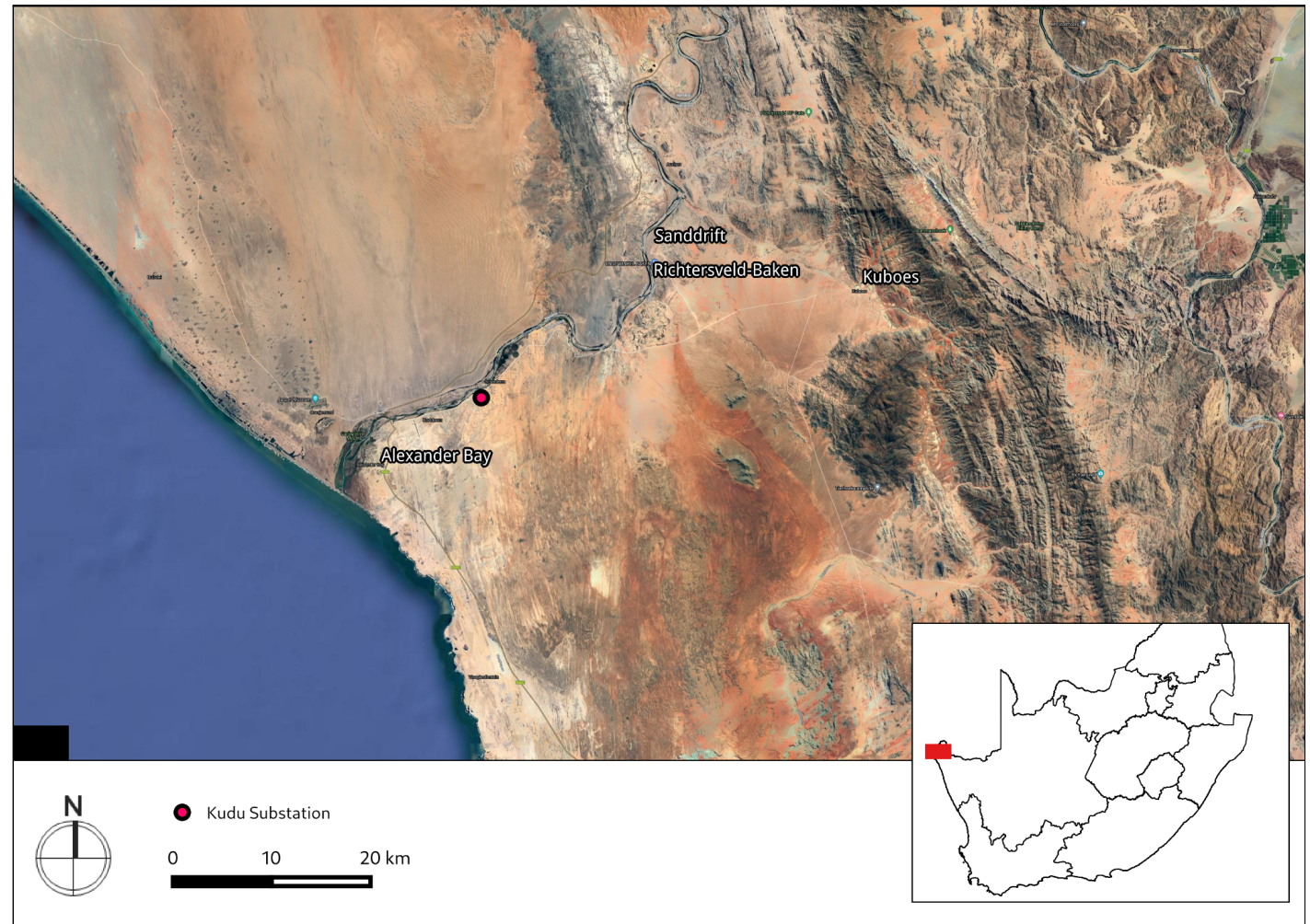




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# HERITAGE SCREENER

CTS Reference Number:	<b>CTS20_219_1</b>
SAHRIS Ref:	<b>16888</b>
Client:	<b>CES</b>
Date:	<b>July 2021</b>
Title:	<b>Proposed amendment to the authorised layout of the Kudu Power Station Power lines, Northern Cape</b>



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

Recommendation by CTS Heritage Specialists	<b>RECOMMENDATION:</b> <b>As the proposed development is unlikely to impact significant archaeological, palaeontological or cultural landscape heritage resources, it is recommended that no further studies in terms of section 38 of the NHRA are required.</b>
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## 1. Proposed Development Summary

The Kudu power station and 400KV lines were authorised for construction in 2017 and included the clearance of vegetation for the expansion of the substation, the development of the new road (over 4m wide) and the development of the structures and infrastructure for the transmission/distribution of electricity. The powerline corridor was authorised based on specific tower positions around the Orange river due to the high sensitivities.

The *proposed amendments* to the EA are to the technological/design aspects of the powerline which crosses the orange river. BUT will remain within the previously authorised corridor and are as follow:

- Switch from 518 series to 540 series
- Reduce the two X 400kv lines to one
- Reduce the number of towers from 20 to 8
- Increase the individual footprint of each tower from 12m<sup>2</sup> to 17m<sup>2</sup>
- Repositioning of an existing tower on the south site of the substation

The motivation for these changes are that they:

- Reduce the overall environmental impact on the area (fewer structures)
- No flashover caused during blowout as new line will be further from the 66kv line
- 540 series allow for longer spans- fewer blowout issues
- Longer span allows for higher clearance over the river
- Overall improved reliability of the line- reduced risk.

## 2. Application References

<b>Name of relevant heritage authority(s)</b>	SAHRA
<b>Name of decision making authority(s)</b>	DFFE

## 3. Property Information

<b>Latitude / Longitude</b>	28°32'46.58"S 16°35'59.15"E
<b>Erf number / Farm number</b>	TBA
<b>Local Municipality</b>	Richtersveld Local Municipality
<b>District Municipality</b>	Namakwa District

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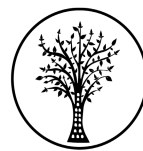
<b>Province</b>	Northern Cape
<b>Current Use</b>	Vacant
<b>Current Zoning</b>	Agriculture
<b>Property Area</b>	

#### 4. Nature of the Proposed Development

<b>Total Surface Area of development</b>	TBA
<b>Maximum Depth of excavation (m)</b>	TBA
<b>Height of development (m)</b>	TBA

#### 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>
x	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):



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## 6. Additional Infrastructure Required for this Development

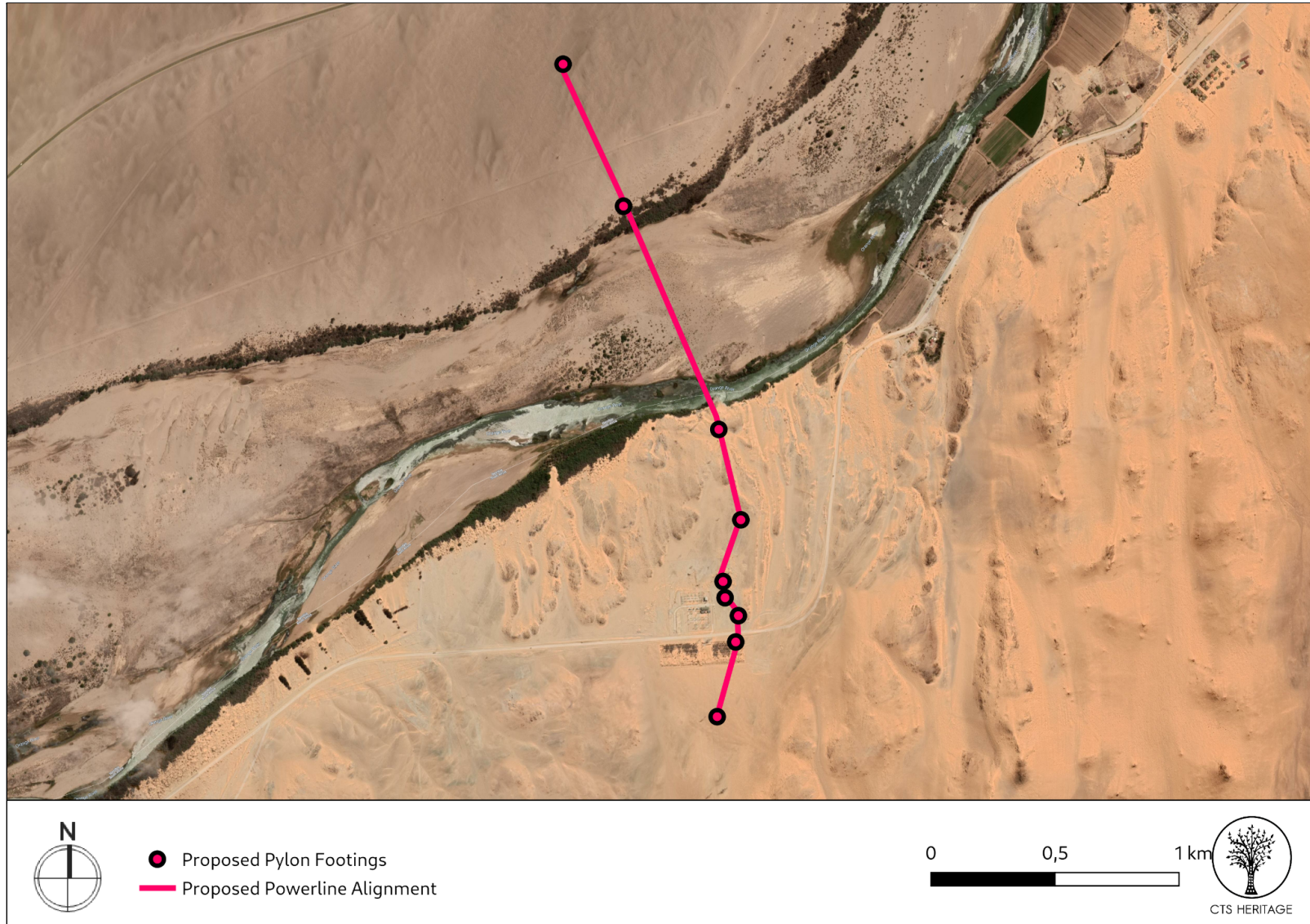
TBA

**CTS Heritage (p4)**

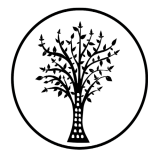
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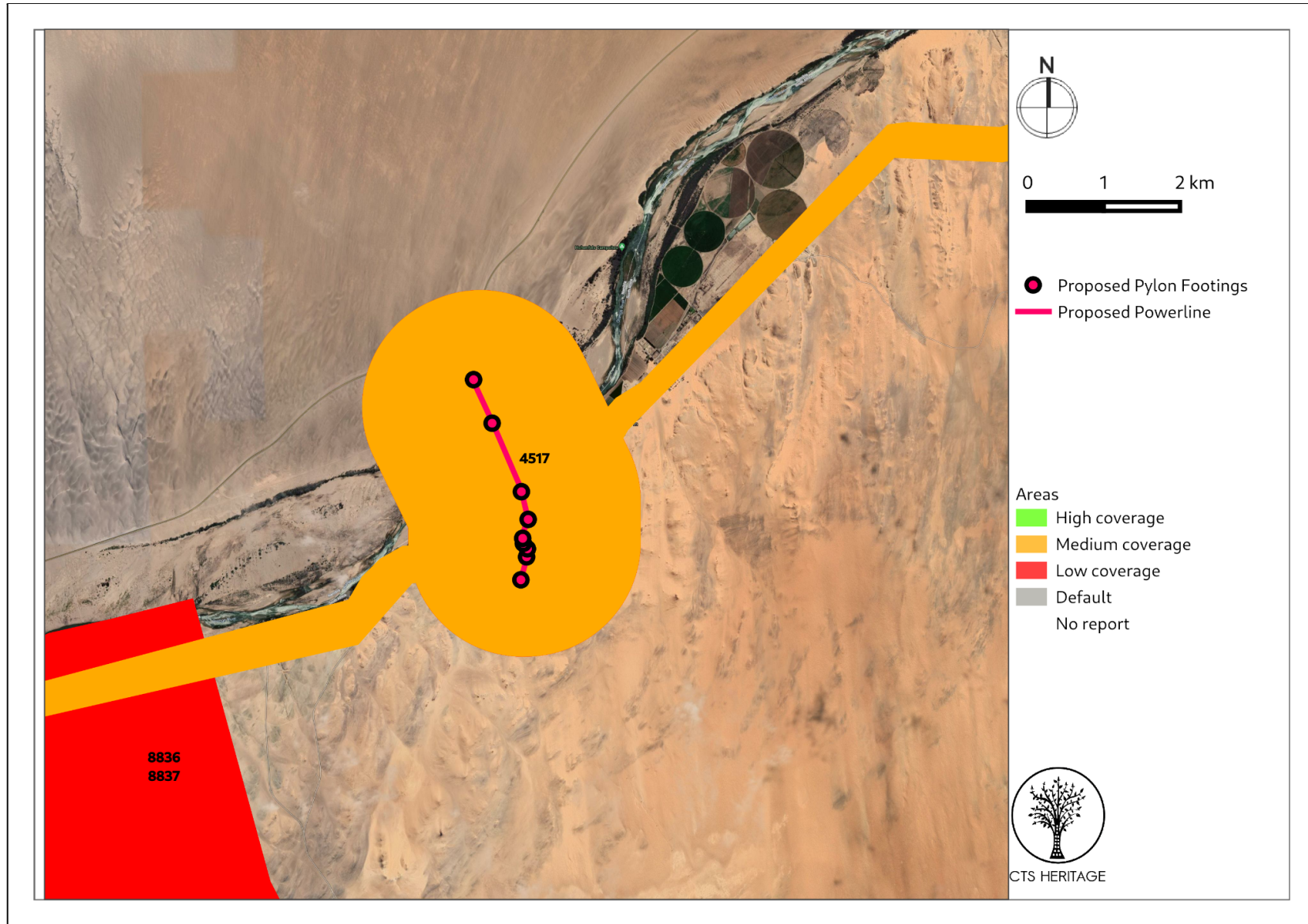
## 7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



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



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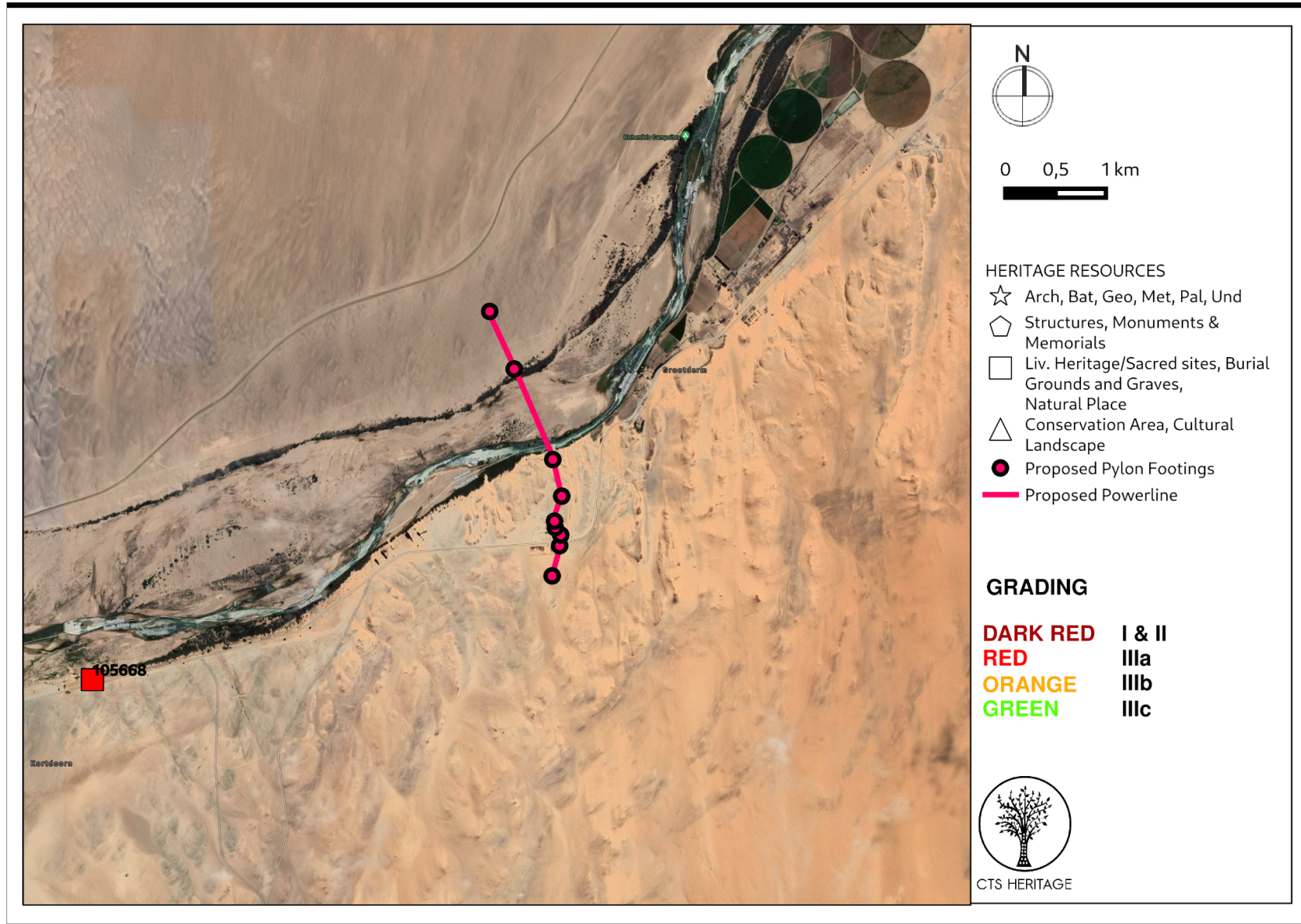


**Figure 2. Previous HIAs Map.** Previous Heritage Impact Assessments covering the proposed development area, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

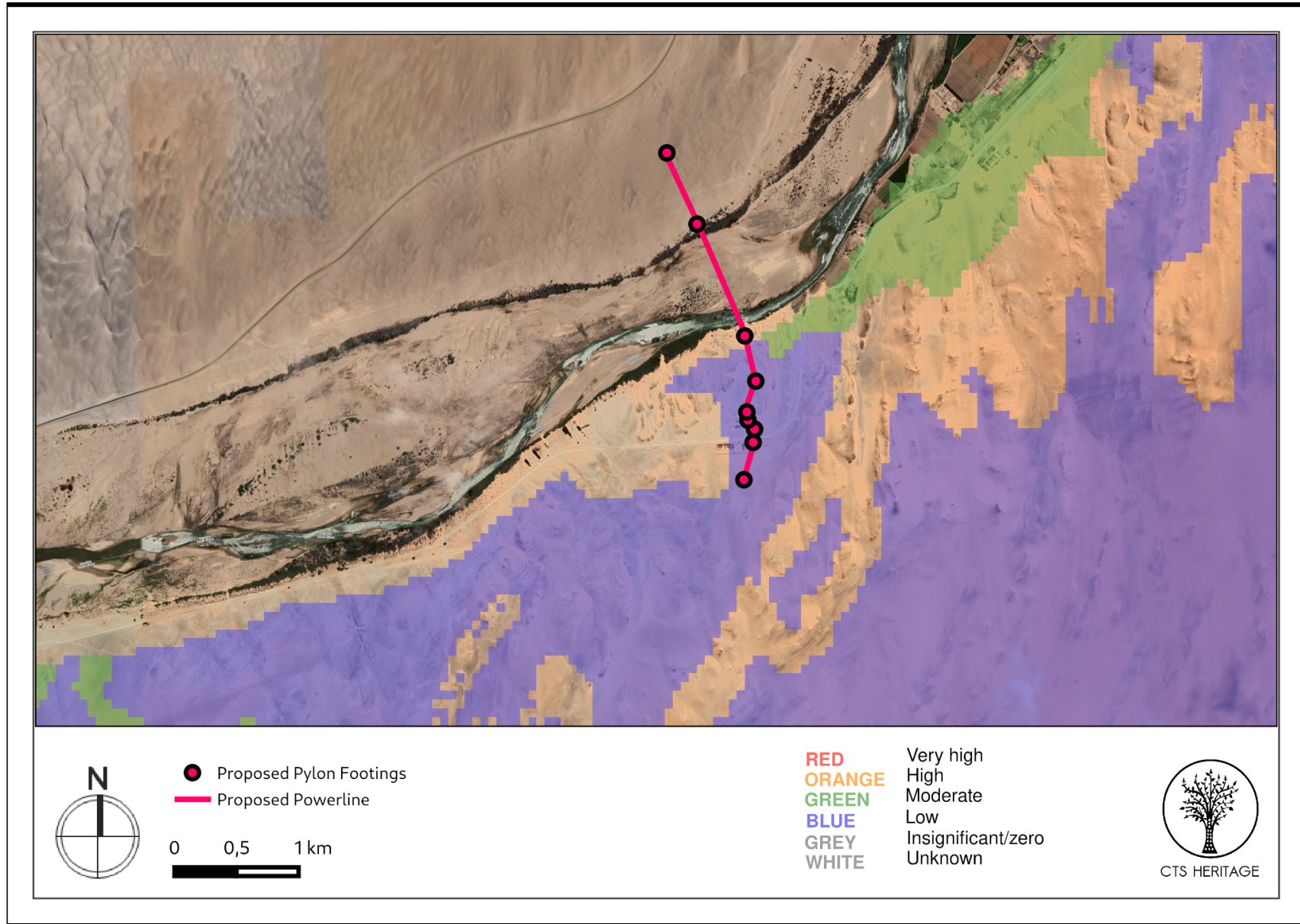
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**Figure 3. Heritage Resources Map.** Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.



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





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## 8. Heritage statement and character of the area

The Kudu power station and 400KV lines were authorised for construction in 2017 and included the clearance of vegetation for the expansion of the substation, the development of the new road (over 4m wide) and the development of the structures and infrastructure for the transmission/distribution of electricity. The powerline corridor was authorised based on specific tower positions around the Orange river due to the high sensitivities. This application is for a proposed amendment to the layout of the powerline alignment, however all amendments will remain within the previously authorised corridor. The previously authorised corridor was assessed for impacts to heritage resources in an HIA completed by Prof. Anton van Vollenhoven in 2016 (SAHRIS ID 374908) and his findings inform the assessment below.

The area assessed in this report is located on the Orange River in the Northern Cape, on the border with Namibia. The town of Alexander Bay lies on the South African side of the river mouth, approximately 11km from the proposed power line. Alexander Bay was established as a town in 1925 after the discovery of diamonds along the West Coast. Due to the distance from the development area, it is not anticipated that the proposed amendments will negatively impact on any significant heritage resources associated with Alexander Bay town.

According to van Vollenhoven (2016), the previously authorised corridor is described as follows: “Apart from the Orange River, the main other environmental feature is the series of hills on the southern bank of the river on the South African side. These create an environment with a topography which is uneven and varies constantly. The slope gradually leads down to the Orange River. The mentioned hills consist mostly of shale rock which shows a large degree of deterioration. Sand is being captured by these hills creating the impression that these are sand dunes. The vegetation cover is low consisting of succulent plants which are spread out in between the rocky surface. Therefore both the vertical as well as the horizontal archaeological visibility was reasonably good. In general the area seems to be quite pristine with natural vegetation. Signs of disturbance include the substation, with recently built infrastructure including buildings and a reservoir, as well as a dirt road through the surveyed area. The hill adjacent to the current substation has been disturbed to a large extent.” Van Vollenhoven (2016) also notes that “the Richtersveld World Heritage Site is situated towards the south-east of the project area. It however is more than 50 km away and therefore no impact is expected”. The primary landmark feature to be impacted is the pristine landscape associated with the Orange River however as noted by Van Vollenhoven (2016), the landscape in the immediate vicinity of the authorised corridor is not pristine and has been previously disturbed through infrastructure development.

In the assessment completed by Van Vollenhoven (2016) for the authorised corridor, “No sites of cultural heritage significance were located during the survey. However stone tools were identified, mostly without context on disturbed areas within the surveyed area”. However he did note that a number of Middle and Later Stone Age artefacts are known from assessments completed on nearby properties. As such, the possibility of impacting Middle and Later Stone Age archaeology is noted despite the findings of Van Vollenhoven’s field assessment (2016). As such, Van Vollenhoven recommended that “A walk-down study should be implemented once the pylon positions are known, to ensure minimal impact on stone tools in the area. It may even be necessary to have an archaeologist present on site when construction of the pylons and the demolition of the indicated hill is being implemented, but the walk-down study will give the necessary guidance in this regard.” However, as the majority of the power line is located within the river bed, and as the archaeological resources identified by Van Vollenhoven (2016) are of low heritage significance, it is not anticipated that any archaeological resources of significance will be negatively impacted by the proposed amended layout.

The authorised corridor is located within an area that has low palaeontological sensitivity according to the SAHRIS Palaeosensitivity Map (Figure 4). Bamford (2016) completed a desktop palaeontological assessment for the authorised corridor. Bamford (2016) found that “This whole region, the Gariep Belt, where the African plate was subducted below the South American plate, around 770-730 Ma, was tectonically and volcanically active and did not provide good conditions for the preservation of any marine or invertebrate fossils. The younger Nama Group and Vanrhynsdorp Group Formations occur far to the south and to the east of Oranjemund, respectively, contain a variety of early trace fossils of the Vendobionta (Gresse et al., 2006).” As such, it is very unlikely that the proposed development will negatively impact on significant palaeontology, however it is recommended that the attached Chance Fossil Finds Procedure be implemented for the duration of construction activities.



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**RECOMMENDATION:**

**As the proposed development is unlikely to impact significant archaeological, palaeontological or cultural landscape heritage resources, it is recommended that no further studies in terms of section 38 of the NHRA are required.**



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## APPENDIX 1

### List of heritage resources within close proximity to the development area from SAHRIS

Site ID	Site no	Full Site Name	Site Type	Grading
105668	KHU01	Khubus 01	Burial Grounds & Graves	III A



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## APPENDIX 2

### Reference List from SAHRIS

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
4517	AIA Phase 1	Cobus Dreyer	28/04/2005	Archaeological Assessment of the Proposed Upgrading of the Gravel Road Between Alexander Bay and Khubus, Richtersveld, Northern Cape
8836	PIA Phase 1	John Pether	01/11/2007	Coastal Plain Deposits of Namaqualand: Historical Palaeontology and Stratigraphy
8837	PIA Phase 1	John Pether	28/09/2007	Palaeontological Heritage Impact Assessment and Mitigation Approaches
368522	Heritage Scoping	Prof. Anton van Vollenhoven	22/08/2016	HIA Eskom Kudu-Oranjemund Northern Cape
368531	PIA Desktop	Marion Bamford	22/08/2016	PIA Eskom Kudu-Oranjemund Northern Cape
374908	HIA Phase 1	Prof. Anton van Vollenhoven	19/08/2016	HIA Final Kudu Oranjemund



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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:

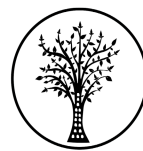
- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

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

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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.

**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:

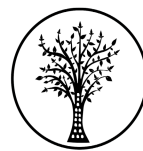
**(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed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



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- 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
- 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.