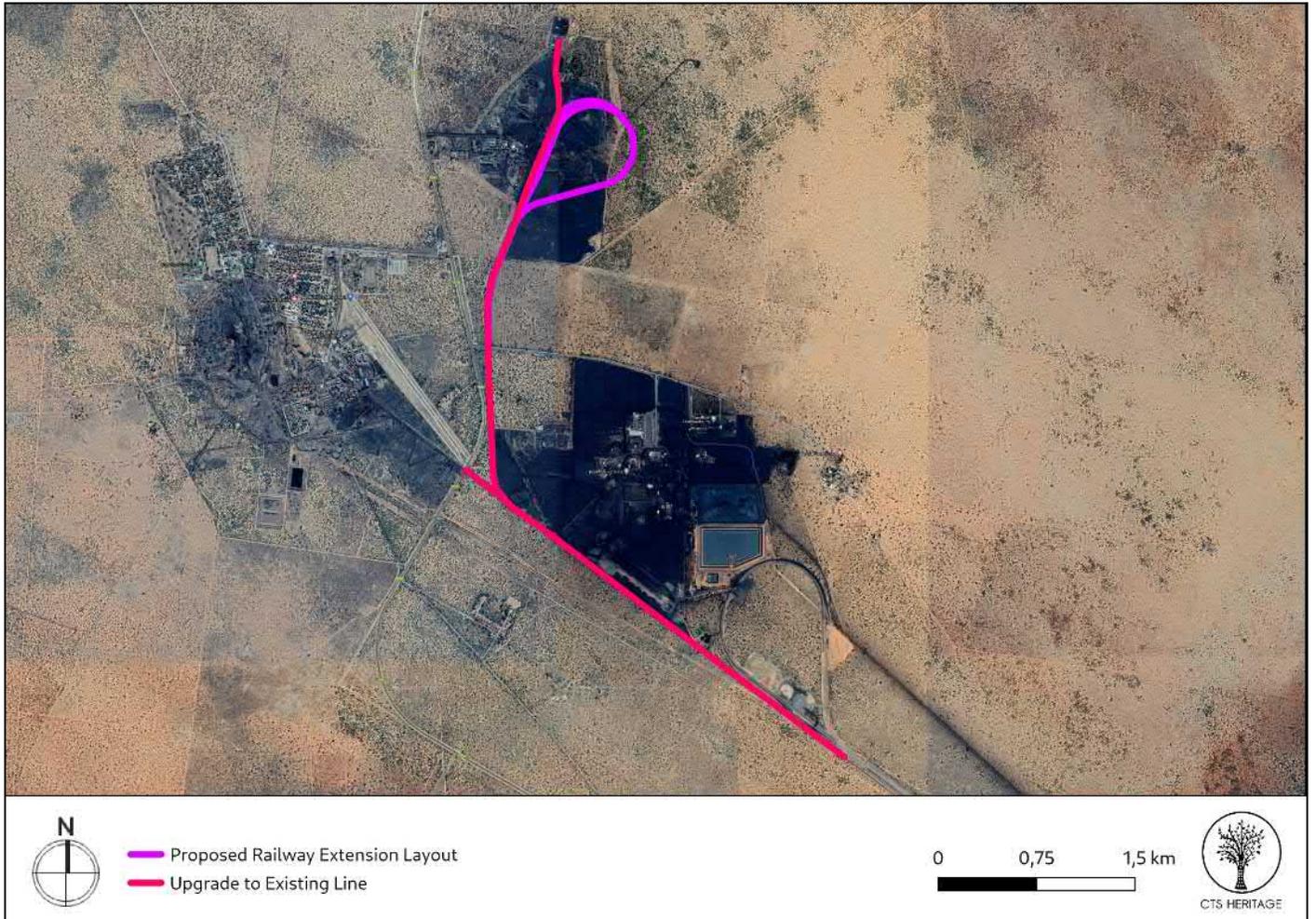


Figure 1.2: Satellite image indicating proposed location of infrastructure upgrades and new development

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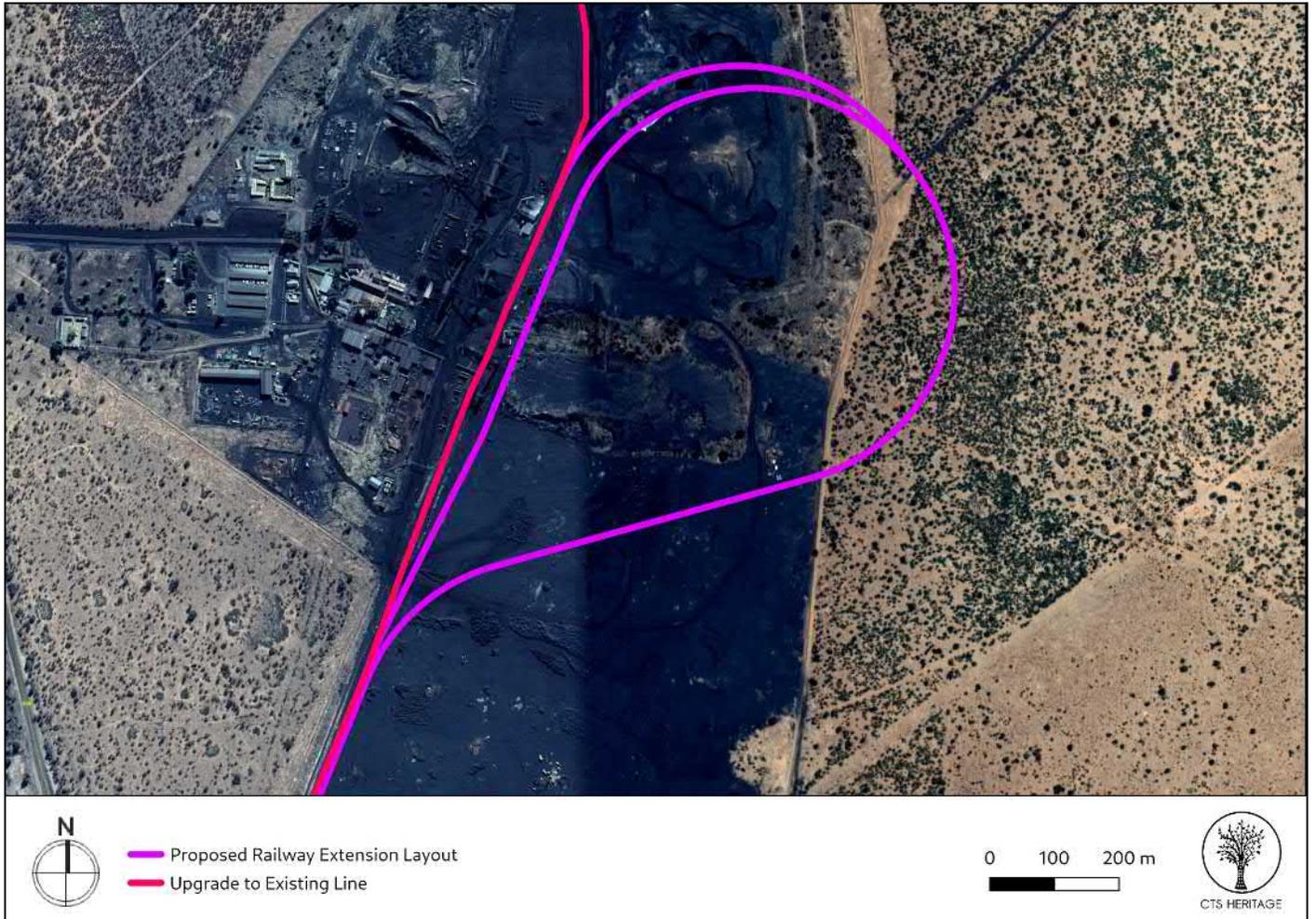


Figure 1.3: Satellite image indicating proposed location of new development

## 2. METHODOLOGY

### 2.1 Purpose of HIA

The purpose of this Heritage Impact Assessment (HIA) is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

### 2.2 Summary of steps followed

- A Desktop Study was conducted of relevant reports previously written
- An archaeologist conducted a walk-through of the area proposed for development on 2 June 2021

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- The identified resources were assessed to evaluate their heritage significance
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner

### 2.3 Assumptions and uncertainties

- The *significance* of heritage resources is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- It should be noted that archaeological and palaeontological deposits often occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants are notified for an investigation and evaluation of the find(s) to take place.
- It is further assumed that the fossil potential of a formation in the Project Area will be typical of that found in the region and more specifically, similar to that already observed in the surrounds of the Project Area. In many cases the information on fossil content is limited to the basics, such as in the case of geological mapping when the fossils are not the immediate focus. Scientifically important fossil shell and bone material is expected to be sparsely scattered in these coastal-plain deposits, but unless large and obvious, is not generally seen, under-estimating the fossil prevalence. Much depends on careful scrutiny of exposures and on spotting fossils as they are uncovered during digging *i.e.* by monitoring excavations. A limitation on predictive capacity exists in that it is not possible to predict the buried fossil content of an area or formation other than in general terms.

### 2.4 Constraints & Limitations

It was difficult to gain access to all the areas of the proposed development footprint due to the high levels of security associated with the mine. Certain areas were out of bounds to survey for impacts to archaeological resources but these areas were mostly within the mine perimeter where the site footprint is already very disturbed.

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### **3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT**

#### **3.1 Heritage Context of area proposed for development**

The area proposed for the railway infrastructure upgrade and the new rail balloon is located within the existing Wessels Mine in close proximity to the town of Hotazel in the Northern Cape. Hotazel was designated as a town in the 1950's in order to service the surrounding manganese mines. As per Figure 2, the area proposed for development as well as its surroundings have previously been assessed for impacts to heritage resources. The specific area proposed for development in this application has been looked at by Hutton and Hutton (2013, SAHRIS NID 145193) and Kusel and van der Ryst (2009, SAHRIS NID 8383) who conducted an assessment for the neighbouring Black Rock Mine. These reports are relied on below to provide some insight into the heritage sensitivities of the area proposed for development.

According to Kusel and van der Ryst (2009), "The first Geologist to have surveyed the Northern Cape was Dr. A. W. Rogers of the Geological Commission of the Cape Colony in 1906. One of the features he noted was a small hill called Black Rock and reported on the presence of manganese ore at the base of the hill. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards started mining the deposit... A large black outcrop of Manganese ore is the outstanding feature in the landscape of the Black Rock mining area. This outcrop was mined since the 1940's both by open cast and underground mining... The original Black Rock outcrop and mining represent an important part of the mining history of Manganese mining in South Africa". For this reason, Kusel and van der Ryst (2009) recommend, among other things, that the Black Mountain Mine be declared as a National Heritage Site; however, no evidence of this recommendation being implemented has been identified.

Both Hutton and Hutton (2013) and Kusel and van der Ryst (2009) identified Early, Middle and Later Stone Age archaeological resources located within proximity of the proposed development (Figure 3). Hutton and Hutton (2013) and Kusel and van der Ryst (2009) both indicate that the identified artefacts are predominantly located along the Kuruman and Ga-Mogara River banks. Hutton and Hutton (2013) note that no heritage resources were identified in the areas located away from the rivers, described as consisting of "red Kalahari sands with little vegetation cover."

As per Figure 3, the heritage resources known from the broader area that are not associated with the banks of

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surrounding rivers include a burial identified by Kusel and van der Ryst (2009) and two structures identified by Van Vollenhoven (2012, SAHRIS ID 48871). This burial site (SAHRIS Site ID 45910) is described as “The area is fenced off and has some 60+ graves. The graves are those of black mine workers who died at the mine. The graves are unmarked with no tombstones. Only one grave has a date of 8/7/74. The cemetery most probably represents the graves of black mine workers from the 1940’s to the 7 1970’s. The graves are not visited any more by relatives as no grave goods are present. Most probably these graves are from migrant mine workers from far afield.” Sites 39460 and 39463 are both described by Van Vollenhoven (2012) as limestone houses, each date to the 1920’s and are likely the original farmsteads for their respective farms. Based on the information available, the area proposed for the upgrade of the railway infrastructure and proposed new rail balloon does not constitute a sensitive archaeological landscape and as such, it is unlikely that significant archaeological and built environment resources will be negatively impacted by the proposed development.

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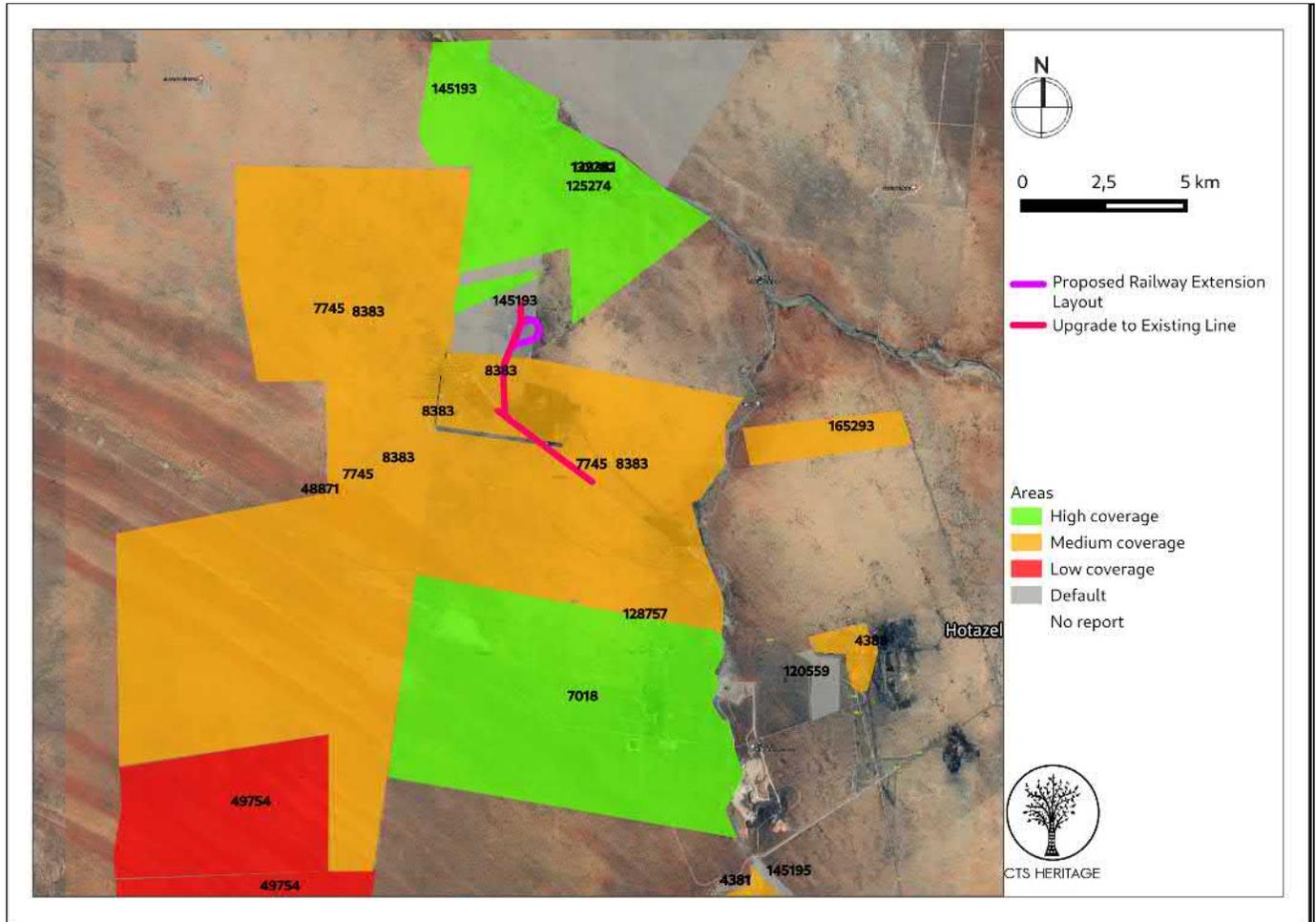


Figure 2.1: Spatialisation of heritage assessments conducted in proximity to the proposed development taken from SAHRIS (June, 2021)

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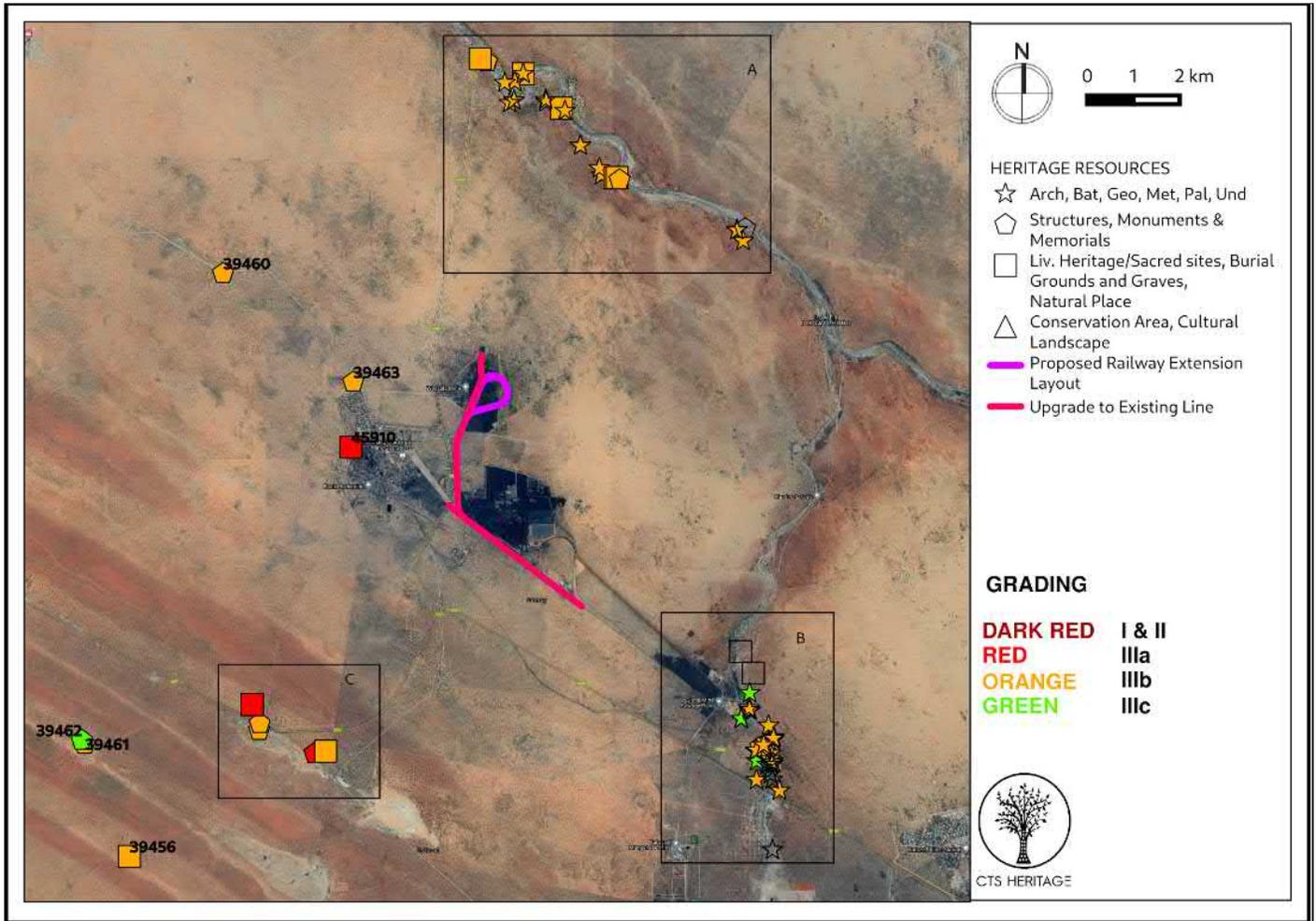


Figure 2.2: Spatialisation of known heritage resources in proximity to the proposed development (see Appendix for insets and list of resources)

### 3.2 Palaeontology

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is underlain by sediments of moderate palaeontological sensitivity. According to the extract from the Council of GeoScience Kuruman Map 2722 (Figure 5), the development area is underlain by red to flesh-coloured wind-blown sands. This corresponds with the findings of the HIA completed by Hutton and Hutton (2013) who note that geology “mainly consist(s) of aeolian red sand and the occasional surface calcrete with deep sandy soils of Hutton and Clovelly soil forms. The Kuruman River and associated river banks are embedded within the Kalahari sediments that cover



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the Precambrian metamorphic crust. The riverbeds are silty, sandy and rocky and poorly drained.”

As such, it is very unlikely that the proposed development will negatively impact on significant palaeontological heritage; however, it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.

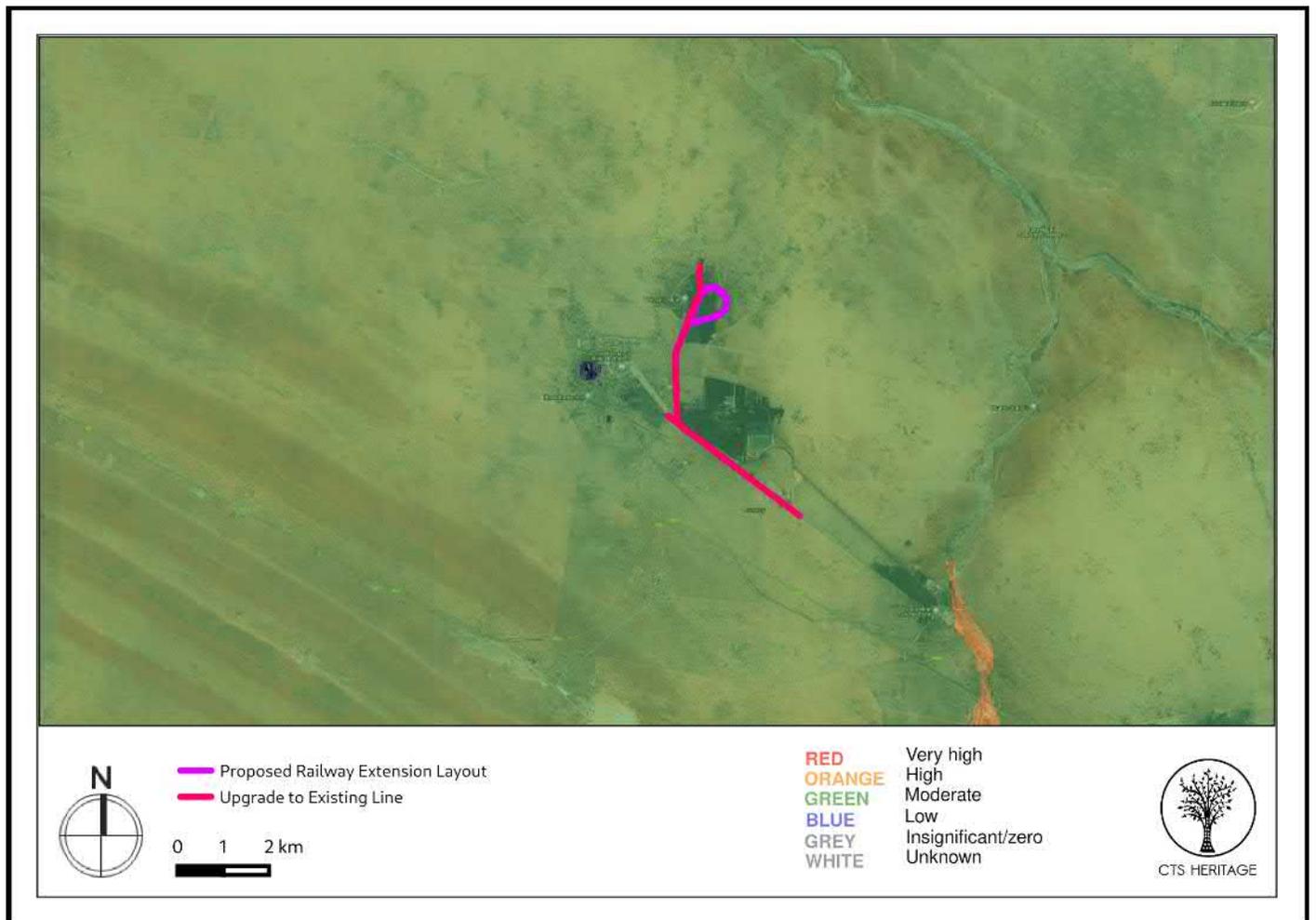


Figure 3.1: Palaeontological sensitivity of the proposed development area

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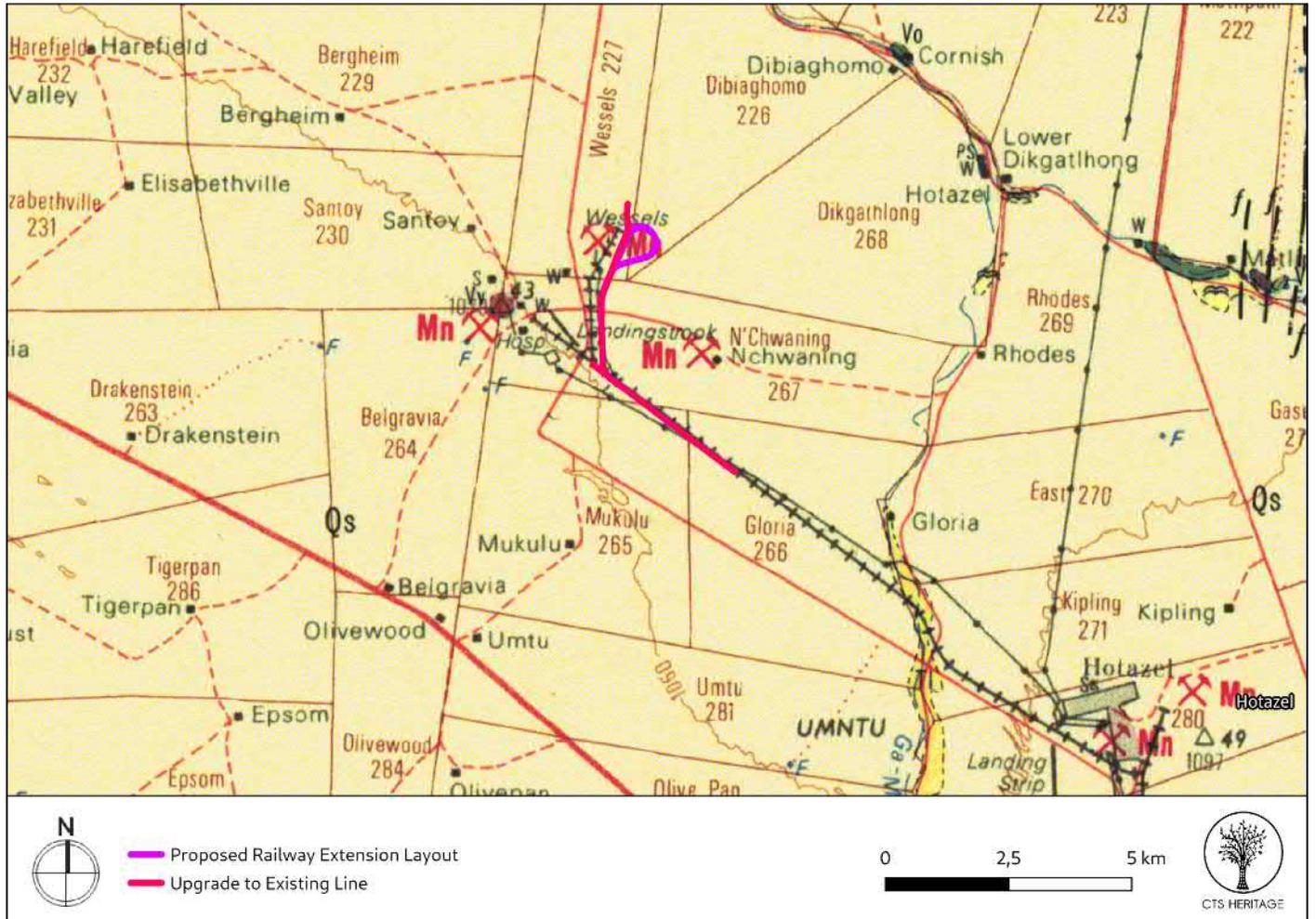


Figure 3.2: Extract from the Council for GeoScience Kuruman Map 2722 indicating that the area proposed for development is underlain by QC - red to flesh-coloured wind-blown sands

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#### 4. IDENTIFICATION OF HERITAGE RESOURCES

##### 4.1 Summary of findings of Specialist Reports

The field assessment identified no heritage resources located within or in close proximity to the proposed development area.



Figure 4.1 Contextual image of development area



Figure 4.2 Contextual image of development area



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Figure 4.3 Contextual image of development area



Figure 4.4 Contextual image of development area

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Figure 4.5 Contextual image of development area



Figure 4.6 Contextual image of development area



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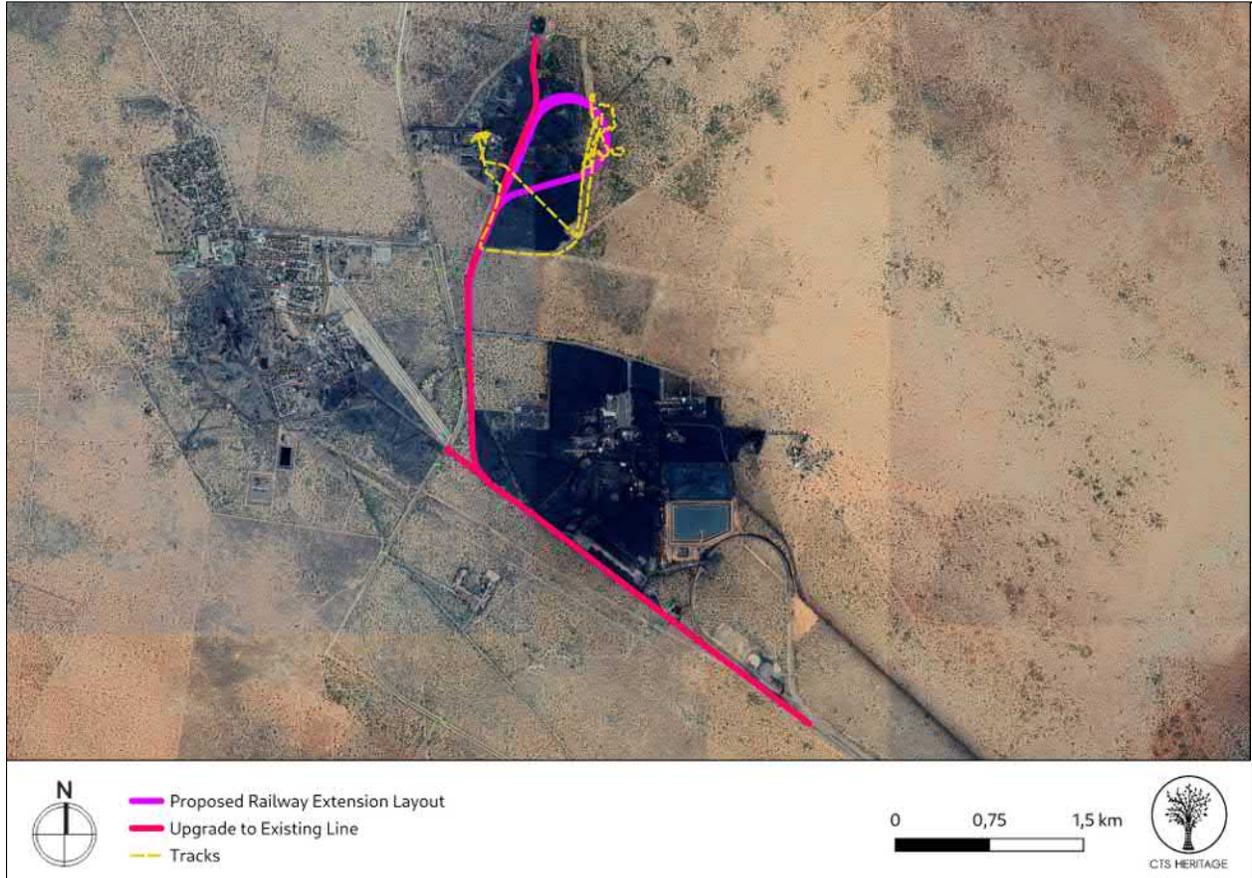


Figure 5: Track paths followed by archaeologist

#### 4.2 Heritage Resources identified

No heritage resources were identified within the area proposed for development. No graves were located or identified in the field assessment. Furthermore, no intangible heritage resources were identified. Interviews with mining officials revealed no known oral histories associated with this area or remnants of graves or symbolic heritage.

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## **5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT**

### **5.1 Assessment of impact to Heritage Resources**

The results of the study indicate that the proposed development site is not a sensitive archaeological landscape, and has been highly transformed by historical agriculture and industrial mining development. The proposed development will have no impact on any significant archaeological resources.

There are no significant natural landscape features on the proposed site or in the surrounding area. Furthermore, there are no indications of any structures of cultural significance located within the proposed development area.

Due to the extensively disturbed nature of the area proposed for development, it is assumed that heritage resources have been impacted by construction and mining activities. The small eastern section of the balloon/site footprint is located within a mostly undisturbed landscape. This area was thoroughly surveyed on foot and no evidence of any heritage or cultural material was identified.

According to the extract from the Council of GeoScience Kuruman Map 2722 (Figure 5), the development area is underlain by red to flesh-coloured wind-blown sands. This corresponds with the findings of the HIA completed by Hutton and Hutton (2013) who note that geology “mainly consist(s) of aeolian red sand and the occasional surface calcrete with deep sandy soils of Hutton and Clovelly soil forms. The Kuruman River and associated river banks are embedded within the Kalahari sediments that cover the Precambrian metamorphic crust. The riverbeds are silty, sandy and rocky and poorly drained.” As such, it is very unlikely that the proposed development will negatively impact on significant palaeontological heritage; however, it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.

Due to the nature of the landscape and disturbed site footprint, it is unlikely that the proposed development will negatively impact on significant heritage resources.

### **5.2 Sustainable Social and Economic Benefit**

From the client:

The project is motivated by the inefficiency of the current railway configuration, which does not allow for optimal and cost-effective loading of manganese ore and product from the mine for transport to the market. The

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proposed project would allow for more ore to be loaded onto the railway carts in a shorter space of time, hereby increasing outputs and productivity. It would also decrease the need for road transport, which is considered more expensive and inefficient in relation to rail transport. A staff complement of approximately 250 individuals will be required for the construction phase, hereby providing skilled and unskilled job opportunities. Procurement opportunities will be sourced locally, as far as possible.

As no impacts to heritage resources are anticipated, the socio-economic benefits outweigh the impacts to heritage resources.

### **5.3 Proposed development alternatives**

Two development alternatives are proposed (Figure 1.2). The alternatives differ in terms of footprint size. Alternative 2 would require the reconfiguration of the road intersection R380 x Access road to Nchwaning Mine and as such, this alternative is not preferred by the developer.

As no impacts to heritage resources are anticipated from either alternative, there is no preferred alternative in terms of impacts to heritage resources.

## **6. PUBLIC CONSULTATION**

Public Participation on this HIA is being undertaken as part of a legislated Basic Assessment process. The BAR and EMPr will be updated to include any comments received during the pre-application notification period and will be made available for public review (for 30 calendar days). Registered I&APs will be notified when the BAR and EMPr will be available for review via SMS and email. Full copies of the BAR and EMPr will be made available on SLR's website and SLR's data-free website. A Non-Technical Summary will also be made available on SLR's websites and would be translated into Afrikaans and Setswana. Any heritage comments will be referred to SAHRA.

## **7. CONCLUSION**

The site proposed for development is located within an area of low cultural landscape significance consisting predominantly of industrial mining development and agricultural fields intersected with roads. The results of the study indicate that the proposed development site is not a sensitive archaeological landscape, and has been

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highly transformed by historical agriculture and industrial development. The proposed development will have no impact on any significant archaeological or cultural landscape heritage resources.

According to the extract from the Council of GeoScience Kuruman Map 2722 (Figure 5), the development area is underlain by red to flesh-coloured wind-blown sands. This corresponds with the findings of the HIA completed by Hutton and Hutton (2013) who note that geology “mainly consist(s) of aeolian red sand and the occasional surface calcrete with deep sandy soils of Hutton and Clovelly soil forms. The Kuruman River and associated river banks are embedded within the Kalahari sediments that cover the Precambrian metamorphic crust. The riverbeds are silty, sandy and rocky and poorly drained.”

As such, it is very unlikely that the proposed development will negatively impact on significant palaeontological heritage; however, it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.

## 8. RECOMMENDATIONS

There is no objection to the proposed development on heritage grounds and the following is recommended:

4. No mitigation is required prior to construction commencing.
5. The attached Chance Fossil Finds Procedure (Appendix 3) must be implemented during the construction phase of development, and included in the EMPr
6. If any archaeological resources or unmarked human remains are uncovered or exposed during excavations these must immediately be reported to the South African Heritage Resources Agency (SAHRA) (Att: Ms Natasha Higgitt 021 462 4502). Burials must not be removed until inspected by a professional archaeologist.

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## 9. REFERENCES

### Impact Assessment References

Nid	Report Type	Author/s	Date	Title
4388	AIA Phase 1	Peter Beaumont	14/06/2008	Phase 1 Archaeological Impact Assessment Report on Areas at Hotazel Mine on the Farm Hotazel 280, Kgalagadi District Municipality, Northern Cape Province
7018	AIA Phase 1	Wouter Fourie, Jaco van der Walt	31/03/2007	Kalahari Manganese Mines: Heritage Assessment on Umtu 281, Olive Pan 282, Gama 283
7745	AIA Phase 1	Anton Pelser, Anton van Vollenhoven	03/05/2011	A REPORT ON A HERITAGE IMPACT ASSESSMENT (HIA) FOR A PROPOSED NEW RAIL CROSSING OVER THE GAMAGARA RIVER FOR THE GLORIA MINE OPERATIONS, ASSMANG BLACK ROCK, ON GLORIA 266, NORTH OF HOTAZEL, NORTHERN CAPE
8383	HIA Phase 1	Udo Kusel, M van der Ryst	18/09/2009	Cultural Heritage Resources impact assessment of manganese mining areas on the farms Belgravia 264, Santoy 230, Gloria 226 and Nichwaning 267, at Black Rockm North of Kuruman, Kgalagadi District Municipality, Northern Cape Province.
48871	HIA Phase 1	Anton van Vollenhoven	01/04/2012	A REPORT ON A HERITAGE IMPACT ASSESSMENT FORTHE PROPOSED MAIN STREET 778 (PTY) LTD MINING RIGHT APPLICATION CLOSE TO HOTAZEL, NORTHERN CAPE PROVINCE
49754	Heritage Scoping	Tobias Coetzee	31/07/2012	ARCHAEOLOGICAL SCOPING REPORT FOR THE PROPOSED PROSPECTING FOR IRON ORE AND MANGANESE ORE FOR AMARI MANGANESE (PTY) LTD ON THE FARMS CONSTANTIA 309, SIMONDIUM 308 AND PORTIONS 1, 2, 3 AND 8 OF THE FARM GOOLD 329 IN THE VICINITY OF District Municipality: Kgalagadi Northern Cape Province SOUTH AFRICA
120559	HIA Phase 1	Robert de Jong	16/05/2010	HIA PROPOSED LAND USE CHANGE TO PROVIDE FOR THE EXTENSION OF THE TOWN OF HOTAZEL PHASE III
125274	Heritage Impact Assessment Specialist	Wouter Fourie	22/07/2013	Tshipi Ā© Ntle Manganese Mining: Prospecting on Remaining extent of the farm Wessels 227 and Portions 1 and 2 and the remaining extent of the farm Dibiaghomo 226, near Black Rock in the Northern Cape Province, Heritage Impact Assessment

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	Reports			
128757	Archaeological Specialist Reports	Wouter Fourie	14/05/2013	Prospecting activities on the farm Gloria 266, near Hotazel in the Northern Cape Province Heritage Impact Assessment
129381	HIA Phase 1	Wouter Fourie	17/07/2013	Lehating Heritage Impact Assessment Proposed Lehating Mining (Pty) Ltd underground manganese mine on Portions 1 of the Farm Lehating 714 and Portion 2 of the farm Wessels 227, approximately 20km northwest of Hotazel, Northern Cape Province
132292	HIA Phase 1	Wouter Fourie		Heritage Impact Assessment for the Proposed Lehating Mining (Pty) Ltd underground manganese mine on Portions 1 of the Farm Lehating 714 and Portion 2 of the farm Wessels, 227, approximately 20km northwest of Hotazel, Northern Cape Province
145193	HIA Phase 1	Louisa Hutten, Willem Hutten	18/11/2013	HIA report for Boerdraai 228 and Wessels 227 portion 2
165293	AIA Phase 1	Neels Kruger	18/05/2014	ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF A DEMARCATED SURFACE PORTION ON THE FARM RHODES 269 FOR THE PROPOSED RHODES 1 PHOTOVOLTAIC POWER PLANT & ACCESS ROAD DEVELOPMENT, JOE MOROLONG LOCAL MUNICIPALITY, JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

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## APPENDICES

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## APPENDIX 1: Desktop Screening Assessment



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## HERITAGE SCREENER

CTS Reference Number:	CTS21_071
HWC Ref Number	
Client:	SLR
Date:	June 2021
Title:	<b>Proposed extension of the railway infrastructure at the Wessels Mine near Hotazel in the Northern Cape</b>
Recommendation:	<b>RECOMMENDATION</b> Based on the available information, the proposed development is not likely to impact on significant cultural landscape, built environment, archaeological or palaeontological heritage resources and as such, it is recommended that no further studies in terms of section 38 of the NHRA are required.

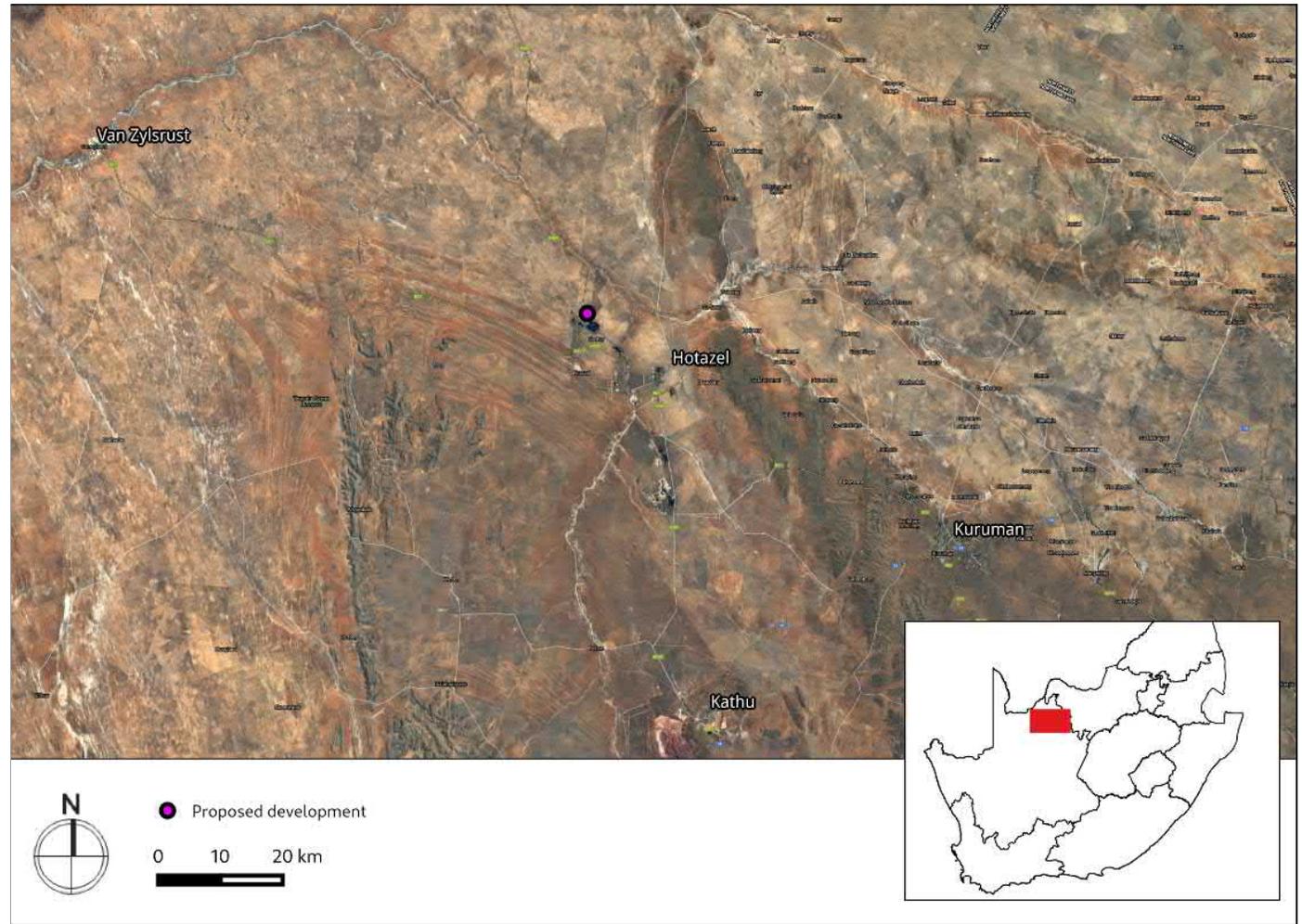


Figure 1a. Satellite map indicating the location of the proposed development in the Western Cape Province

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## 1. Proposed Development Summary

Hotazel Manganese Mines (Pty) Ltd (HMM), a subsidiary of South32 Limited (South32), intends to upgrade the existing railway infrastructure at the Wessels Mine. The upgrade will consist of modifications to the staging rail lines and the design of a new rail balloon. The extension of the railway into the new railway balloon measures at approximately 2 500 m long and 25 m wide and would result in the clearing of indigenous vegetation (more than 1 hectare, but less than 20 hectares). Additionally, the railway would cross a section of the existing tailings dam and would thus result in the removal of approximately 15 000 – 25 000 m<sup>3</sup> of material from the tailings area, which would then be deposited on another existing tailings dam. The new railway extension would be located within the existing Mining Right (MR) boundary at the Wessels Mine and amendments to the mine's Water Use Licence (WUL) are not required.

## 2. Application References

<b>Name of relevant heritage authority(s)</b>	SAHRA
<b>Name of decision making authority(s)</b>	Northern Cape DMRE

## 3. Property Information

<b>Latitude / Longitude</b>	27° 7'7.57"S 22°51'22.79"E
<b>Erf number / Farm number</b>	Farm Wessels 227
<b>Local Municipality</b>	Joe Morolong
<b>District Municipality</b>	John Taolo Gaetsewe
<b>Province</b>	Northern Cape
<b>Current Use</b>	Mine
<b>Current Zoning</b>	Agriculture

## 4. Nature of the Proposed Development

<b>Total Surface Area</b>	<4ha
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<b>Depth of excavation (m)</b>	Typical earthworks excavations will be less than 2 m. Pilling for structures can be 40 m deep.
<b>Height of development (m)</b>	The rail will not protrude more than 2m. The indexer will be less than 5m high. The stacker reclaimers and silos can be up to 40m high.

## 5. Category of Development

<b>x</b>	<b>Triggers: Section 38(8) of the National Heritage Resources Act</b>
	<b>Triggers: Section 38(1) of the National Heritage Resources Act</b>
<b>x</b>	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
	a) exceeding 5 000m <sup>2</sup> in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m <sup>2</sup>
	5. Other (state):

## 6. Additional Infrastructure Required for this Development

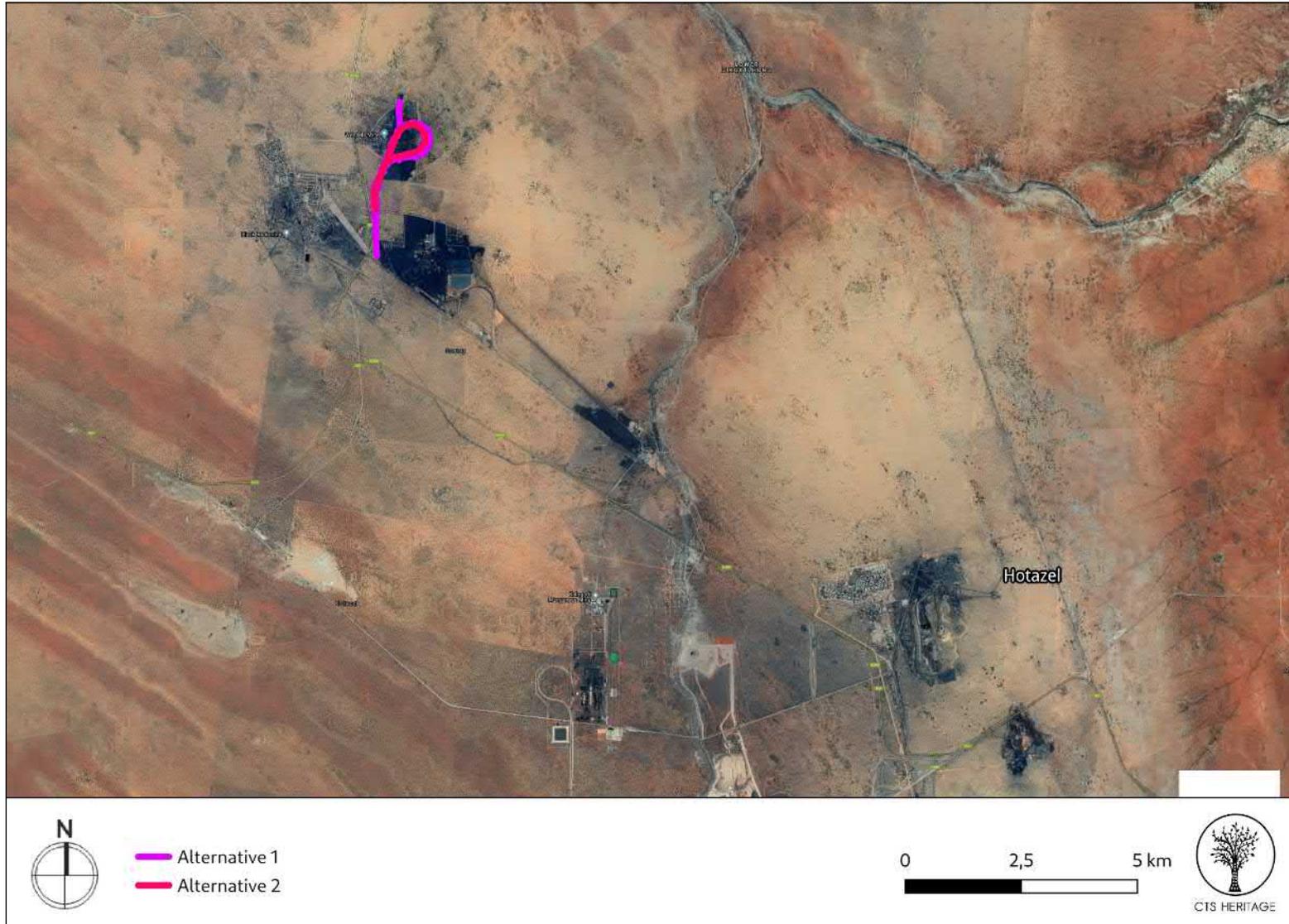
None

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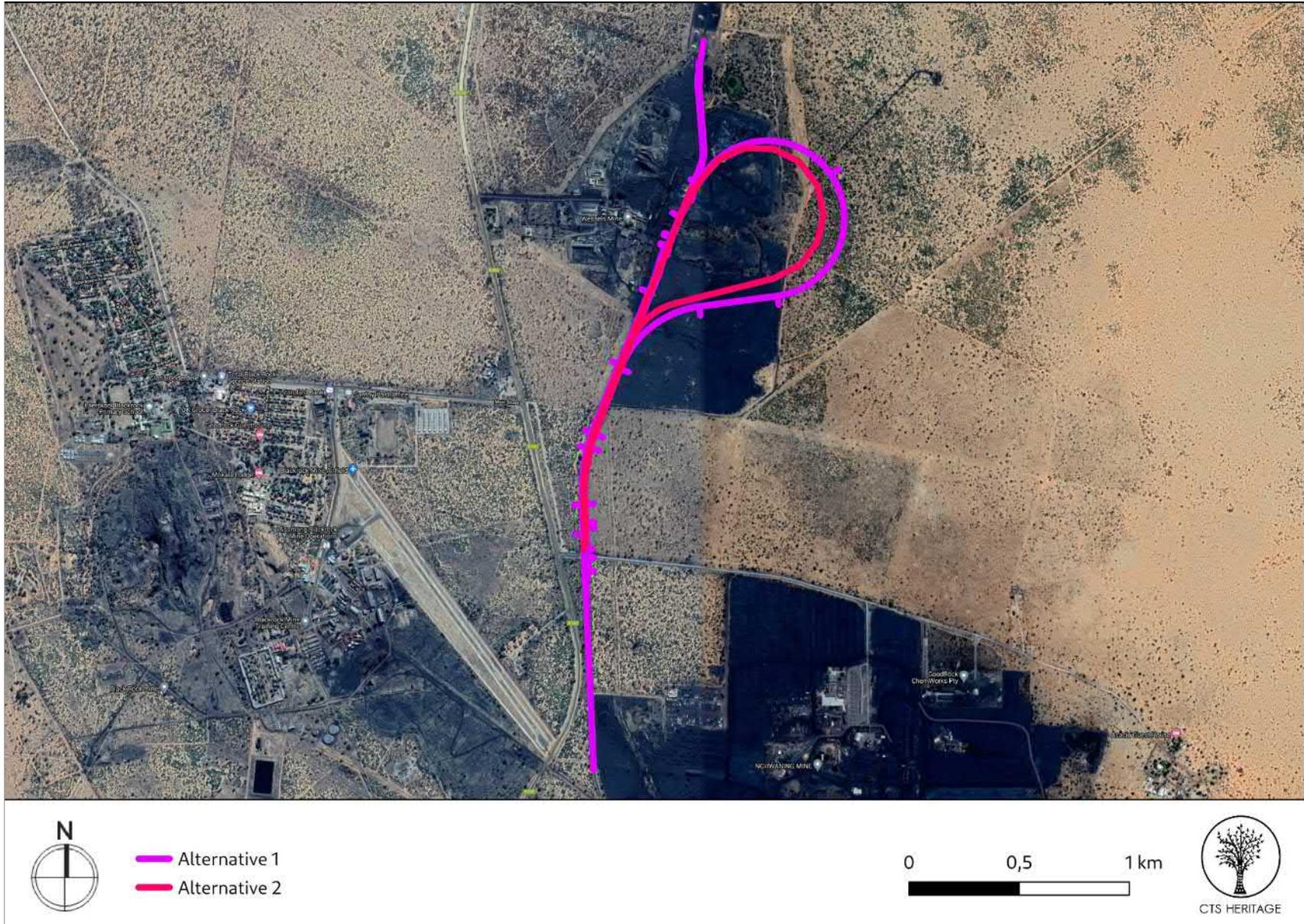
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## 7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)

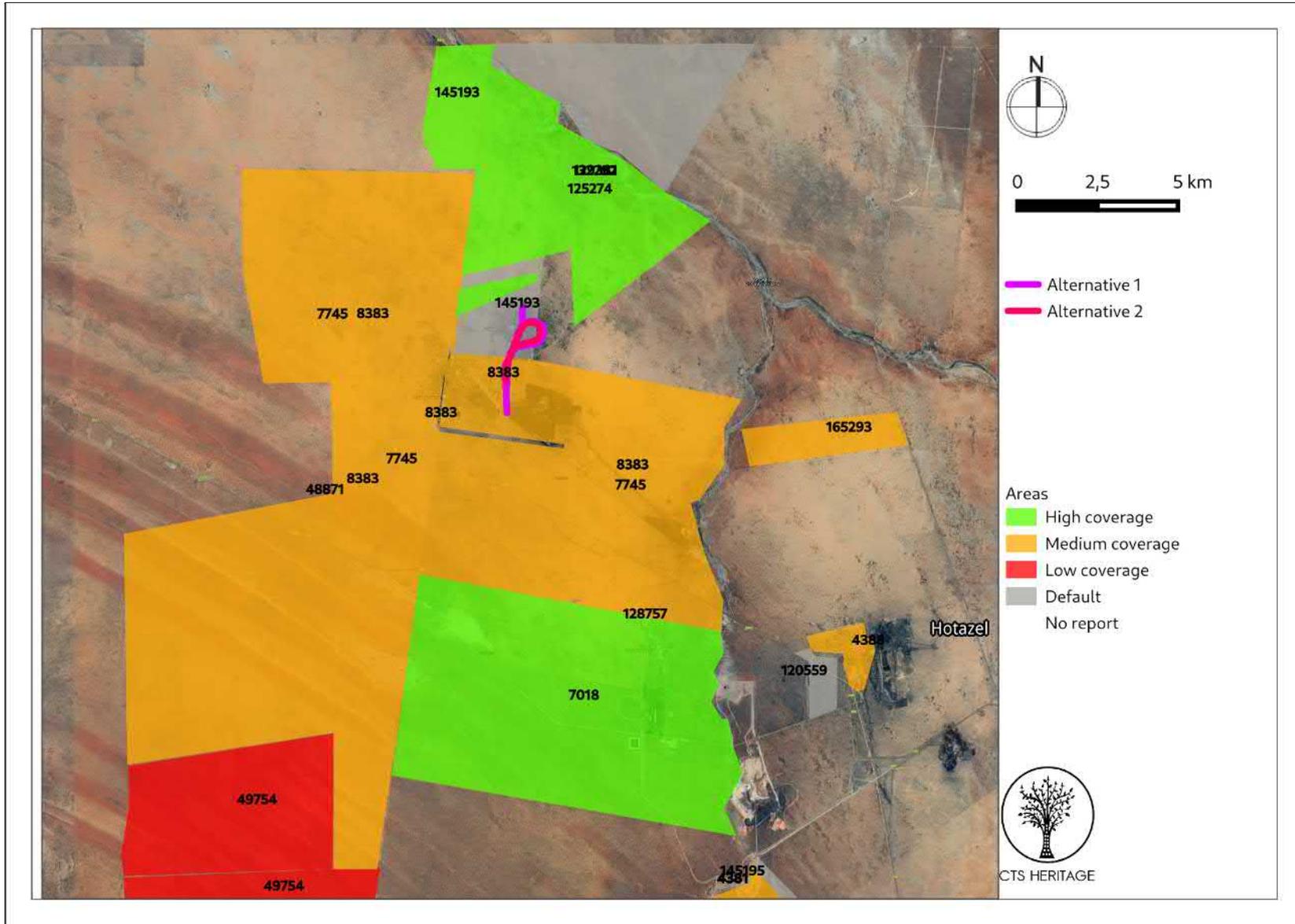


**Figure 1b Overview Map.** Satellite image (2019) indicating the proposed development area at closer range.

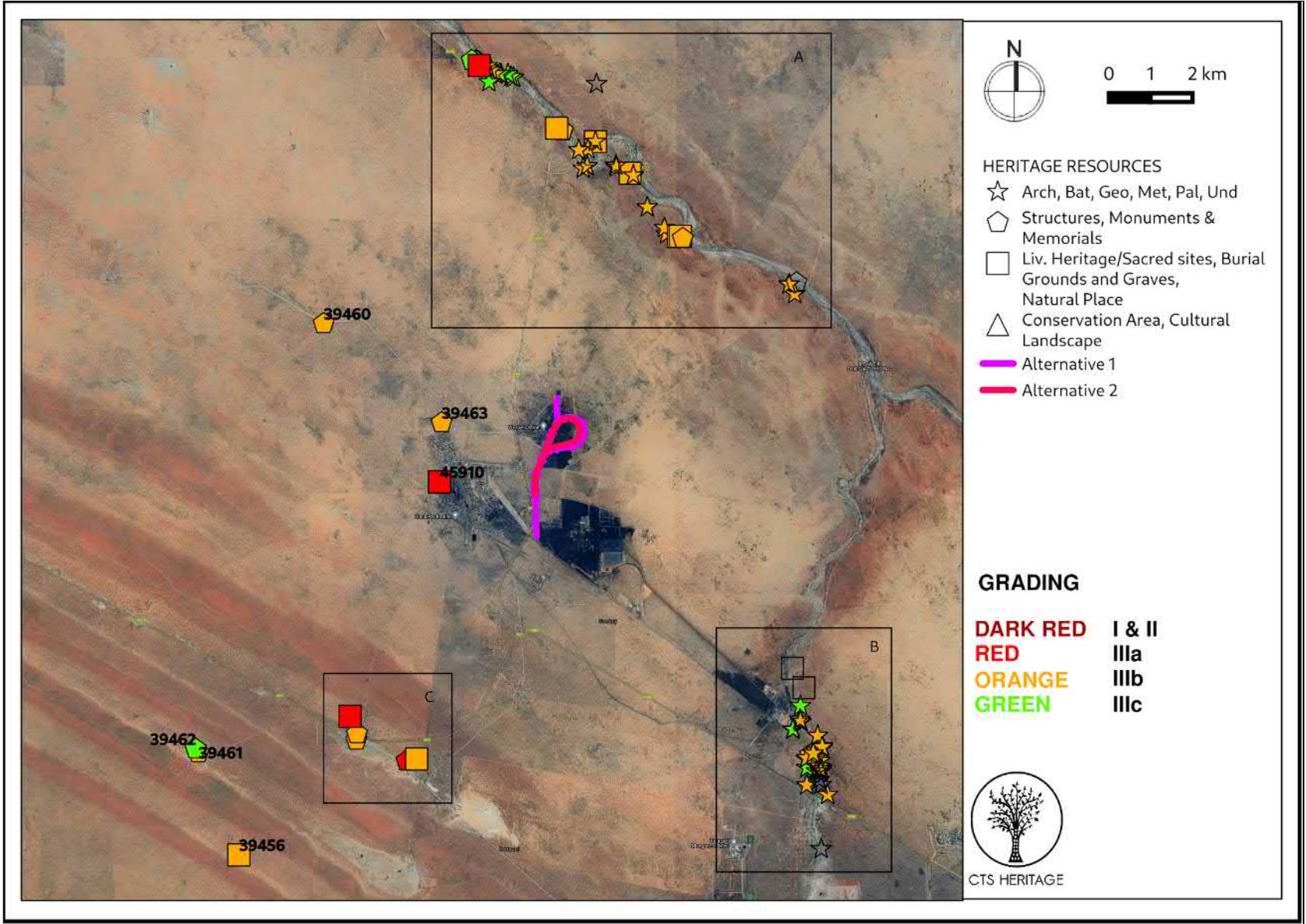




**Figure 1d. Overview Map.** Satellite image (2019) indicating the proposed development area at closer range.



**Figure 2. Previous HIAs Map.** Previous Heritage Impact Assessments surrounding the proposed development area within 15km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.



**Figure 3. Heritage Resources Map.** Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.



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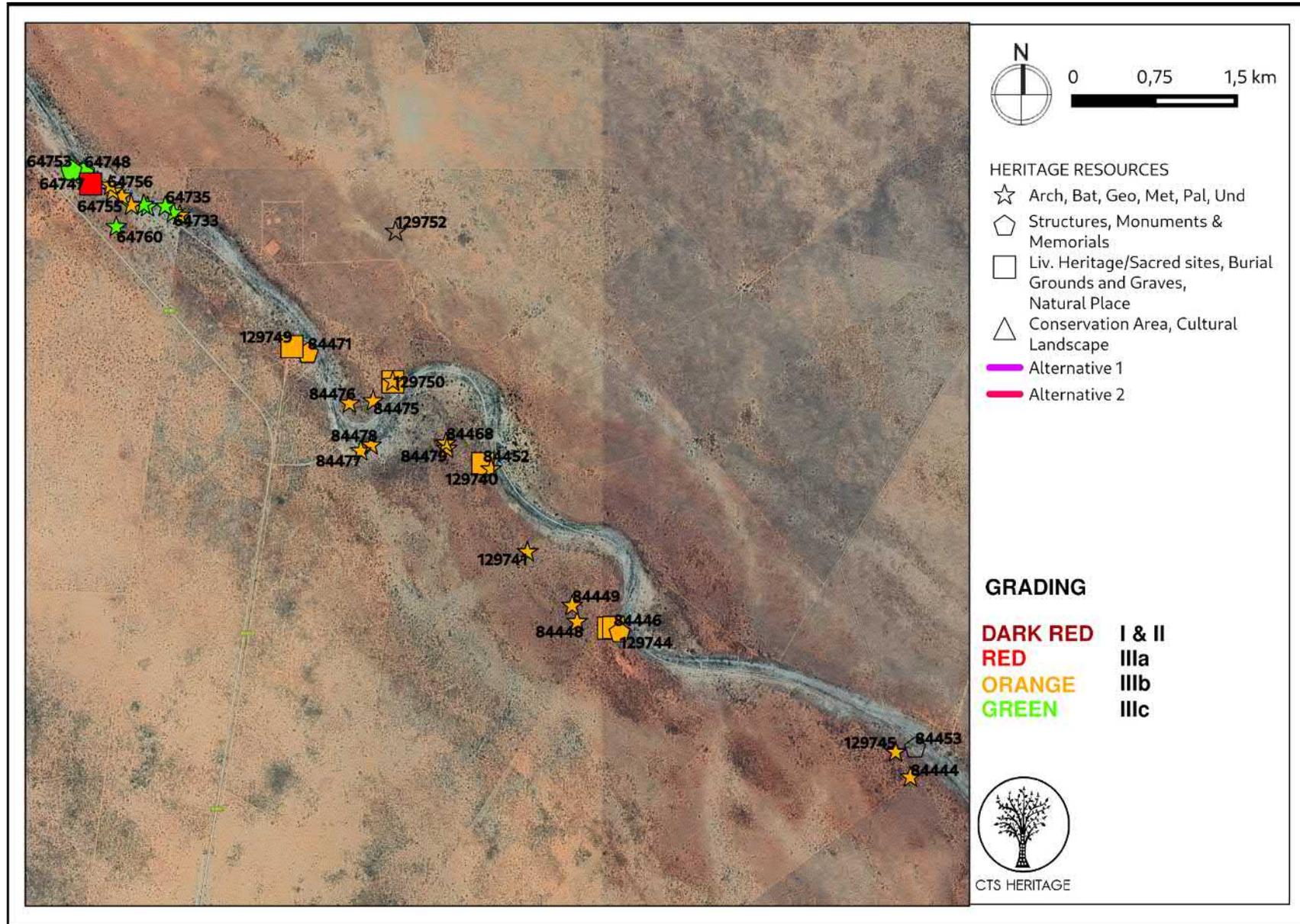


Figure 3a. Heritage Resources Map. Inset A

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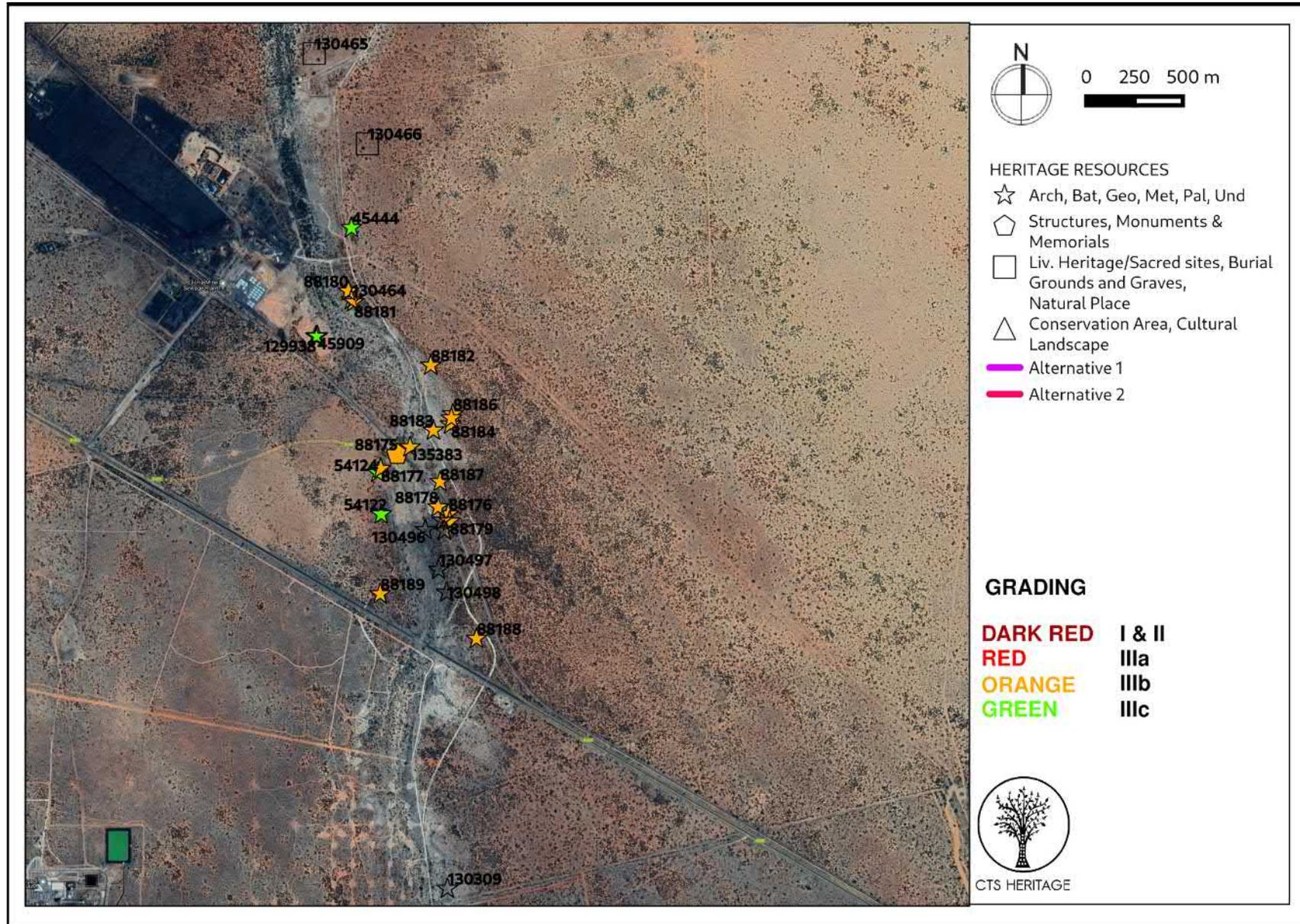


Figure 3b. Heritage Resources Map. Inset B

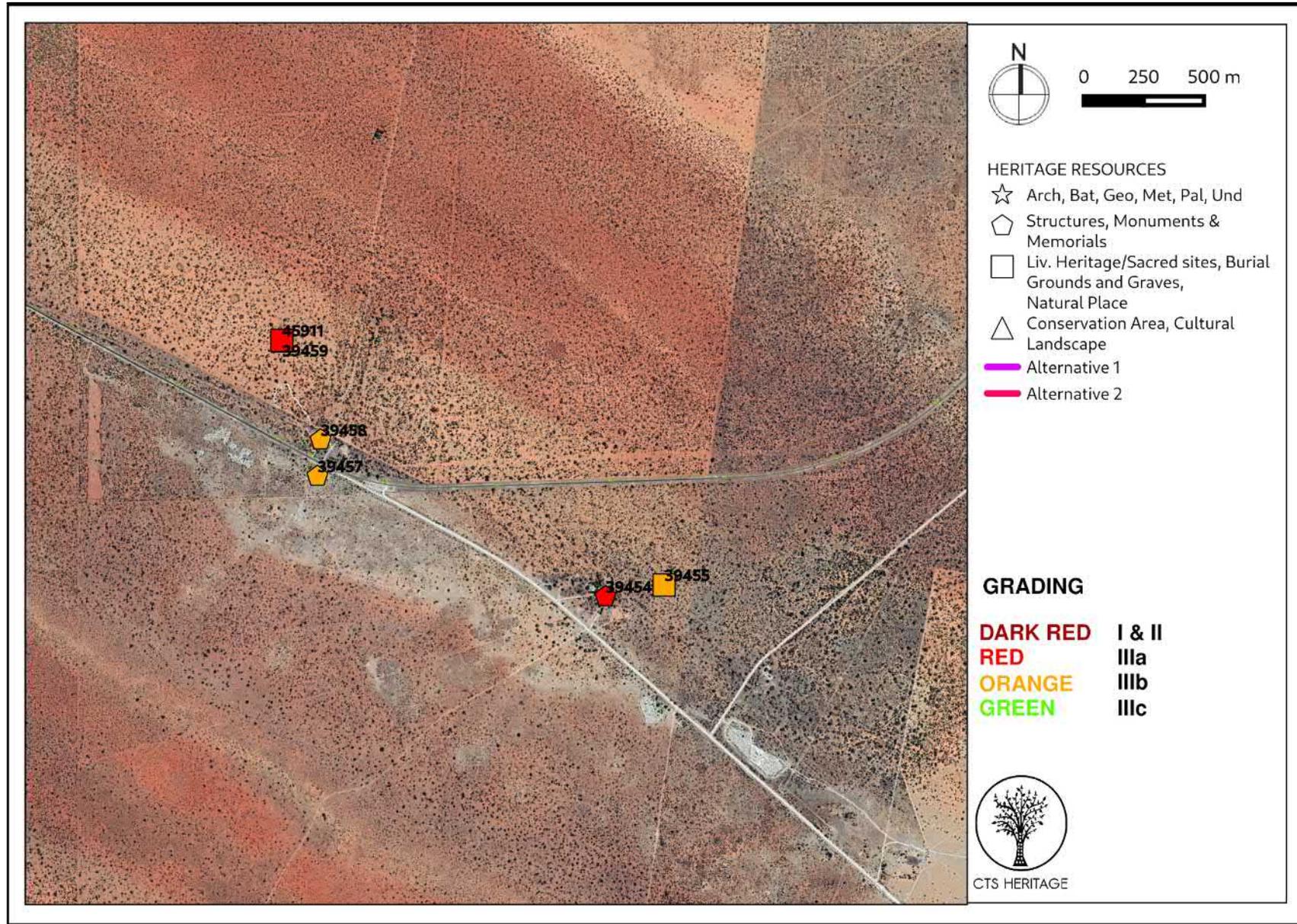
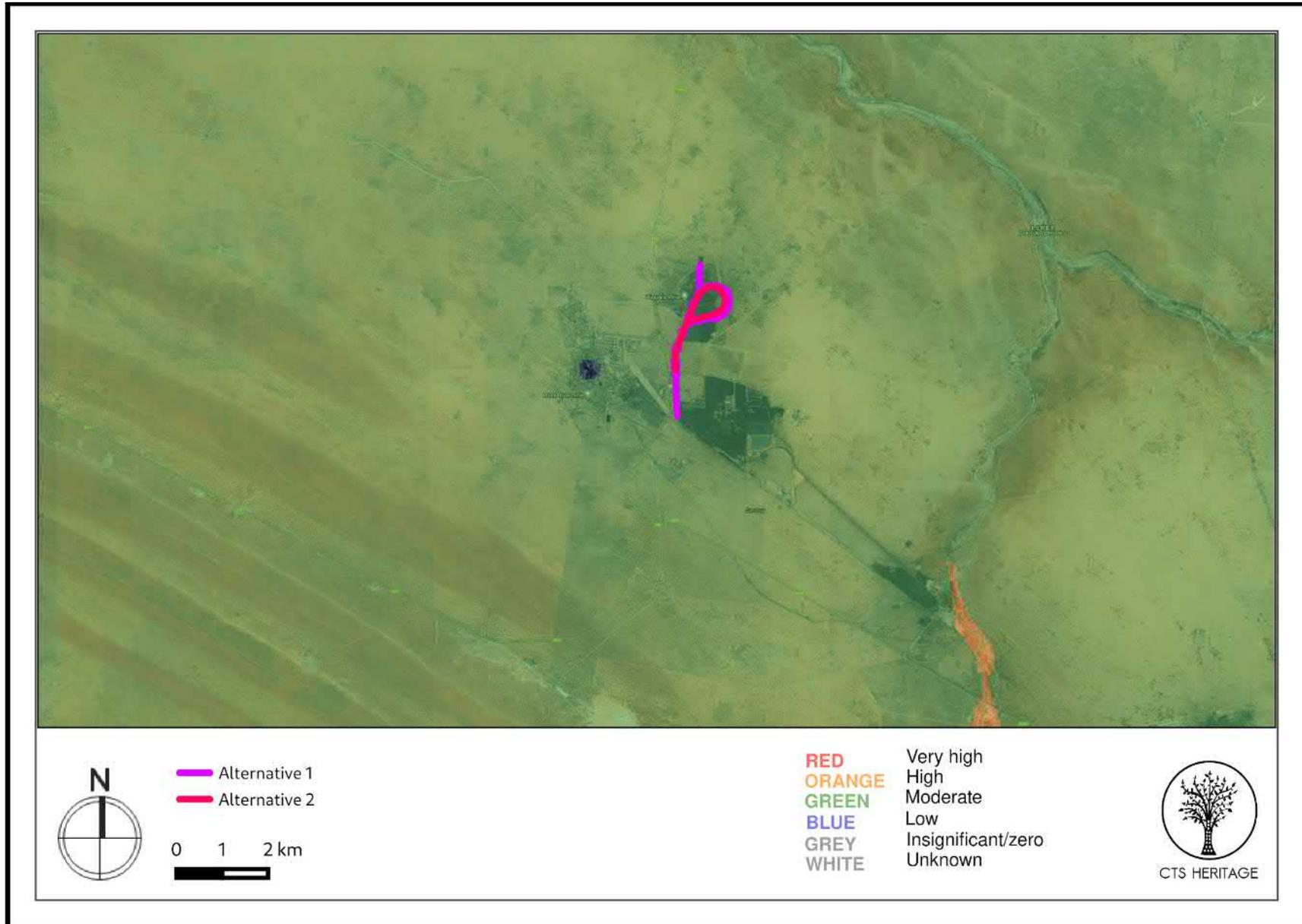
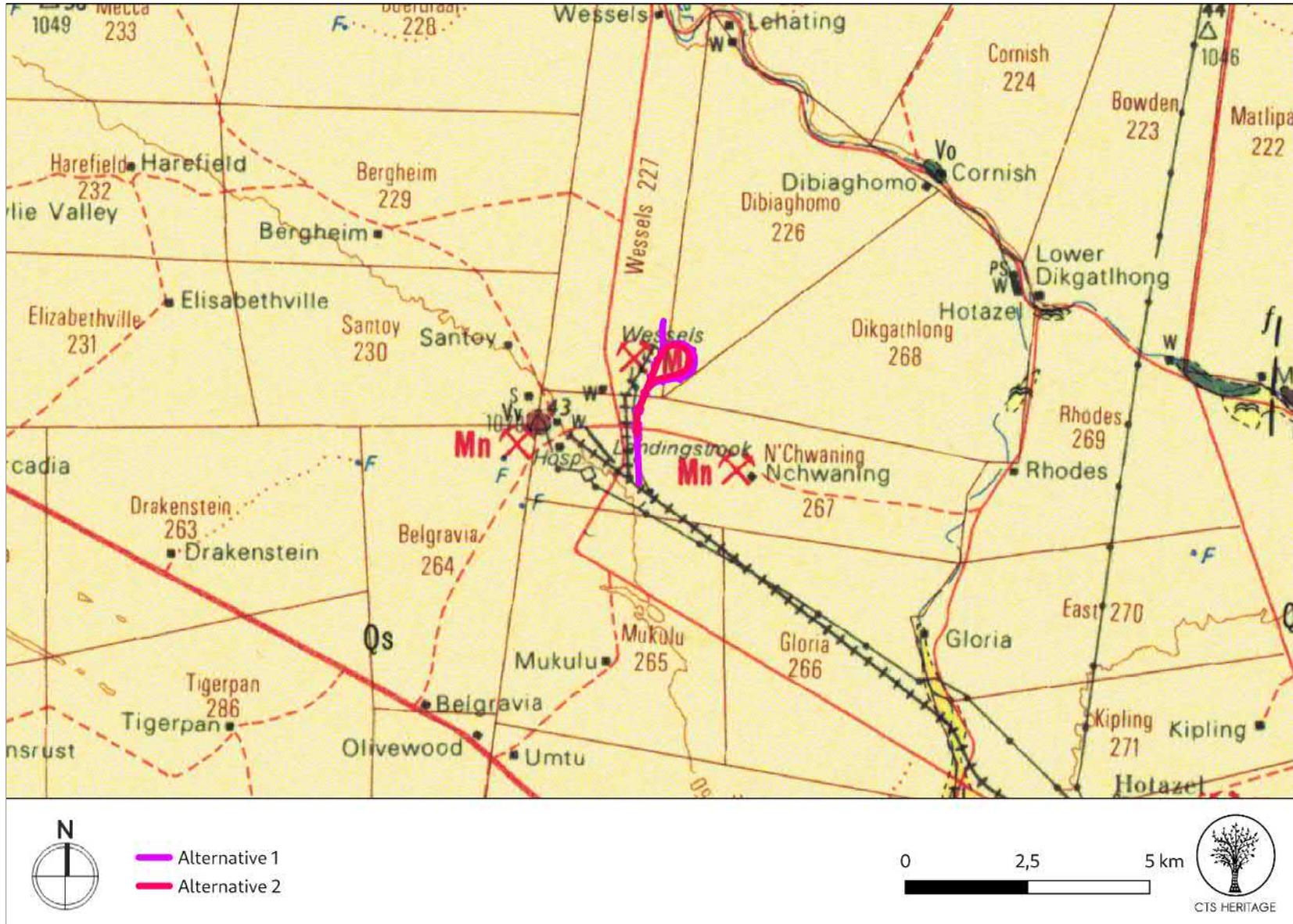


Figure 3c. Heritage Resources Map. Inset C



**Figure 4. Palaeosensitivity Map.** Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



**Figure 5. Geology Map.** Extract from the Council for GeoScience Kuruman Map 2722 indicating that the area proposed for development is underlain by QC - red to flesh-coloured wind-blown sands



## 8. Heritage statement and character of the area

The area proposed for the railway infrastructure upgrade and the new rail balloon is located within the existing Wessels Mine in close proximity to the town of Hotazel in the Northern Cape. Hotazel was designated as a town in the 1950's in order to service the surrounding manganese mines. As per Figure 2, the area proposed for development as well as its surroundings have previously been assessed for impacts to heritage resources. The specific area proposed for development in this application has been looked at by Hutton and Hutton (2013, SAHRIS NID 145193) and Kusel and van der Ryst (2009, SAHRIS NID 8383) who conducted an assessment for the neighbouring Black Rock Mine. These reports are relied on below to provide some insight into the heritage sensitivities of the area proposed for development.

According to Kusel and van der Ryst (2009), "The first Geologist to have surveyed the Northern Cape was Dr. A. W. Rogers of the Geological Commission of the Cape Colony in 1906. One of the features he noted was a small hill called Black Rock and reported on the presence of manganese ore at the base of the hill. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards started mining the deposit... A large black outcrop of Manganese ore is the outstanding feature in the landscape of the Black Rock mining area. This outcrop was mined since the 1940's both by open cast and underground mining... The original Black Rock outcrop and mining represent an important part of the mining history of Manganese mining in South Africa". For this reason, Kusel and van der Ryst (2009) recommend, among other things, that the Black Mountain Mine be declared as a National Heritage Site; however, no evidence of this recommendation being implemented has been identified.

Both Hutton and Hutton (2013) and Kusel and van der Ryst (2009) identified Early, Middle and Later Stone Age archaeological resources located within proximity of the proposed development (Figure 3). Hutton and Hutton (2013) and Kusel and van der Ryst (2009) both indicate that the identified artefacts are predominantly located along the Kuruman and Ga-Mogara riverbanks. Hutton and Hutton (2013) note that no heritage resources were identified in the areas located away from the rivers, described as consisting of "red Kalahari sands with little vegetation cover."

As per Figure 3, the heritage resources known from the broader area that are not associated with the banks of surrounding rivers include a burial identified by Kusel and van der Ryst (2009) and two structures identified by Van Vollenhoven (2012, SAHRIS ID 48871). This burial site (SAHRIS Site ID 45910) is described as follows; "The area is fenced off and has some 60+ graves. The graves are those of black mine workers who died at the mine. The graves are unmarked with no tombstones. Only one grave has a date of 8/7/74. The cemetery most probably represents the graves of black mine workers from the 1940's to the 1970's. The graves are not visited any more by relatives as no grave goods are present. Most probably these graves are from migrant mine workers from far afield." Sites 39460 and 39463 are both described by Van Vollenhoven (2012) as limestone houses, each date to the 1920's and are likely the original farmsteads for their respective farms. Based on the information available, the area proposed for the upgrade of the railway infrastructure and proposed new rail balloon does not constitute a sensitive archaeological landscape and as such, it is unlikely that significant archaeological and built environment resources will be negatively impacted by the proposed development.

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is underlain by sediments of moderate palaeontological sensitivity. According to the extract from the Council of GeoScience Kuruman Map 2722 (Figure 5), the development area is underlain by red to flesh-coloured wind-blown sands. This corresponds with the findings of the HIA completed by Hutton and Hutton (2013) who note that geology "mainly consist(s) of aeolian red sand and the occasional surface calcrete with deep sandy soils of Hutton and Clovelly soil forms. The Kuruman River and associated river banks are embedded within the Kalahari sediments that cover the Precambrian metamorphic crust. The riverbeds are silty, sandy and rocky and poorly drained." As such, it is very unlikely that the proposed development will negatively impact on significant palaeontological heritage; however, it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.

### RECOMMENDATION

**Based on the available information, the proposed development is not likely to impact on significant cultural landscape, built environment, archaeological or palaeontological heritage resources and as such, it is recommended that no further studies in terms of section 38 of the NHRA are required, however it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.**



### APPENDIX 1: List of heritage resources in proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
88186	GLO012	GLORIA 266/ 012	Artefacts	Grade IIIb
88187	GLO013	GLORIA 266/ 013	Artefacts	Grade IIIb
88189	GLO015	GLORIA 266/ 015	Artefacts	Grade IIIb
88177	GLO003	GLORIA 266/ 003	Artefacts	Grade IIIb
88178	GLO004	GLORIA 266/ 004	Artefacts	Grade IIIb
88179	GLO005	GLORIA 266/ 005	Artefacts	Grade IIIb
88180	GLO006	GLORIA 266/ 006	Artefacts	Grade IIIb
88182	GLO008	GLORIA 266/ 008	Artefacts	Grade IIIb
88184	GLO010	GLORIA 266/ 010	Artefacts	Grade IIIb
88185	GLO011	GLORIA 266/ 011	Artefacts	Grade IIIb
88188	GLO014	GLORIA 266/ 014	Artefacts	Grade IIIb
84447	TSHIPI007	Tshipi é Ntle Manganese Mining 007	Burial Grounds & Graves, Artefacts	Grade IIIa
84444	TSHIPI009	Tshipi é Ntle Manganese Mining 009	Archaeological	Grade IIIb
84445	TSHIPI010	Tshipi é Ntle Manganese Mining 010	Archaeological	Grade IIIb
84446	TSHIPI008	Tshipi é Ntle Manganese Mining 008	Burial Grounds & Graves	Grade IIIa
84448	TSHIPI006	Tshipi é Ntle Manganese Mining 006	Archaeological	Grade IIIb
84449	TSHIPI005	Tshipi é Ntle Manganese Mining 005	Archaeological	Grade IIIb



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84450	TSHIPI004	Tshipi é Ntle Manganese Mining 004	Archaeological	Grade IIIb
84451	TSHIPI003	Tshipi é Ntle Manganese Mining 003	Archaeological	Grade IIIb
84452	TSHIPI002	Tshipi é Ntle Manganese Mining 002	Burial Grounds & Graves	Grade IIIa
84453	TSHIPI001	Tshipi é Ntle Manganese Mining 001	Building	Ungraded
84468	TSHIPI011	Tshipi é Ntle Manganese Mining 011	Archaeological	Grade IIIb
84473	TSHIPI014	Tshipi é Ntle Manganese Mining 014	Burial Grounds & Graves	Grade IIIa
54122	GLRA01	Gloria 266 01	Artefacts	Grade IIIc
84474	TSHIPI015	Tshipi é Ntle Manganese Mining 015	Archaeological, Burial Grounds & Graves	Grade IIIb
84475	TSHIPI016	Tshipi é Ntle Manganese Mining 016	Archaeological	Grade IIIb
84476	TSHIPI017	Tshipi é Ntle Manganese Mining 017	Archaeological	Grade IIIb
84478	TSHIPI019	Tshipi é Ntle Manganese Mining 019	Archaeological	Grade IIIb
84479	TSHIPI012	Tshipi é Ntle Manganese Mining 012	Archaeological	Grade IIIb
84477	TSHIPI018	Tshipi é Ntle Manganese Mining 018	Archaeological	Grade IIIb
64732	WESS001	Wessels 227/ 001	Artefacts	Grade IIIb
45909	BR01	Black Rock 01	Artefacts	Grade IIIc
45910	BR02	Black Rock 02	Burial Grounds & Graves	Grade IIIa
64733	WESS002	Wessels 227/ 002	Artefacts	Grade IIIc
45911	BR03	Black Rock 03	Burial Grounds & Graves	Grade IIIa

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64735	WESS003	Wessels 227/ 003	Artefacts	Grade IIIc
64737	WESS004	Wessels 227/ 004	Artefacts	Grade IIIc
64738	WESS005	Wessels 227/ 005	Artefacts	Grade IIIc
64740	WESS006	Wessels 227/ 006	Artefacts	Grade IIIb
64745	WESS008	Wessels 227/ 008	Structures	Grade IIIc
64747	WESS009	Wessels 227/ 009	Structures	Grade IIIc
64748	WESS010	Wessels 227/ 010	Structures	Grade IIIc
64750	WESS011	Wessels 227/ 011	Structures	Grade IIIc
64753	WESS012	Wessels 227/ 012	Building	Grade IIIc
64755	WESS013	Wessels 227/ 013	Artefacts	Grade IIIb
64756	WESS014	Wessels 227/ 014	Artefacts	Grade IIIb
64758	WESS015	Wessels 227/ 015	Artefacts	Grade IIIb
64760	WESS016	Wessels 227/ 016	Artefacts	Grade IIIc
64743	WESS007	Wessels 227/ 007	Burial Grounds & Graves	Grade IIIa
39454	HOT068	Hotazel 068	Building	Grade IIIa
39457	HOT071	Hotazel 071	Building	Grade IIIb
54124	GLRA02	Gloria 266 02	Artefacts	Grade IIIc
39458	HOT072	Hotazel 072	Building	Grade IIIb
39460	HOT074	Hotazel 074	Building	Grade IIIb

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39461	HOT075	Hotazel 075	Building	Grade IIIb
39462	HOT076	Hotazel 076	Building	Grade IIIc
39463	HOT077	Hotazel 077	Building	Grade IIIb
45444	Gloria 01	Gloria Mine, Vaal Gamagara Village 01	Artefacts	Grade IIIc
39455	HOT069	Hotazel 069	Burial Grounds & Graves	Grade IIIb
39456	HOT070	Hotazel 070	Burial Grounds & Graves	Grade IIIb
39459	HOT073	Hotazel 073	Burial Grounds & Graves	Grade IIIb
88175	GLO001	GLORIA 266/ 001	Bridge	Grade IIIb
88176	GLO002	GLORIA 266/ 002	Artefacts	Grade IIIb
88181	GLO007	GLORIA 266/ 007	Artefacts	Grade IIIb
88183	GLO009	GLORIA 266/ 009	Artefacts	Grade IIIb
135383	BMRO001	BLACK ROCK MINING	Artefacts	Grade IIIb
84471	TSHIPI013	Tshipi é Ntle Manganese Mining 013	Building	Grade IIIb
129739	2722BB/Mining/ farm Lehating 225/Site DIB2	Cemetery	Burial Grounds & Graves	Grade IIIb
129740	2722BB/Mining/ Farm Dibiaghomo 226/Site DIB3	Archaeological site	Archaeological	Ungraded
129741	2722BB/Mining/ Farm Dibiaghomo	Archaeological site	Archaeological	Ungraded

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	226/Site DIB4			
129742	2722BB/Mining/ Farm Dibiaghomo 226/Site DIB7	Grave site	Burial Grounds & Graves	Grade IIIb
129743	2722BB/Mining/ Farm Dibiaghomo 226/Site DIB8A	Cemetery	Burial Grounds & Graves	Grade IIIb
129744	2722BB/Mining/ Farm Dibiaghomo 226/Site DIB8B	Farmstead	Structures	Grade IIIb
129745	2722BB/Mining/ Farm Dibiaghomo 226/Site DIB10	Archaeological site	Archaeological	Ungraded
129746	2722BB/Mining/ Farm Dibiaghomo 226/Site DIB11	Stone artefacts	Artefacts	Ungraded
129748	2722BB/Mining/ Farm Dibiaghomo 226/Site WES1	original farmstead of the farm Wessels	Structures	Ungraded
129749	2722BB/Mining/ Farm Dibiaghomo 226/Site WES2	Grave site	Burial Grounds & Graves	Grade IIIb
129750	2722BB/Mining/ Farm Dibiaghomo 226/Site WES3	Archaeological site	Archaeological	Ungraded
129751	2722BB/Mining/	Archaeological site	Archaeological	Ungraded

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	Farm Dibiaghomo 226/Site WES7			
129752	2722BB/Mining/Farm Lehating 714/Site LM01	Stone artefacts	Archaeological	Ungraded
129938	BRMO Stone Age Site	BRMO Stone Age site no 1 along the Gamagara RiverN	Archaeological	
130307	HOTZ01	HOTAZEL 280	Artefacts	Grade IV
130308	HOTZ02	HOTAZEL 280	Artefacts	
130309	UMT01	UMTU SUBSTATION	Artefacts	
130197	HMK1a	Mokala Manganese Archaeological site - HMK1a	Deposit	
130464	JTG01	John Taolo Gaetsewe	Artefacts	
130465	JTG02	John Taolo Gaetsewe	Burial Grounds & Graves	
130466	JTG03	John Taolo Gaetsewe	Burial Grounds & Graves	
130495	MKL01	Mokala	Artefacts	
130496	MKL02a	Mokala	Artefacts	
130497	MKL02b	Mokala	Artefacts	
130498	MKL03	Mokala	Artefacts	

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## APPENDIX 2: Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
4388	AIA Phase 1	Peter Beaumont	14/06/2008	Phase 1 Archaeological Impact Assessment Report on Areas at Hotazel Mine on the Farm Hotazel 280, Kgalagadi District Municipality, Northern Cape Province
7018	AIA Phase 1	Wouter Fourie, Jaco van der Walt	31/03/2007	Kalahari Manganese Mines: Heritage Assessment on Umtu 281, Olive Pan 282, Gama 283
7745	AIA Phase 1	Anton Pelsler, Anton van Vollenhoven	03/05/2011	A REPORT ON A HERITAGE IMPACT ASSESSMENT (HIA) FOR A PROPOSED NEW RAIL CROSSING OVER THE GAMAGARA RIVER FOR THE GLORIA MINE OPERATIONS, ASSMANG BLACK ROCK, ON GLORIA 266, NORTH OF HOTAZEL, NORTHERN CAPE
8383	HIA Phase 1	Udo Kusel, M van der Ryst	18/09/2009	Cultural Heritage Resources impact assessment of manganese mining areas on the farms Belgravia 264, Santoy 230, Gloria 226 and Nichwaning 267, at Black Rockm North of Kuruman, Kgalagadi District Municipality, Northern Cape Province.
48871	HIA Phase 1	Anton van Vollenhoven	01/04/2012	A REPORT ON A HERITAGE IMPACT ASSESSMENT FORTHE PROPOSED MAIN STREET 778 (PTY) LTD MINING RIGHT APPLICATION CLOSE TO HOTAZEL, NORTHERN CAPE PROVINCE
49754	Heritage Scoping	Tobias Coetzee	31/07/2012	ARCHAEOLOGICAL SCOPING REPORT FOR THE PROPOSED PROSPECTING FOR IRON ORE AND MANGANESE ORE FOR AMARI MANGANESE (PTY) LTD ON THE FARMS CONSTANTIA 309, SIMONDIUM 308 AND PORTIONS 1, 2, 3 AND 8 OF THE FARM GOOLD 329 IN THE VICINITY OF District Municipality: Kgalagadi Northern Cape Province SOUTH AFRICA
120559	HIA Phase 1	Robert de Jong	16/05/2010	HIA PROPOSED LAND USE CHANGE TO PROVIDE FOR THE EXTENSION OF THE TOWN OF HOTAZEL PHASE III
125274	Heritage Impact Assessment Specialist Reports	Wouter Fourie	22/07/2013	Tshipi & Ntle Manganese Mining: Prospecting on Remaining extent of the farm Wessels 227 and Portions 1 and 2 and the remaining extent of the farm Dibiaghomo 226, near Black Rock in the Northern Cape Province, Heritage Impact Assessment

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128757	Archaeological Specialist Reports	Wouter Fourie	14/05/2013	Prospecting activities on the farm Gloria 266, near Hotazel in the Northern Cape Province Heritage Impact Assessment
129381	HIA Phase 1	Wouter Fourie	17/07/2013	Lehating Heritage Impact Assessment Proposed Lehating Mining (Pty) Ltd underground manganese mine on Portions 1 of the Farm Lehating 714 and Portion 2 of the farm Wessels 227, approximately 20km northwest of Hotazel, Northern Cape Province
132292	HIA Phase 1	Wouter Fourie		Heritage Impact Assessment for the Proposed Lehating Mining (Pty) Ltd underground manganese mine on Portions 1 of the Farm Lehating 714 and Portion 2 of the farm Wessels, 227, approximately 20km northwest of Hotazel, Northern Cape Province
145193	HIA Phase 1	Louisa Hutten, Willem Hutten	18/11/2013	HIA report for Boerdraai 228 and Wessels 227 portion 2
165293	AIA Phase 1	Neels Kruger	18/05/2014	ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF A DEMARCATED SURFACE PORTION ON THE FARM RHODES 269 FOR THE PROPOSED RHODES 1 PHOTOVOLTAIC POWER PLANT & ACCESS ROAD DEVELOPMENT, JOE MOROLONG LOCAL MUNICIPALITY, JOHN TAOLO GAETSEWE DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

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## APPENDIX 3 - Keys/Guides

### Key/Guide to Acronyms

<b>AIA</b>	Archaeological Impact Assessment
<b>DARD</b>	Department of Agriculture and Rural Development (KwaZulu-Natal)
<b>DEA</b>	Department of Environmental Affairs (National)
<b>DEADP</b>	Department of Environmental Affairs and Development Planning (Western Cape)
<b>DEDEAT</b>	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
<b>DEDECT</b>	Department of Economic Development, Environment, Conservation and Tourism (North West)
<b>DEDT</b>	Department of Economic Development and Tourism (Mpumalanga)
<b>DEDTEA</b>	Department of economic Development, Tourism and Environmental Affairs (Free State)
<b>DENC</b>	Department of Environment and Nature Conservation (Northern Cape)
<b>DMR</b>	Department of Mineral Resources (National)
<b>GDARD</b>	Gauteng Department of Agriculture and Rural Development (Gauteng)
<b>HIA</b>	Heritage Impact Assessment
<b>LEDET</b>	Department of Economic Development, Environment and Tourism (Limpopo)
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act, no 28 of 2002
<b>NEMA</b>	National Environmental Management Act, no 107 of 1998
<b>NHRA</b>	National Heritage Resources Act, no 25 of 1999
<b>PIA</b>	Palaeontological Impact Assessment
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SAHRIS</b>	South African Heritage Resources Information System
<b>VIA</b>	Visual Impact Assessment

### Full guide to Palaeosensitivity Map legend

	<b>RED:</b>	VERY HIGH - field assessment and protocol for finds is required
	<b>ORANGE/YELLOW:</b>	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	<b>GREEN:</b>	MODERATE - desktop study is required
	<b>BLUE/PURPLE:</b>	LOW - no palaeontological studies are required however a protocol for chance finds is required
	<b>GREY:</b>	INSIGNIFICANT/ZERO - no palaeontological studies are required
	<b>WHITE/CLEAR:</b>	UNKNOWN - these areas will require a minimum of a desktop study.

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## APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

### DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

### DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

### DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

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**Low coverage** will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

**Medium coverage** will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

**High coverage** will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

## RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

**(1) The heritage resources in the area proposed for development are sufficiently recorded** - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

**(2) The heritage resources and the area proposed for development are only partially recorded** - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area



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- undertaking mitigation measures requested in previous assessments/records of decision.

**(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.**

**Note:**

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

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**APPENDIX 2: Archaeology Field Notes - June 2021**

## NOTES

### Phase 1 Archaeological Impact Assessment

Site ID: Wessels Mine on the farm Wessels 227- NORTHERN CAPE

Phase 1 survey conducted				
CRM Archaeologist	Jan Engelbrecht		Date/s	2021-06-02
Additional surveyors	None			
Type of survey	Pedestrian/Vehicular		Transects	30-50m
Technical equipment	GPS	Garmin Etrex 10 and Locus Maps	Camera	Canon Ixus

## PROJECT PARTICULARS

### Technical information

Project description	
Project name	The proposed upgrade of an existing railway infrastructure by South 32 at Wessels Mine in the Northern Cape
Description	The upgrade will consist of modifications to the staging rail lines and the design of a new rail balloon. The extension of the railway into the new railway balloon measures at approximately 2 500 m long and 25 m wide.
Developer	
South 32: Wessels Mine	
Contact information	Cell: 072 429 6545
Development type	Mining/Industrial
Landowner	
South 32	
Contact information	Contact person: Mr. Wonder Sigwebela Cell: 072 429 6545
Consultants	

Environmental	South 32
Heritage and archaeological	UBIQUE Heritage Consultants and CTS Heritage
Paleontological	Unknown
<b>Property details</b>	
Province	Northern Cape
District municipality	John Taolo Gaetsewe
Local municipality	Joe Morolong
Topo-cadastral map	1:50 000
Farm name	Farm Wessels 227
Closest town	Black Rock, Hotazel and Kuruman
GPS Co-ordinates	27° 7'7.57"S 22°51'22.79"E
Property size	Unknown
Development footprint size	Approximately 4 ha
<b>Land use</b>	
Previous	Agriculture
Current	Mining
Rezoning required	No
Sub-division of land	No
<b>Development criteria in terms of Section 38(1) NHRA</b>	
Yes/No	
Construction of a road, wall, power line, pipeline, canal or other linear forms of development or barrier exceeding 300m in length.	Yes
Construction of bridge or similar structure exceeding 50m in length.	No
Construction exceeding 5000m <sup>2</sup> .	No
Development involving three or more existing erven or subdivisions.	No
Development involving three or more erven or divisions that have been consolidated within the past five years.	No
Rezoning of site exceeding 10 000m <sup>2</sup> .	No
Any other development category, public open space, squares, parks, recreation grounds.	No

## GENERAL ENVIRONMENT, INFRASTRUCTURE AND LANDSCAPE

### Site description

#### Description of the general area affected by development

##### Type of environment

The project area consists of flat sandy plains covered with vegetation towards the east. The largest part of the environment is currently used for mining activities.

### Terrain description

The eastern section of the site footprint is situated just outside of the mine perimeter (fencing of 2,4m high). This section is located on open farmland and is undisturbed, except for a few cement abandoned foundations and one prospecting borehole. This area is mostly flat and sandy.

Towards the north and south of the balloon, the terrain is previously very disturbed by various mining activities such as burrow pit excavations, road construction, construction of clear areas to process ore and loading zones. There is also a large mining heap just east of the mining plant. The area is also scattered with old machinery and industrial debris in certain areas. It is obvious that mining operations in the area have altered this landscape through the years due to construction and ground movement operations.

### Geology

A few scatters of dolomite could be identified on the surface of the ground. Except for the Manganese ore mined at this plant, no significant Geology was identified.

Vegetation	
The undisturbed area as well as certain parts within the mine perimeter the following vegetation was identified:	
<ul style="list-style-type: none"> <li>• <i>Schmidtia kalahariensis</i> (Kalahari Sour Grass)</li> <li>• <i>Acacia melifera</i> (Blackthorn acacia)</li> <li>• <i>Rhigozum trichotomum</i> (Three-Thorn)</li> <li>• <i>Acacia eriloba</i> (Camelthorn Tree)</li> <li>• <i>Stipagrostis uniplumis</i> (Silky Bushman Grass)</li> <li>• <i>Aristida adscensionis</i> (Annual Bristle Grass)</li> </ul>	
Waterways/sources	
No prominent natural waterways were identified on the site footprint. Man made furrows and trenches are present within the disturbed areas.	
Site boundaries	
<b>North:</b> Mining area and neighbouring farms towards the NE. <b>East:</b> Neighbouring farms. <b>West:</b> Mining plant and mining area. <b>South:</b> Mining area.	
Site access	GPS Co-ordinates
South 32 Wessels Mine Security gate then towards the site in a southern, eastern and northern direction from the mining plant	27° 7'7.57"S 22°51'22.79"E
Disturbances	
Natural erosion	No significant natural erosion
Human-made	<ol style="list-style-type: none"> <li>1. Various two track gravel/sand roads throughout the site.</li> <li>2. Excavated borrow pits, quarries present at several places on the site especially around the mine plant.</li> <li>3. Large areas cleared for processing and loading of ore.</li> <li>4. Various disturbed areas previously constructions, abandoned cement foundations in certain areas and the presence of previous prospecting boreholes.</li> </ol>
Notes	
The entire site is very disturbed except for the eastern section of the loop/balloon which is situated in a undisturbed landscape. This undisturbed area covers a minimal area of approximately 1-2 ha.	

## Environmental recording

Way point	Photo number	Description	Location
Site-specific points of interest/ natural significance			
N/A	1 to 4	Contextual images taken from South to North within the undisturbed area adjacent to the mine perimeter.	N/A
N/A	5 to 8	Contextual images taken from North to South within the undisturbed area adjacent to the mine perimeter.	N/A

N/A	9 to 13	Contextual images taken in the NE section of the site footprint towards various directions (NEWS 360°panorama view)	N/A
N/A	14 to 22	Contextual images taken in the Northern section of the site footprint towards various directions (NEWS 360° panorama view)	N/A
N/A	23 to 40	Contextual images taken from within the mine perimeter. This area is significantly disturbed by previous mining activities and construction.	N/A

## HERITAGE RESOURCES RECORDING

### Stone Age Resources Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
N/A	N/A	Type lithic/s Raw material N in m <sup>2</sup> . Context Additional	No finds	N/A	N/A

## HERITAGE RESOURCES RECORDING

### Historical Period Resources Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation
N/A	N/A	Type of feature Material N in m <sup>2</sup> . Context Additional	No finds	N/A	N/A

## HERITAGE RESOURCES RECORDING

## Iron Age/ Agri-pastoral Early Farming Communities Resources Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation	
N/A	N/A	Material N in m <sup>2</sup> . Context Additional	No finds	N/A	<b>N/A</b>	N/A

## HERITAGE RESOURCES RECORDING

### Graves Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation	
N/A	N/A	Grave markers Inscription Graves' Orientation Dimensions/ Extent Additional	No graves located and/or identified	N/A	<b>N/A</b>	N/A

## HERITAGE RESOURCES RECORDING

### Intangible Heritage Resources/ Cultural Landscape Identified

Point ID & Site #	Photo #	Description	Period	Location	Field rating/ Significance/ Recommended Mitigation	
N/A	N/A	Nature Cultural evidence Access Affected community	No intangible resources identified. Interviews with mining officials revealed no oral history or remnants of graves or symbolic heritage.	N/A	<b>N/A</b>	N/A

## IDENTIFIED HERITAGE RESOURCES DISCUSSION

### Specialist comments

Stone Age finds
No Stone Age finds located, identified or recorded.
Iron Age/ Agri-pastoralist Early Farming communities finds
No Iron Age finds located, identified or recorded.
Historical finds
No Historical finds located, identified or recorded.
Identified graves
No graves identified, rcor ded or located on site footprint.
Intangible Heritage/ Cultural Landscape
No intangible heritage recorded. Interviews were done with mining officials.
Other
Due to the extensive disturbed area identified as the proposed development footprint, we concluded that all heritage resources have been destroyed by such disturbances caused by construction and mining activities. The small eastern section of the balloon/ site footprint located within a mostly undisturbed landscape that was thoroughly surveyed on foot and no evidence of any heritage or cultural material was identified in this area on the surface of the ground.

## IDENTIFIED HERITAGE RESOURCES MITIGATION

### Specialist recommendations

Stone Age finds
No mitigation measures. Project may continue.
Iron Age/ Agri-pastoralist Early Farming communities finds
No mitigation measures. Project may continue.
Historical finds
No mitigation measures. Project may continue.
Identified graves
No mitigation measures. Project may continue.
Intangible Heritage/ Cultural Landscape
No mitigation measures. Project may continue.
Other
Due to the nature of the landscape and disturbed site footprint and after our field survey, we see no reason for the development not to continue from a Heritage perspective.

## ADDITIONAL NOTES AND RESOURCES

### Attached Field Data

Filename	File type	Description
HIA Wessels Mine CTS Hotazel	Folder	<ul style="list-style-type: none"> <li>• 40 Jpeg numbered images</li> <li>• 3 GPX files with survey tracks</li> <li>• 1 KMZ file with polygons of disturbed and undisturbed areas</li> <li>• 1 Field Report of AIA and survey</li> </ul>
<b>Additional Notes</b>		
<p>We have to mention that it was quite difficult to gain access to all the areas of the footprint due to the high security level of the mine. Certain areas were out of bounds to survey, but these areas were within the mine perimeter where the site footprint is very disturbed.</p>		



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#### Declaration of independence:

I, Jan Engelbrecht, hereby confirm my independence as a heritage specialist and declare that:

- I am suitably qualified and accredited to act as an independent specialist in this application;
- I do not have any vested interests (either business, financial, personal or other) in the proposed development project other than remuneration for the heritage assessment and heritage management services performed;
- The work was conducted objectively and ethically, in

accordance with a professional code of conduct and within the framework of South African heritage legislation.

  
Signature  
JAC. Engelbrecht

Date: 2021-06-04  
UBIQUE Heritage Consultants



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### APPENDIX 3: HWC Chance Fossil Finds Procedure



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## **CHANCE FINDS OF PALAEOLOGICAL MATERIAL**

*(Adopted from the HWC Chance Fossils Finds Procedure: June 2016)*

### **Introduction**

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material (please see attached poster with descriptions of palaeontological material) during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under s. 38 of the National Heritage Resources Act (no 25 of 1999).

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded.

Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

### **Training**

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO. It is recommended that copies of the attached poster and procedure are printed out and displayed at the site office so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

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### **Actions to be taken**

One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material.

Once a workman notices possible fossil material, he/she should report this to the ECO or site agent. Procedure to follow if it is likely that the material identified is a fossil:

- The ECO or site agent must ensure that all work ceases immediately in the vicinity of the area where the fossil or fossils have been found;
- The ECO or site agent must inform SAHRA of the find immediately. This information must include photographs of the findings and GPS co-ordinates;
- The ECO or site agent must compile a Preliminary Report and fill in the attached Fossil Discoveries: Preliminary Record Form within 24 hours without removing the fossil from its original position. The Preliminary Report records basic information about the find including:
  - The date
  - A description of the discovery
  - A description of the fossil and its context (e.g. position and depth of find)
  - Where and how the find has been stored
  - Photographs to accompany the preliminary report (the more the better):
    - A scale must be used
    - Photos of location from several angles
    - Photos of vertical section should be provided
    - Digital images of hole showing vertical section (side);
    - Digital images of fossil or fossils.

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



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- Exposed finds must be stabilised where they are unstable and the site capped, e.g. with a plastic sheet or sand bags. This protection should allow for the later excavation of the finds with due scientific care and diligence. SAHRA can advise on the most appropriate method for stabilisation.
- If the find cannot be stabilised, the fossil may be collect with extreme care by the ECO or the site agent and put aside and protected until SAHRA advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs.

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

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<b>FOSSIL DISCOVERIES: PRELIMINARY RECORDING FORM</b>		
Name of project:		
Name of fossil location:		
Date of discovery:		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	<i>Lat:</i>	<i>Long:</i>
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole		
Photographs (tick as appropriate and indicate number of the photograph)	<i>Digital image of vertical section (side)</i>	
	<i>Fossil from different angles</i>	
	<i>Wider context of the find</i>	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil Name:		
Contact:		
Recorder Name:		
Contact:		
Photographer Name:		
Contact:		

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