CTS HERITAGE

# HERITAGE SCREENER

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| CTS Reference Number: | **CTS22_080** |
| SAHRIS Case | |
| Client: | **ACED** |
| Date: | **May 2022** |
| Title: | **Proposed development of the Castle to Hydra OHL near De Aar** |

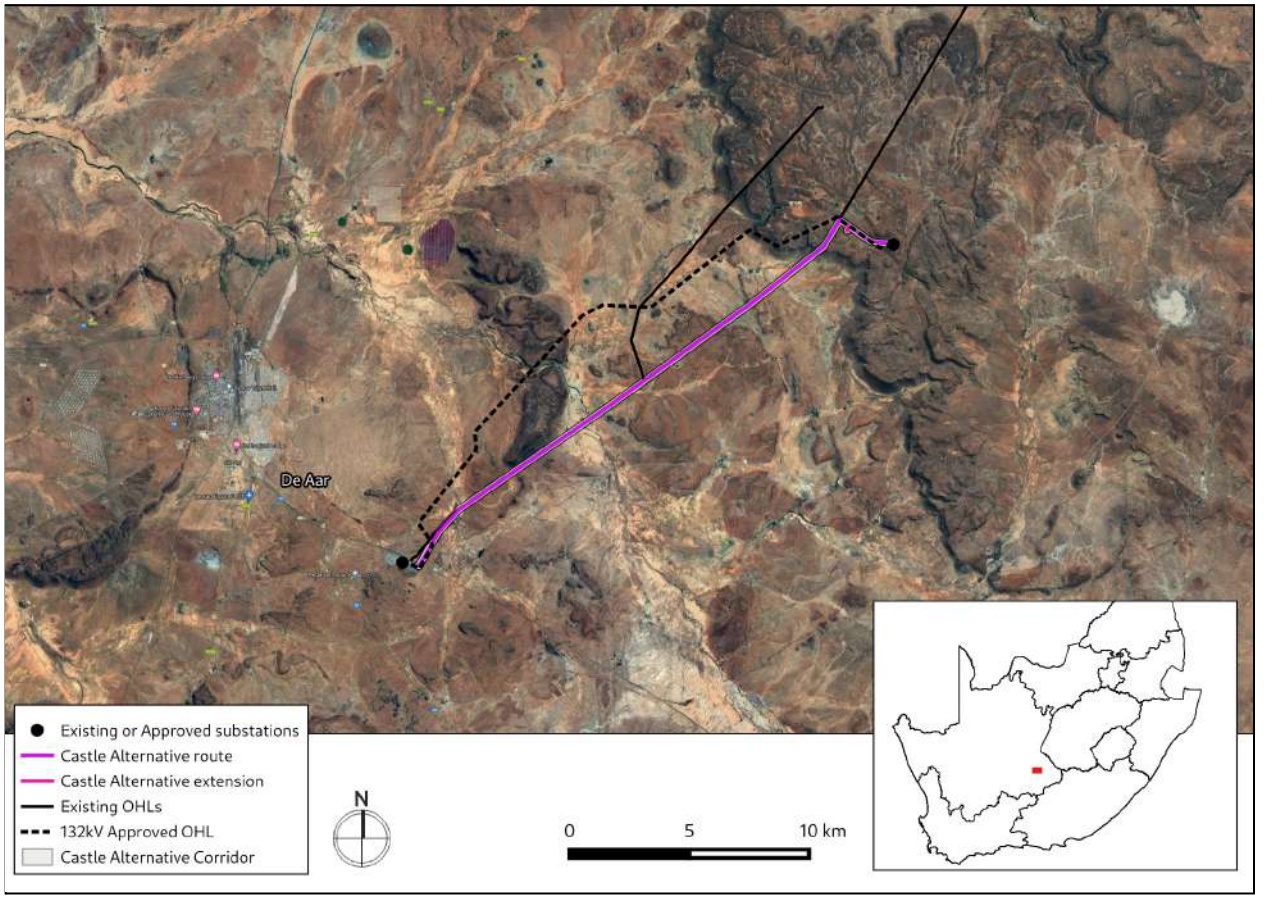


**Figure 1a**. Satellite map indicating the location of the proposed development in the Northern Cape Province

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| CTS Heritage Recommendation: | **RECOMMENDATION**<br>**Based on the information available, the area proposed for development has been thoroughly assessed and we therefore know that significant archaeological, palaeontological and cultural landscape heritage resources are located within the grid corridor. No impact to these significant resources should take place as long as the recommendations included in Gribble and Euston Browne (2021) are implemented. As the area has been thoroughly surveyed, it is recommended that no further heritage assessments are required in terms of section 38(3) of the NHRA. The attached Fossil Chance Find Protocol must be implemented for the duration of construction activities and the recommendations included in Gribble and Euston-Browne (2021) must be implemented (Appendix 1.2).** |

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# 1. Proposed Development Summary

The Proponent obtained Environmental Authorisation (EA) for the construction of the proposed Castle WEF and associated infrastructure, near De Aar (DEA ref: 14/12/16/3/3/2/278) on 8 May 2015. Subsequently the EA has been amended several times[1] to account for changes to the proposed project's scope. Moreover, an EA for a proposed OHL from Castle to the Hydra MTS was obtained by the proponent (DEA ref: 14/12/16/3/3/1/1351), on 5 October 2018. During the several years ensuing these EAs the number of Renewable Energy (RE) developments and associated infrastructure such as transmission lines planned for around the town of De Aar (specifically the Hydra MTS) has increased significantly. This can mainly be attributed to two factors, the availability of RE resources and ability of RE developments to feed into the national grid at the Hydra MTS. The congestion of RE infrastructure has subsequently led to the OHL authorised (DEA ref: 14/12/16/3/3/1/1351) to evacuate electricity generated from the Castle WEF to become unfeasible. Consequently, the Proponent has identified a feasible alternative OHL route to connect the Castle WEF to the Hydra MTS. The new alternative includes in part a new OHL (Section A) and in part the upgrading of an existing OHL (Section B) as well as a small section that could potentially feed into the planned (authorised but not built) De Aar South WEF substation (Section C).

The site of the Castle WEF which the proposed OHL will connect to is located approximately 26 kilometres (km) east of De Aar and the existing Hydra MTS is approximately 7 km southeast of De Aar, in the Northern Cape Province (Figure 1). The site is bordered in the west by the N10 from where access can be gained through unsurfaced roads and jeep tracks. The entire proposed OHL is situated in the Pixley ka Seme District Municipality and the majority within Emthanjeni Local Municipality (Ward 6) although a small section of the proposed eastern section of the OHL falls within the Renosterberg Local Municipality (Ward 1). The OHL will cross over several farm portions as provided below.

The proposed development entails the construction of an OHL required to connect the Castle WEF to the national Eskom electricity grid at the Hydra MTS. The Proponent (or their successor in title) proposes to develop the grid connection infrastructure under a Self- Build agreement with Eskom. It is anticipated that construction would commence within 5 years of the date of authorisation (if granted), and the construction phase would last approximately 6-18 months. Once construction of the grid connection infrastructure is complete, it is envisaged that the infrastructure (and the associated Environmental Authorisation, if granted) will be ceded to Eskom as per Eskom's requirements. Eskom is thus expected to be the eventual owner of the infrastructure and will be responsible for the long-term operation and maintenance of the grid connection infrastructure. Alternately, pending confirmation from Eskom, part or all of the grid connection infrastructure will be owned and maintained by the Proponent instead of Eskom (i.e. Own-Build agreement).

The proposed infrastructure is expected to be permanent and will remain in place for the duration of the lifespan of the associated Castle WEF (20 years or more). Note that the construction of the proposed grid connection infrastructure is dependent on the construction timelines of the associated Castle WEF, which are not yet known. If/when the WEF are decommissioned at some point in the future, the grid connection infrastructure may also be decommissioned. The owner of the grid connection infrastructure (Eskom, or their successor in title) would be responsible for the decommissioning phase.

**Table 1: Project Component Details**

| Component | Description |
|---|---|
| **Overhead Powerline (OHL)** | 132kV to 400kV single- or double-circuit<br>Extending from the authorised Castle WEF collector substation to the Eskom Hydra MTS.<br>OHL will be located within a servitude of up to 32m wide to be positioned within a 300m wide corridor (a 300m wide corridor assessed as part of this BA to allow micro-siting).<br>Total Length ≈25,8km<br>● Section A≈13,1km new OHL<br>● Section B ≈12,4km upgrading existing 132kV OHL from the De Aar South WEF to an up to 400kV maximum capacity.<br>● Section C ≈300m from Section A to the proposed De Aar 2 South Switching Station<br><br>Temporary 132kV OHL of ≈12,4km to be constructed alongside the existing De Aar South OHL to be upgraded as a temporary bypass. |
| **OHL Pylons** | Up to 45m in height (most structures will be up to 32m tall, only increasing to up to 45m when crossing the railway line, existing overhead transmission line and public road (all adjacent the Hydra MTS), depending on the minimum clearance specified by the road, OHL and rail authorities).<br>Monopole (Self-supporting or stayed) and/or lattice may be used.<br>Disturbance footprint per pylon of up to 10m by 10m (100m$^2$) |
| **OHL footprint** | Length ≈25,8km<br>Construction road / service track (jeep track) width ≈4m (or less)<br>OHL footprint ≈10,32ha (25,8km x 4m), (consideration must be given that part of this road will use existing farm roads and/or WEF roads)<br>Approximate number of pylons (based on average 150m average between pylons) ≈172<br>Pylon's disturbance footprint ~1,72ha (172 x 100m$^2$) |
| **Laydown Areas** | Temporary laydown area of ≈5000m$^2$ will be required (authorised Castle WEF Laydown areas to be utilised). |
| **Site Access** | The existing approved access roads to the Castle WEF substation will be used to access the proposed Section A adjacent to the authorised Castle WEF. Section A and C may require a service track (jeep track) along the OHL route for construction and maintenance purposes. Section B (upgrade section) and the bypass OHL will use existing tracks as far as possible. |

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## 2. Application References

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| **Name of relevant heritage authority(s)** | SAHRA |
| **Name of decision making authority(s)** | DFFE |

## 3. Property Information

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| **Latitude / Longitude** | 30°39'10.26"S 24°11'0.82"E |
| **Erf number / Farm number** | Portion 13 of Farm 165 Vendussie Kuil<br>Portion 12 of Farm 165 Vendussie Kuil<br>Portion 3 of Farm 5 Wagt en Bittje (Hydra)<br>Portion 1 of Farm 5 Wagt en Bittje<br>Remainder of Farm 5 Wagt en Bittje<br>Remainder of Farm 144 Hydra<br>Portion 3 of Farm 3 Carolus Poort<br>Portion 4 of Farm 3 Carolus Poort<br>Portion 2 of Farm 3 Carolus Poort<br>Remainder of Farm 2 Slingers Hoek<br>Portion 2 of Farm 2 Slingers Hoek |
| **Local Municipality** | Emthanjeni |
| **District Municipality** | Pixley ka Seme |
| **Province** | Northern Cape |
| **Current Use** | Agriculture with approved PV facility |
| **Current Zoning** | Agriculture |

## 4. Nature of the Proposed Development

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| **Depth of excavation (m)** | TBA |
| **Height of development (m)** | Max 45m |
| **Total Area** | 26km x300m corridor |

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## 5. Category of Development

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| **x** | **Triggers: Section 38(8) of the National Heritage Resources Act** |
| | **Triggers: Section 38(1) of the National Heritage Resources Act** |
| 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- |
| x | a) exceeding 5 000m$^2$ 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$^2$ |
| | 5. Other (state): |

## 6. Additional Infrastructure Required for this Development

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| Additional infrastructure listed under project summary. |

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

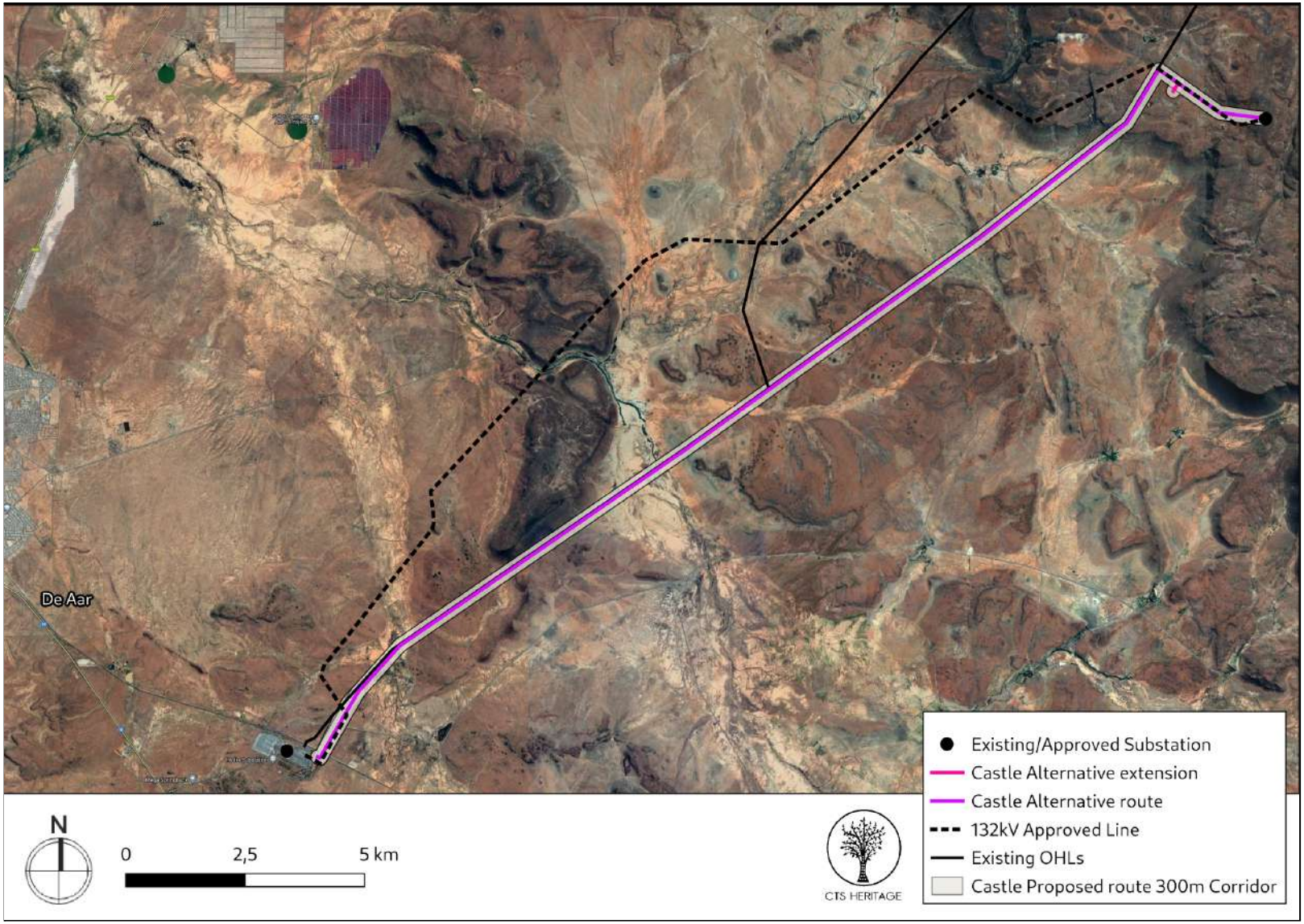


**Figure 1b Overview Map**. Satellite image (2019) indicating the proposed development area at closer range.

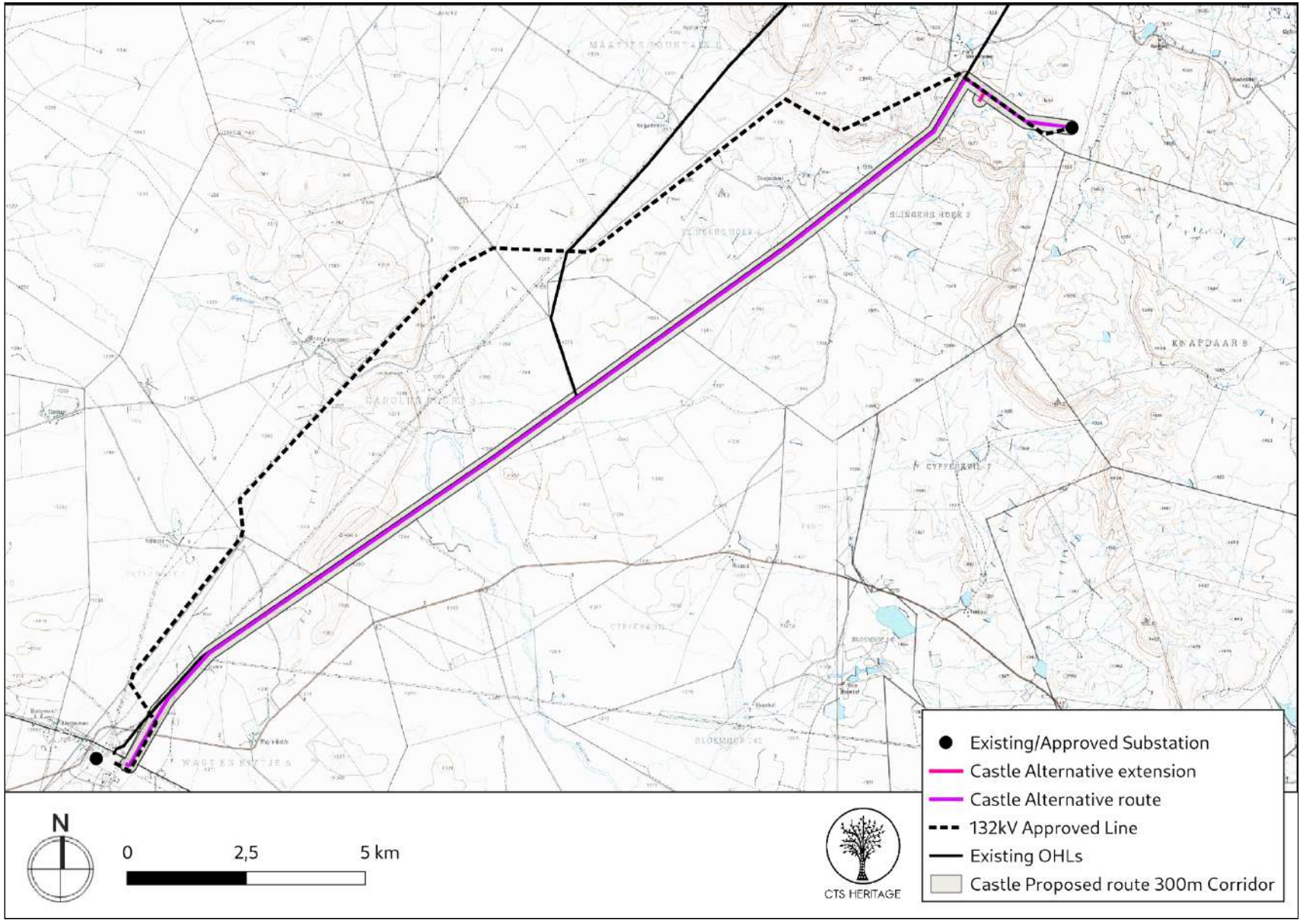


**Figure 1c Overview Map**. 1:50 000 Topo Map indicating the proposed development area at closer range.

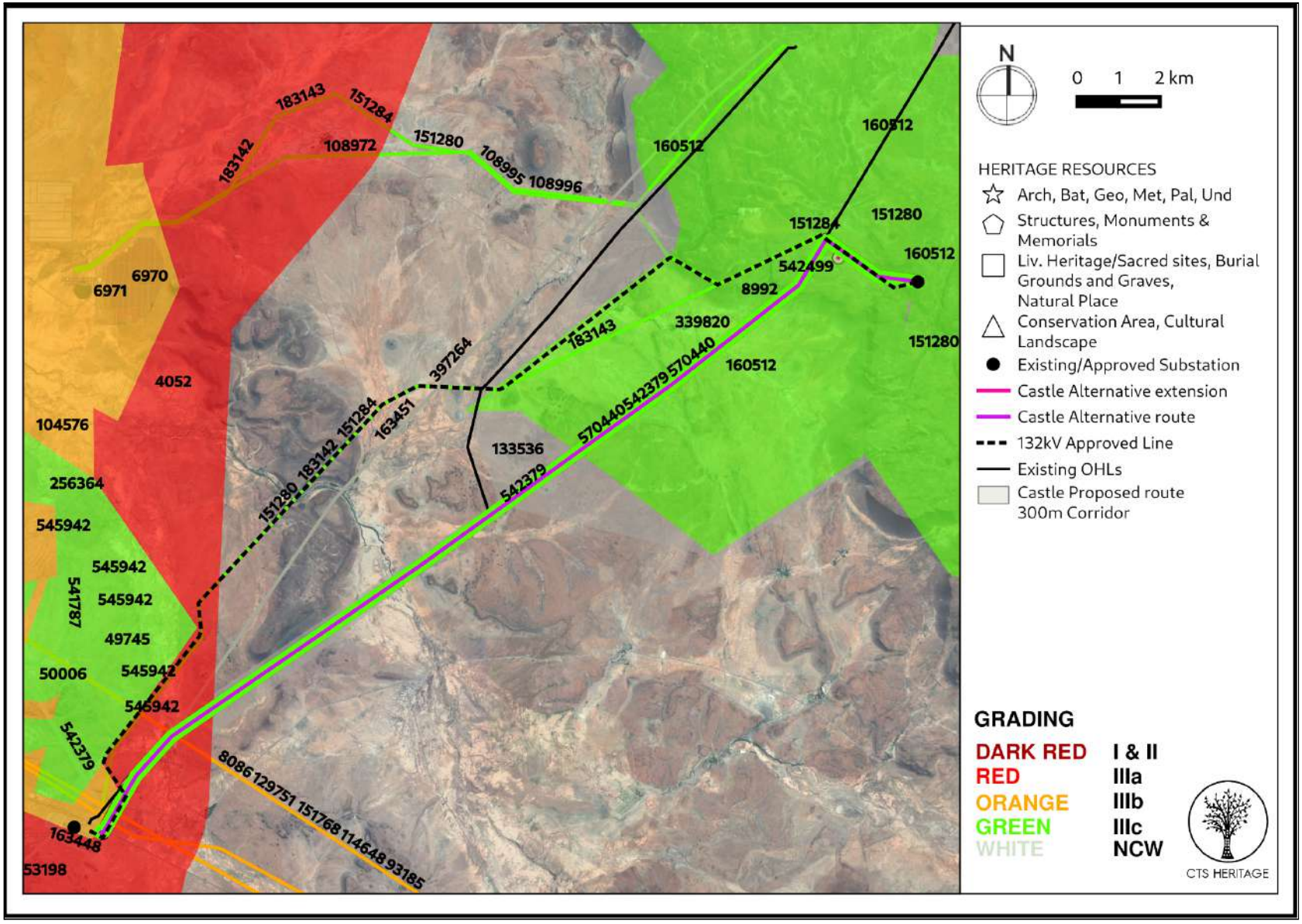


**Figure 2a. Previous HIAs Map.** Previous Heritage Impact Assessments surrounding the proposed development area within 10km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

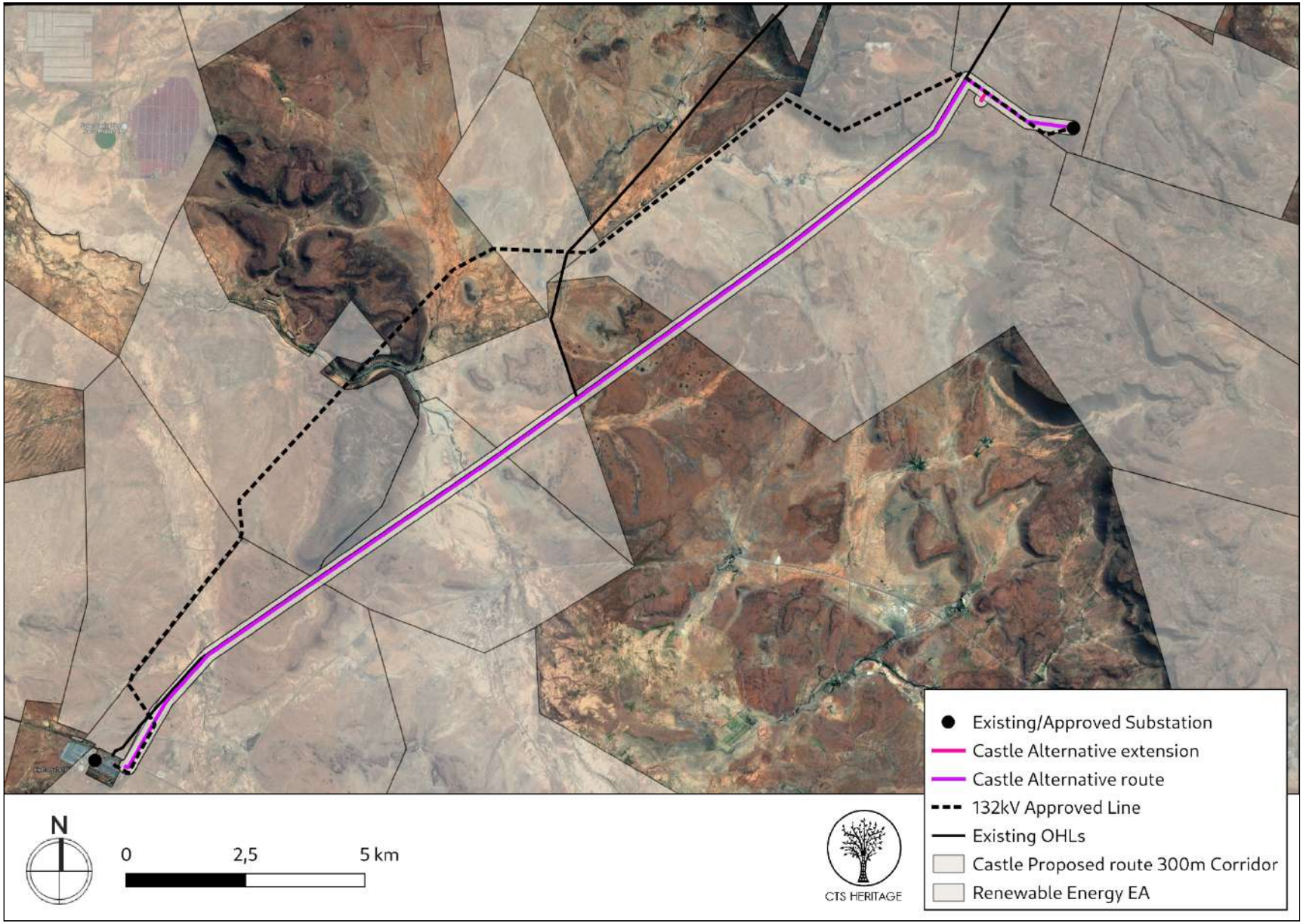


**Figure 2b. Environmental Authorisations.** Previous Environmental Authorisations issued for Renewable Energy Projects in the vicinity of the proposed development

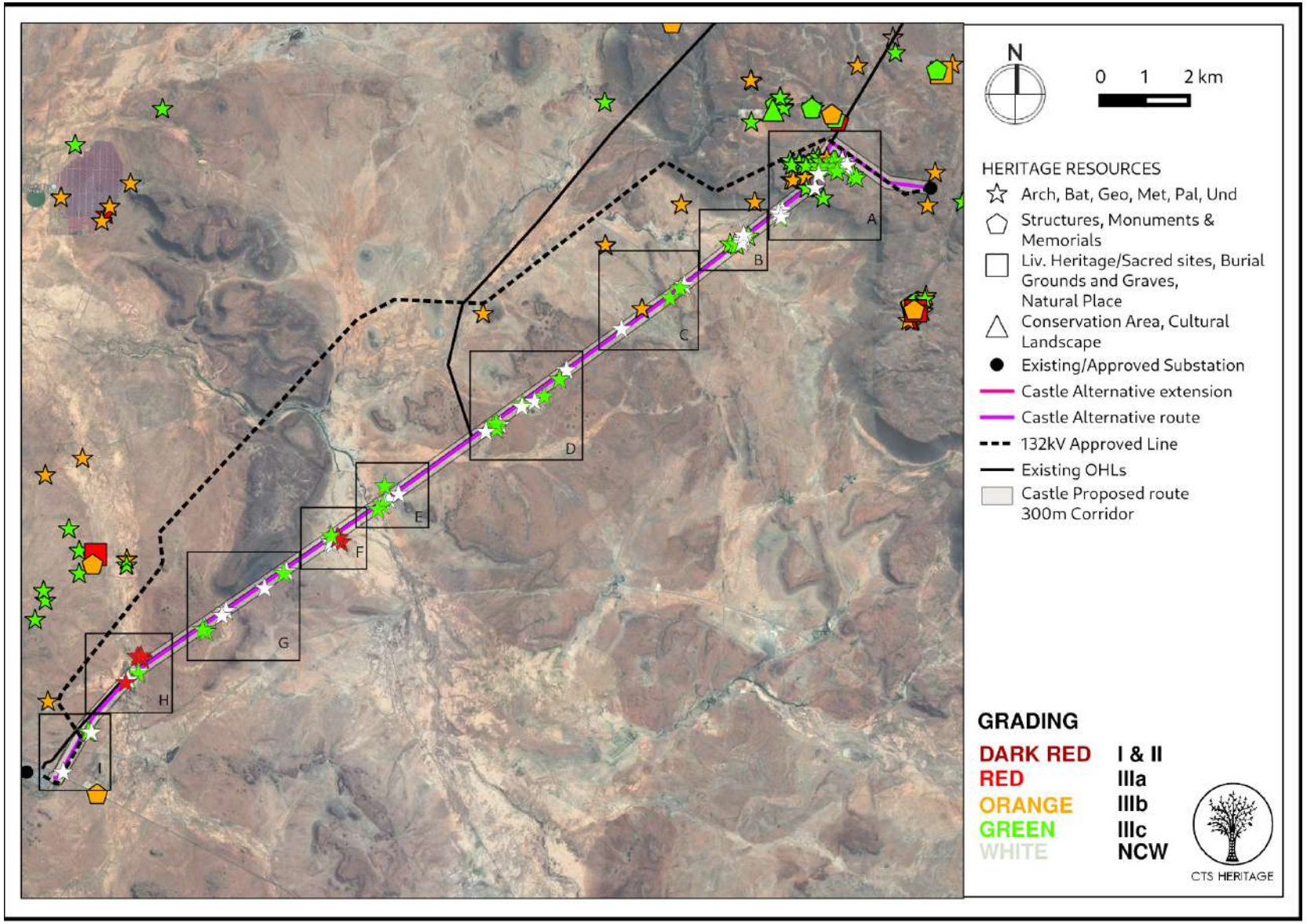


**Figure 3. Heritage Resources Map.** Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for a full description of heritage resource types.

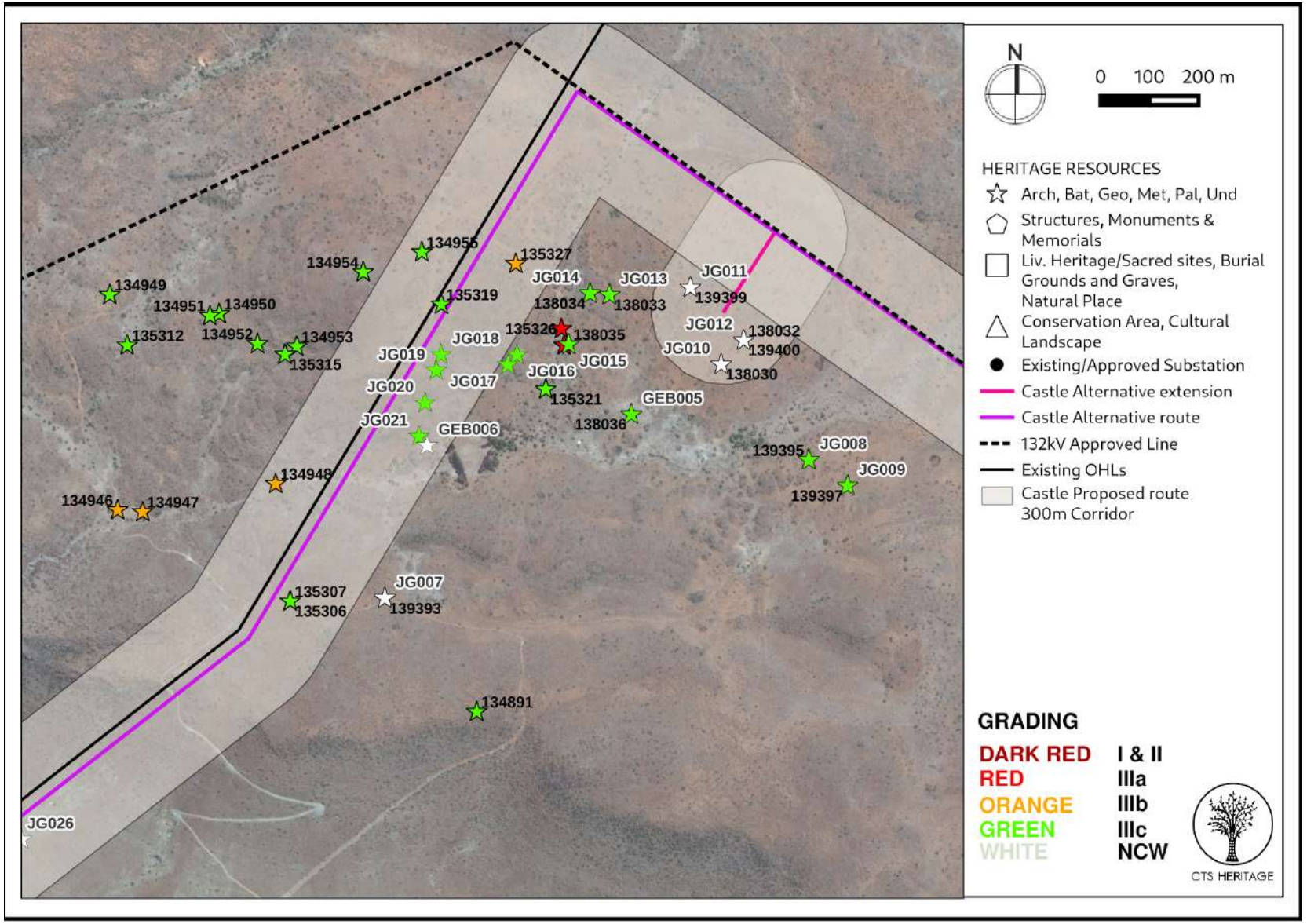


**Figure 3a. Heritage Resources Map.** Inset A. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

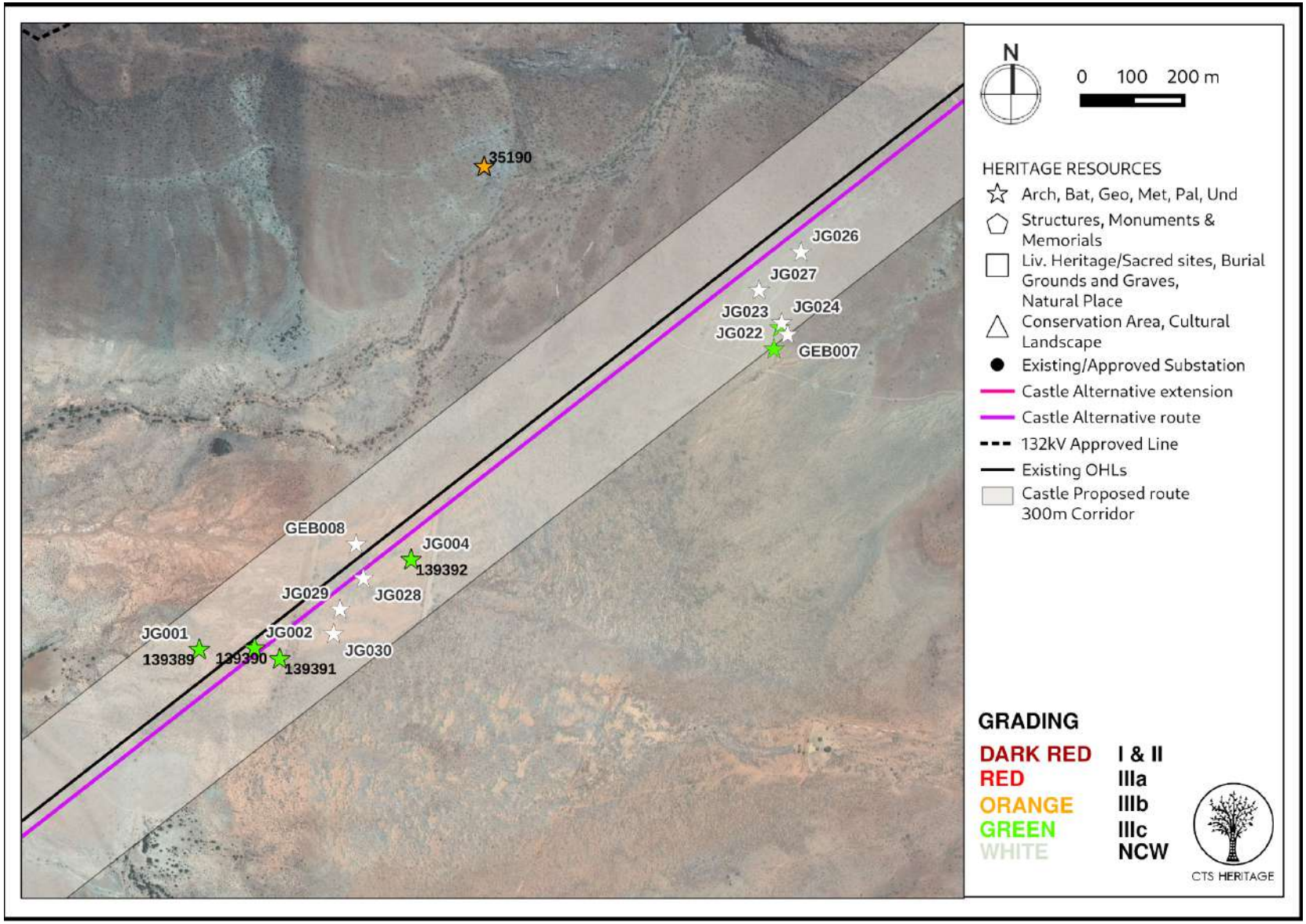


**Figure 3b. Heritage Resources Map.** Inset B Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

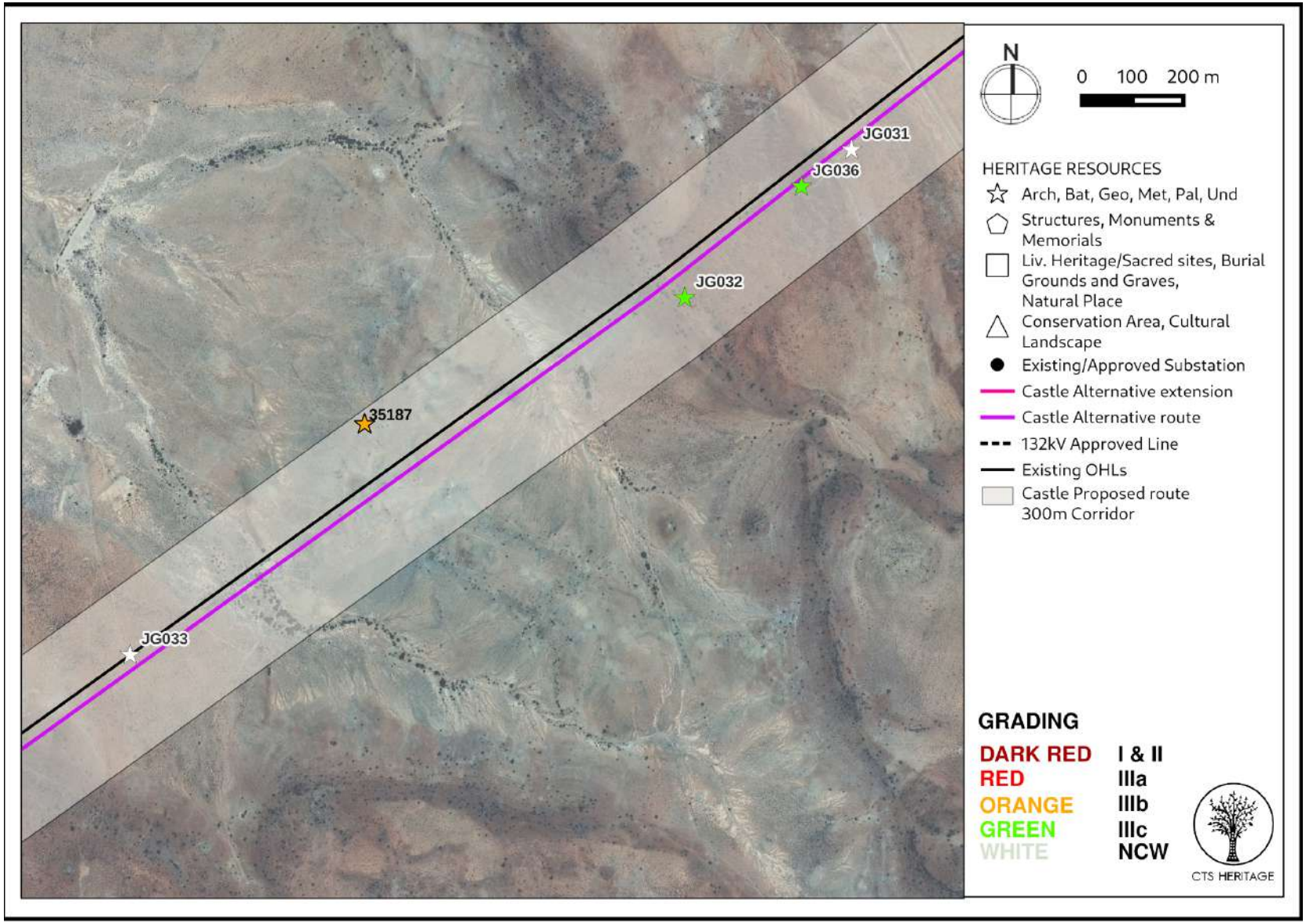


**Figure 3c. Heritage Resources Map.** Inset C. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

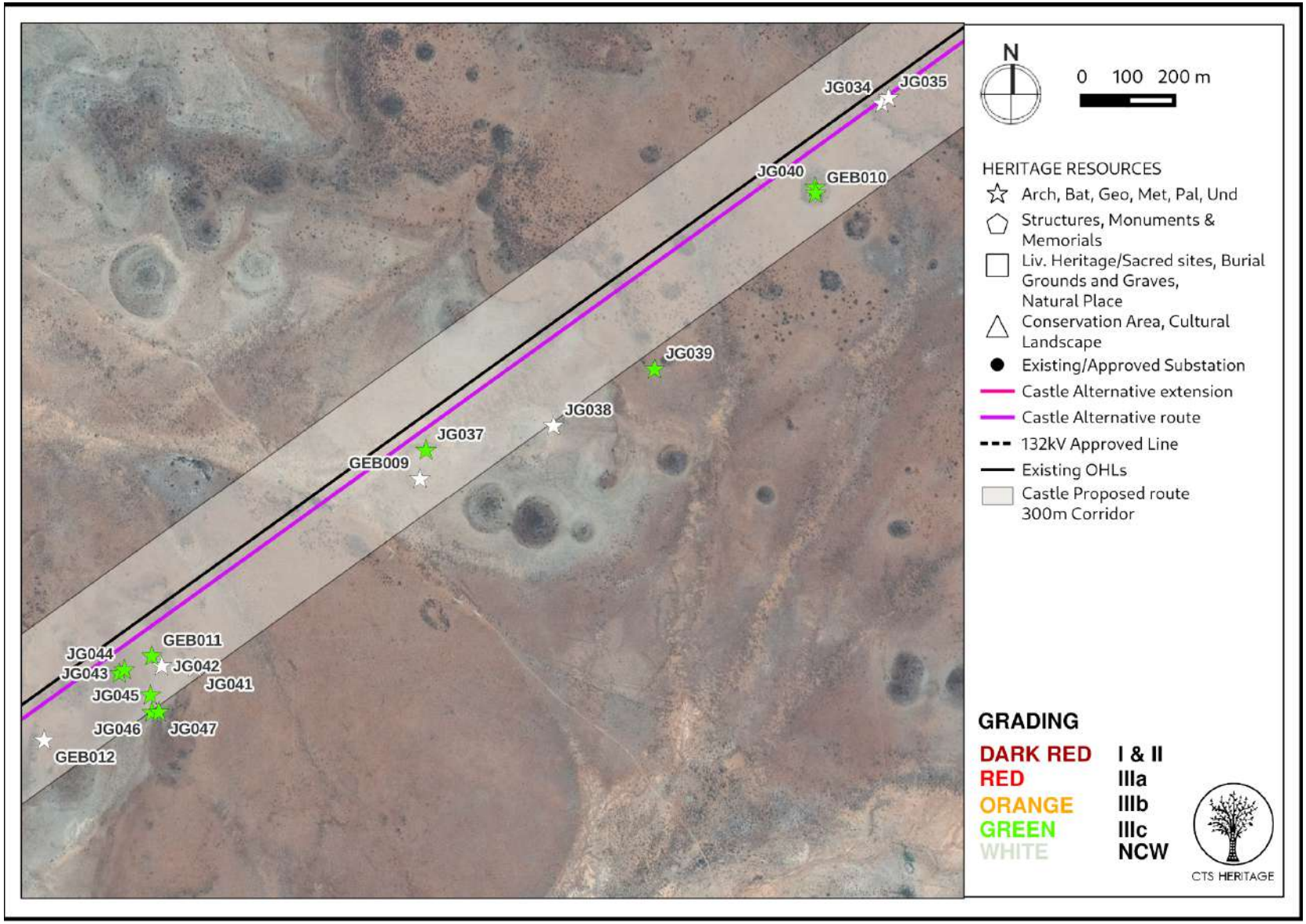


**Figure 3d. Heritage Resources Map.** Inset D. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

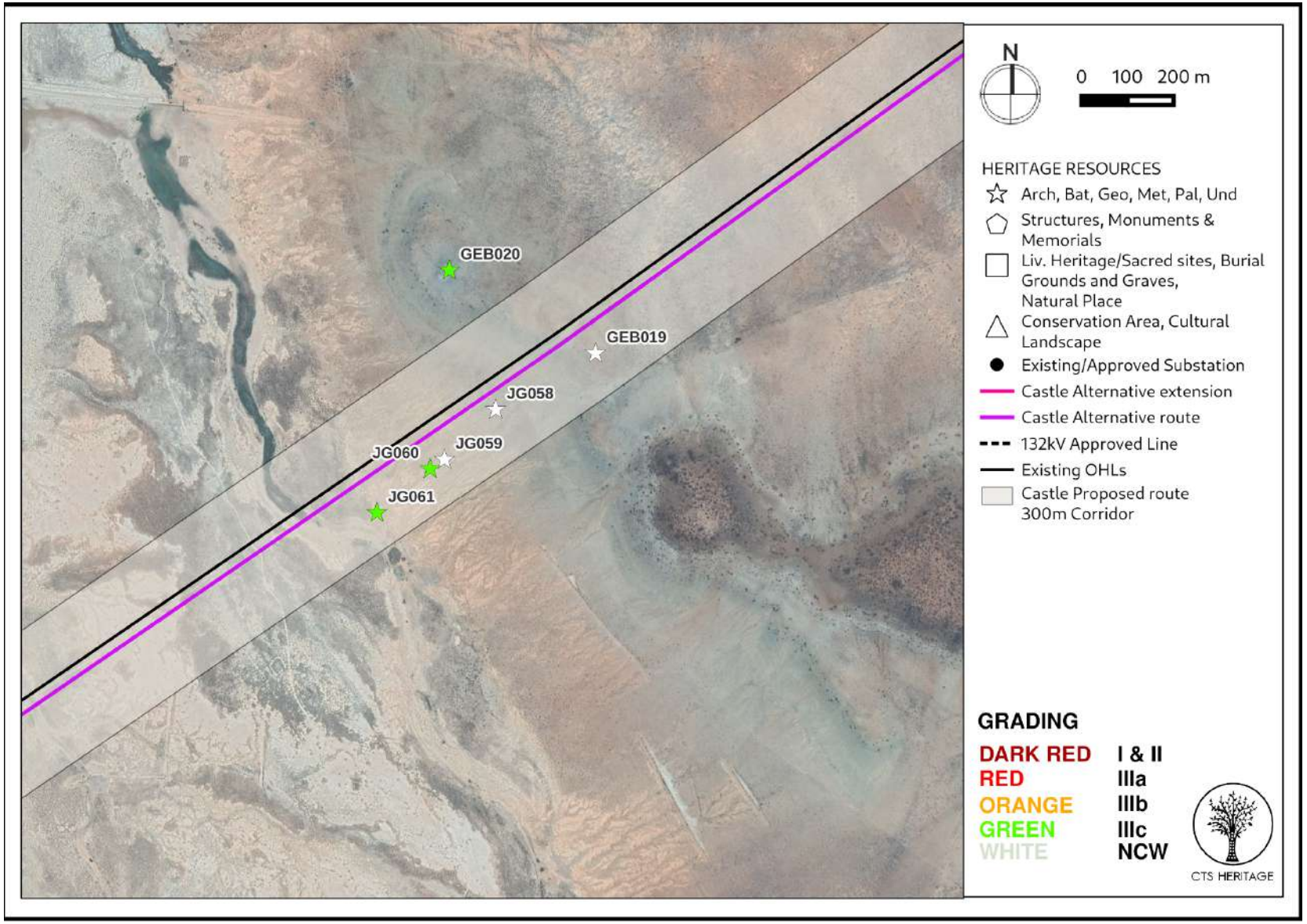


**Figure 3e. Heritage Resources Map.** Inset E. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

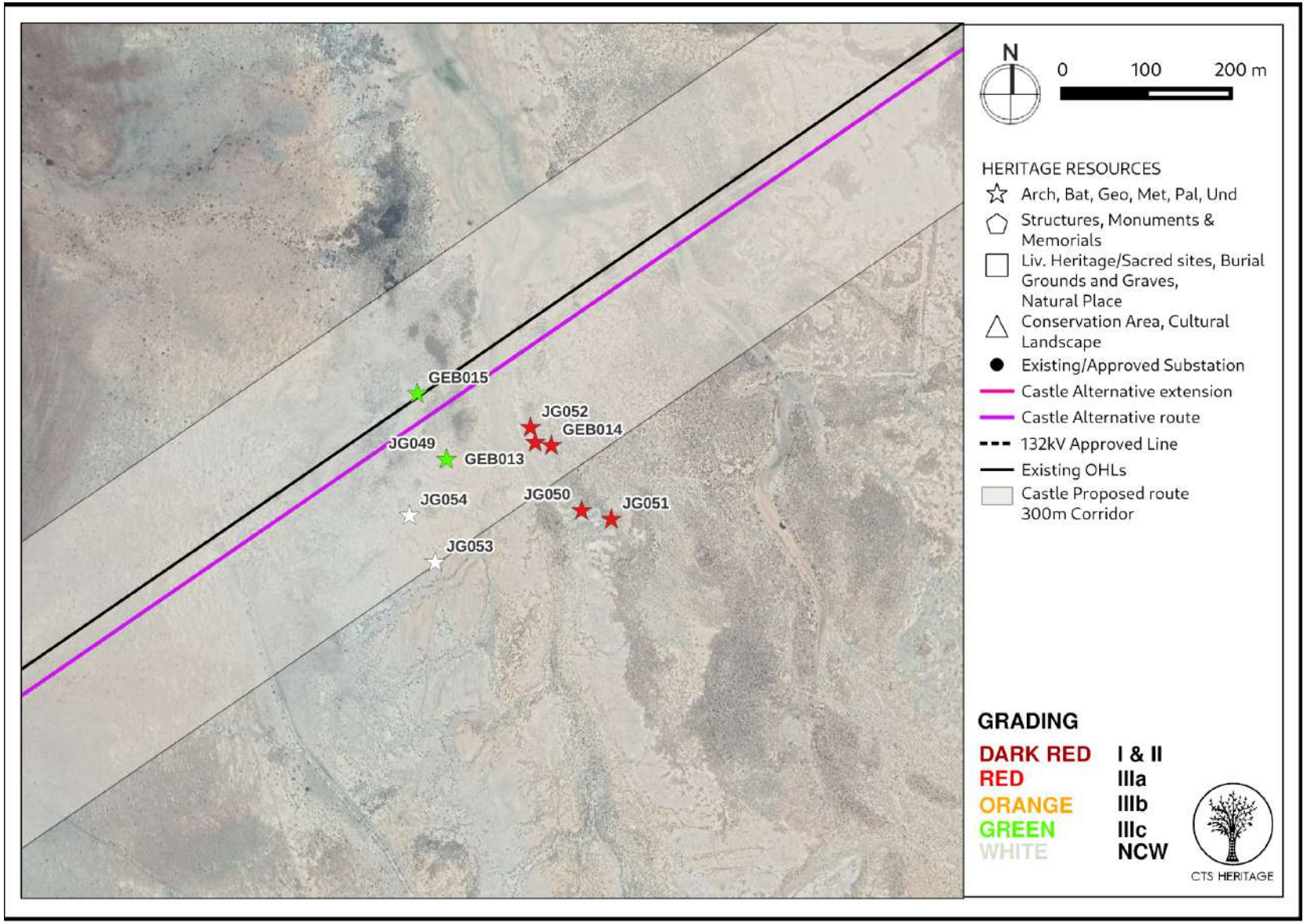


**Figure 3f. Heritage Resources Map.** Inset F. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

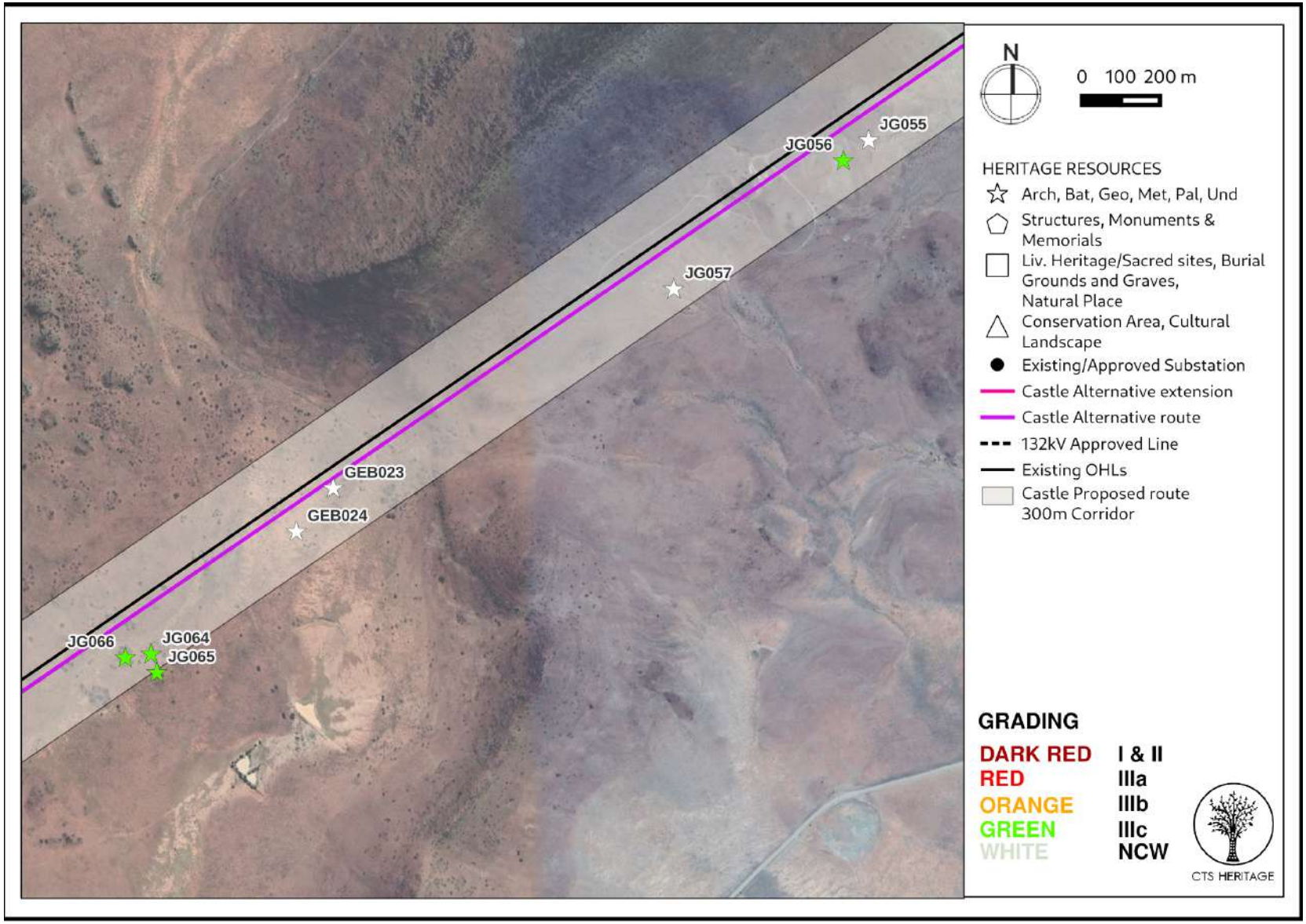


**Figure 3g. Heritage Resources Map.** Inset G. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

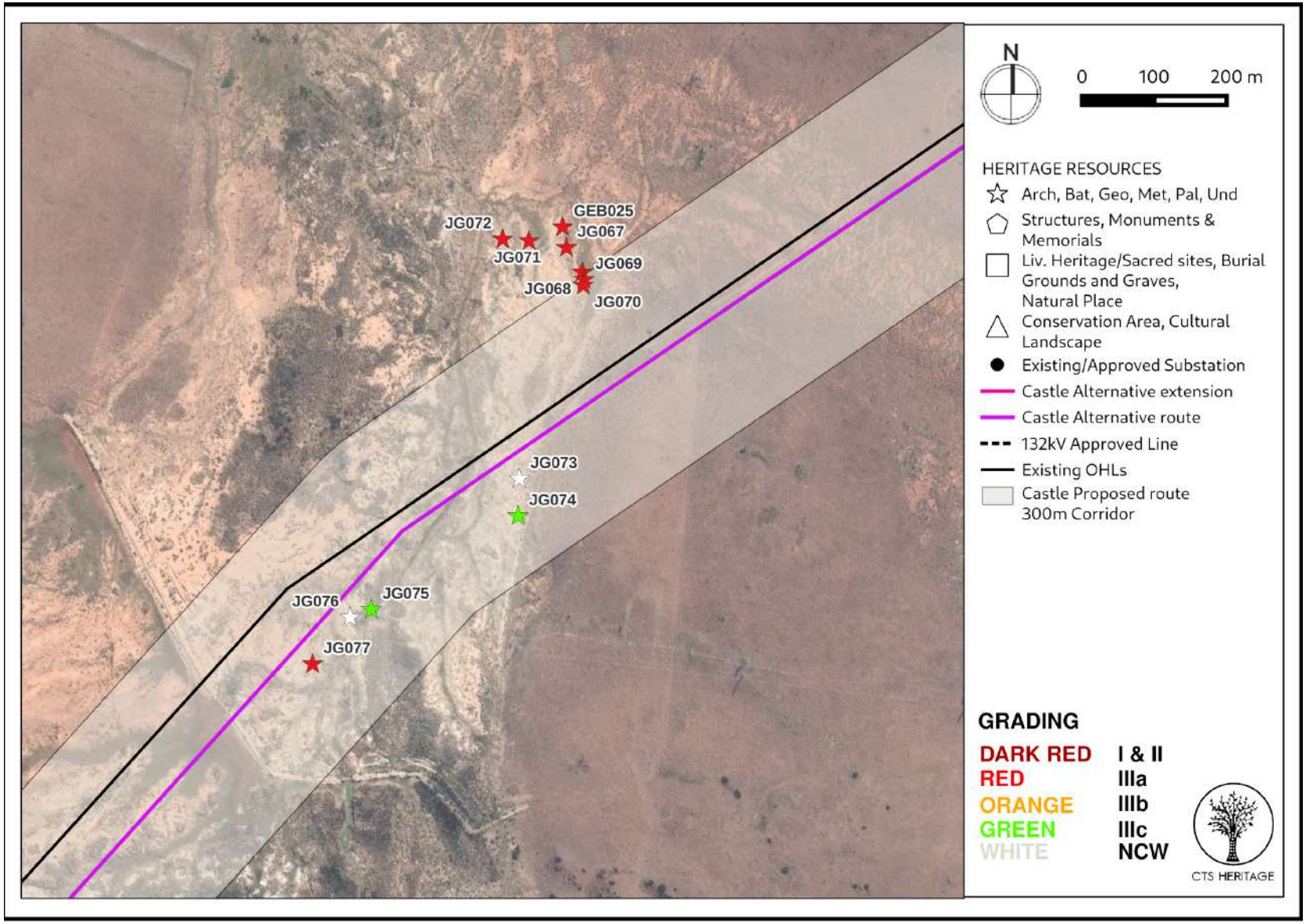


**Figure 3h. Heritage Resources Map.** Inset H. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

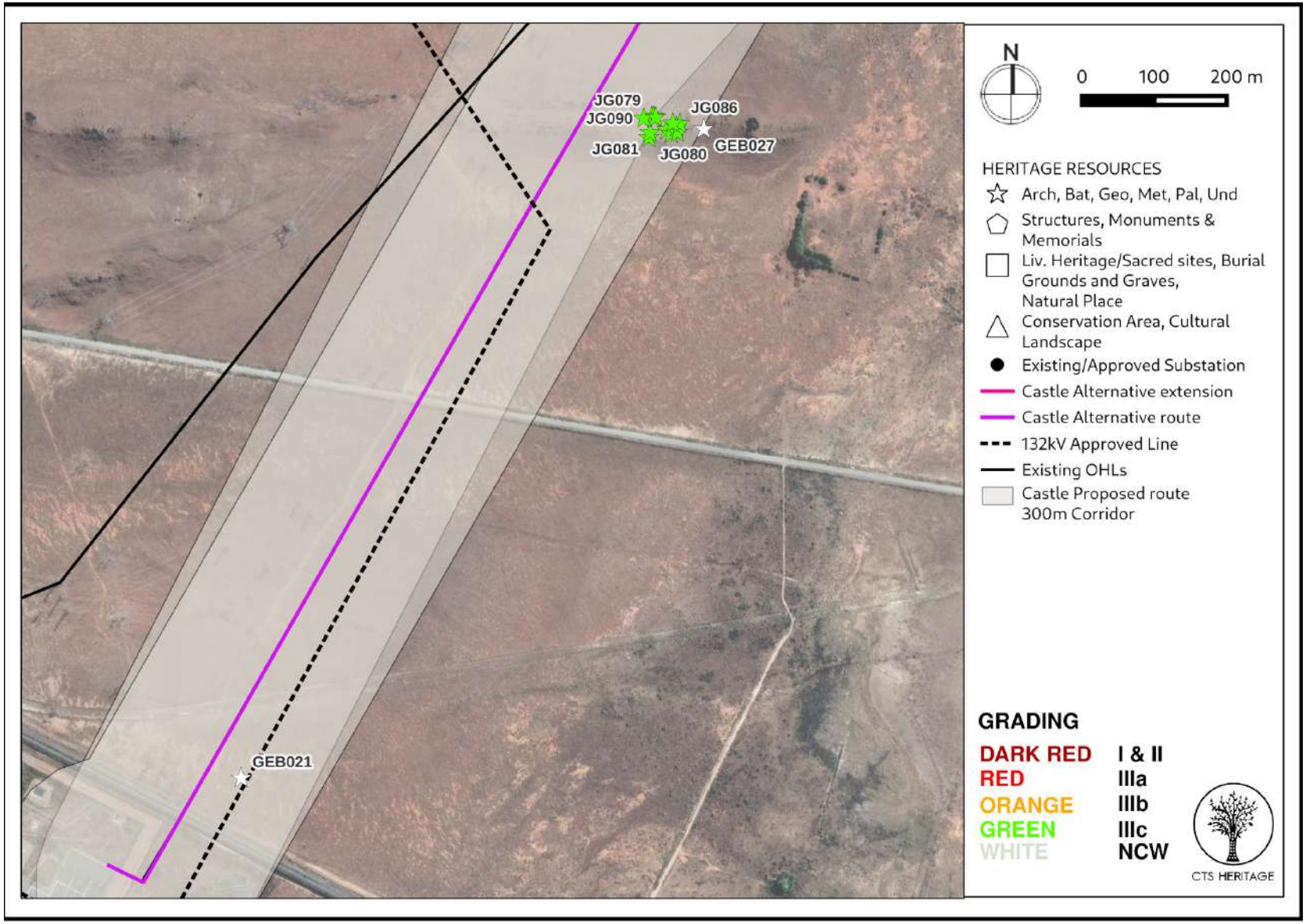


**Figure 3i. Heritage Resources Map.** Inset I. Site names with white buffer extracted from Gribble and Euston-Browne (2021) - Appendix 1.2

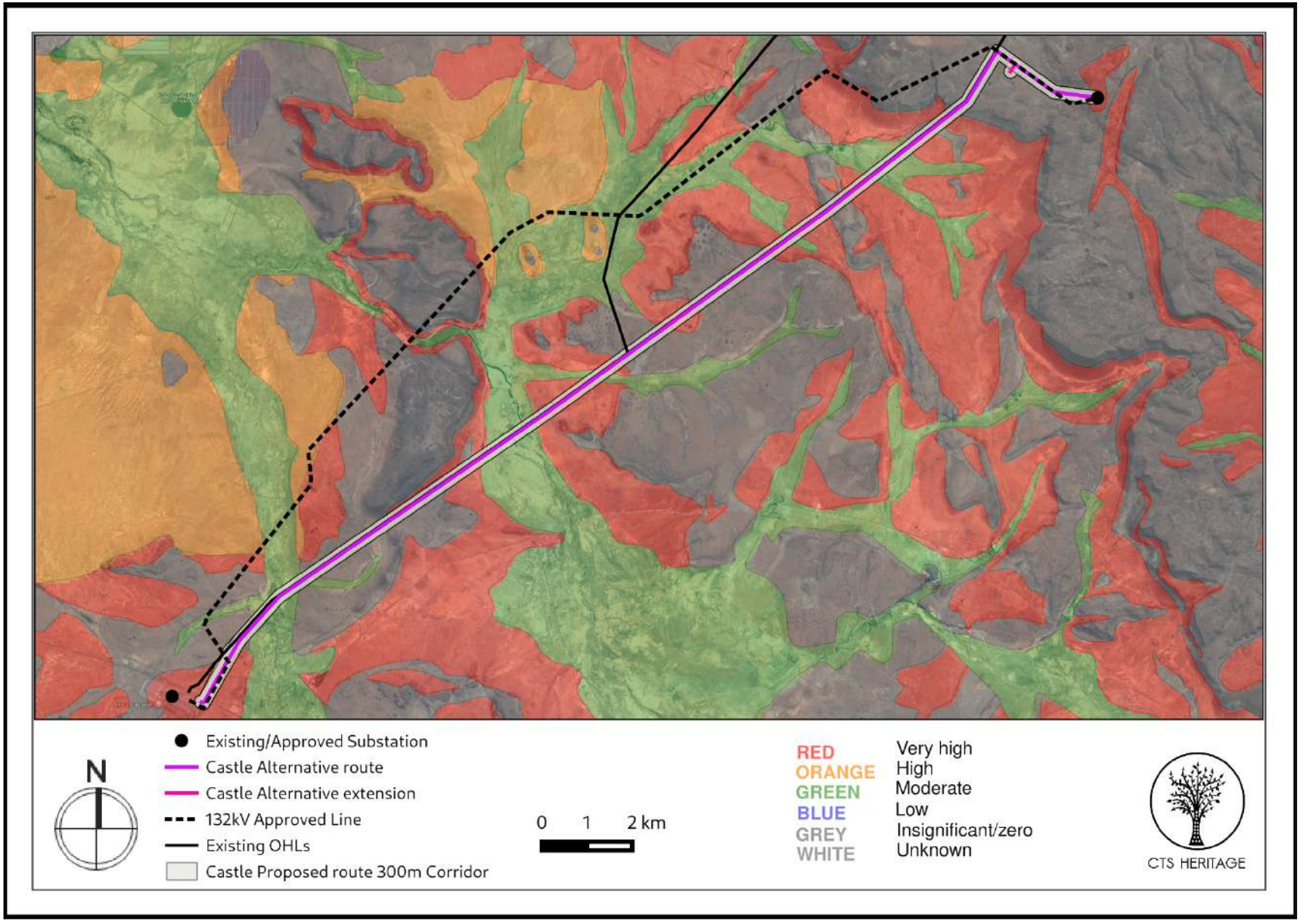


**Figure 4a. Palaeosensitivity Map**. Indicating very high fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

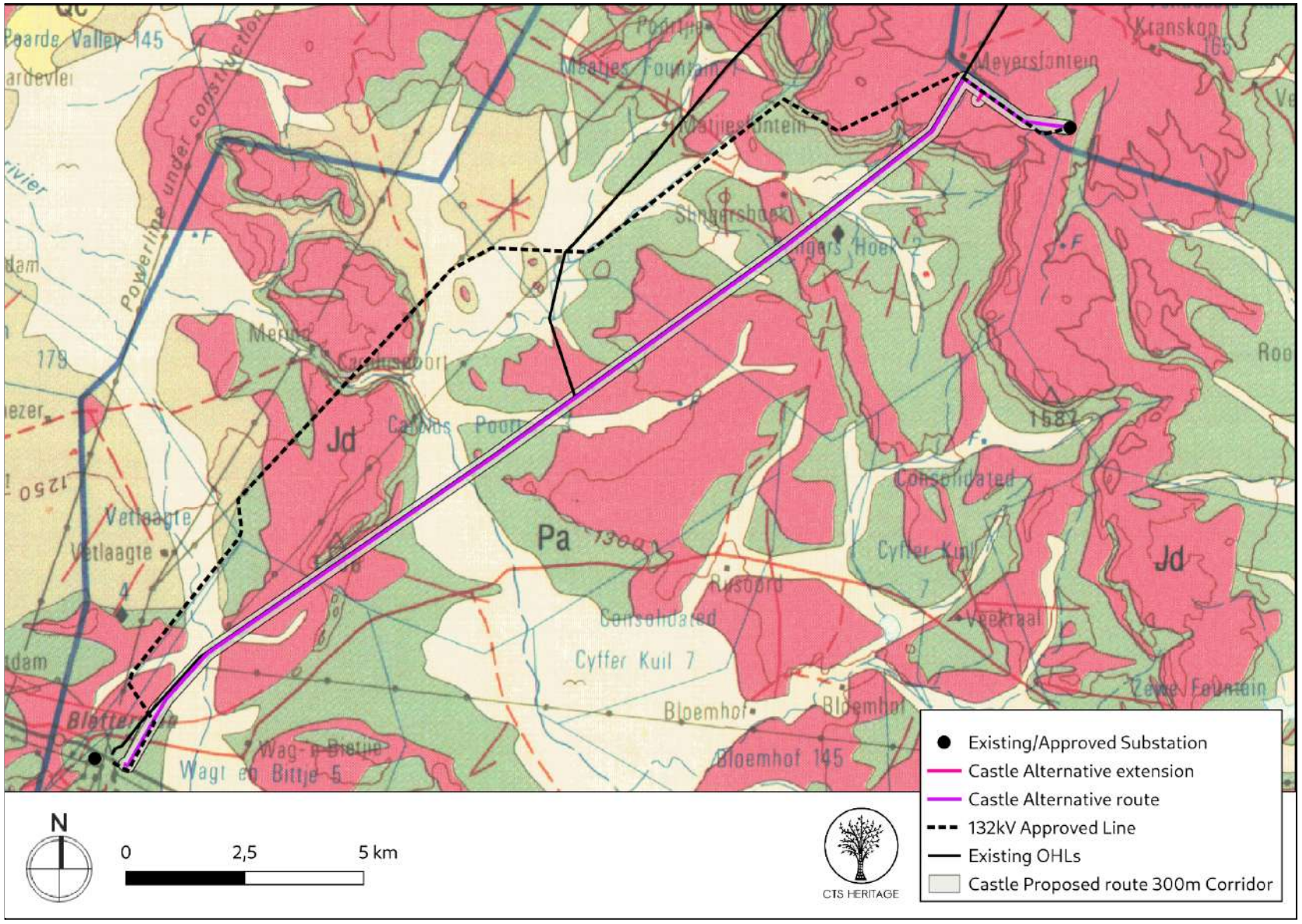


**Figure 4b. Geology Map.** Extracted from the Council for GeoSciences Map 3024 for Colesburg indicating that the development area is underlain by Jd: Jurassic Dolerite, Pt (lighter green): Tierberg Formation of the Ecca Group and Pa (darker green): Adelaide Subgroup of the Beaufort Group

## 8. Brief Heritage Summary

The development application under consideration in this report is an amended grid connection alignment associated with the approved Castle WEF. The area proposed for the Castle WEF was previously assessed by Van der Walt (2014) as part of the original authorisation process and has been recently surveyed again in 2021 by Gribble and Euston-Browne. The Castle WEF is also located in close proximity to an approved PV Facility, Vetlaagte PV, and a proposed PV Facility (Wag n Bietjie PV Facility), all located in close proximity to the town of De Aar. In 2021, a heritage impact assessment was completed of the proposed grid connection routes and switching station for the De Aar 2 South wind energy facility, east of De Aar by ACO Associates (Gribble and Euston-Browne, SAHRIS ID 570440). **The alignment assessed in the report by Gribble and Euston-Browne (2021) aligns with the proposed alignment assessed in this report. Furthermore, there is an existing powerline located within the grid alignment assessed**.

De Aar was originally established on the Farm "De Aar." The name means "the artery," a reference to its underground water supply. The Cape Government Railways were founded in 1872, and the route that the government chose for the line to connect the Kimberley diamond fields to Cape Town on the coast, ran directly through De Aar. Because of its central location, the government also selected the location for a junction between this first railway line, and the other Cape railway networks further east, in 1881. In 1899 two brothers who ran a trading store and hotel at the junction, Isaac and Wulf Friedlander, purchased the farm of De Aar. Following the Anglo Boer War, the Friedlander brothers surveyed the land for the establishment of a town. The municipality was created a year later in 1900.

Kruger (2012) describes the development area as “characterised by flat undulating Karoo vegetation comprised out of relatively sparse scrub and grasses, with dolerite hills in the surrounding landscape. Large portions of the land is currently devoted to livestock farming but a number of solar energy facilities are to be constructed on farms around De Aar. Shallow soils covers a combination of calcrete, shale and dolerite substrates, and large sections in the landscape are exposed to sheet erosion, specifically along low lying areas and drainage lines. Dolerite and sandstone is present, while exotic rocks occur in the gravel of the Orange River bed and terraces. These provided suitable material for stone tool production during the Earlier, Middle and Later Stone Ages. “

**Archaeology**
As part of the 2012 process for approval of the nearby Vetlaagte Solar Energy Facility, Kruger conducted a detailed Heritage Impact Assessment of the area proposed for development. According to Kruger (2012), “During the survey, widespread Middle Stone Age (MSA) material, including characteristic formal MSA stone tools such as points, blades and scrapers were documented in the survey area along a north-south oriented drainage on the eastern periphery of the property. The lithic remains occur in three large scatters and, almost without exception, in low lying areas along non-perennial drainage lines and wetland areas where precipitation and groundwater have exposed the stone tools, originally deposited on a decomposed calcrete rock layer approximately 30cm sub surface. Preliminary examinations of some of the lithics indicated that a number of flakes displayed facetted platforms, characteristic of the MSA.”

Kruger (2012) also documented historical period remains, “specifically the old Vetlaagte homestead with restored farmhouse, outbuildings, midden and labourers quarters, as well as a dilapidated dam wall constructed in the drainage line east of the farmstead are present on the property. The date of construction of the farm house is denoted by a year count (“1930”) on the front gable of the structure. The entire farmstead is situated in an area excluded from the solar farm development. A small family graveyard, associated with the farmstead at Vetlaagte, also occurs in the exclusion zone about 100m north of the farm house.”

Van der Walt (SAHRIS NID 183142) conducted a field assessment of the broader area proposed for development in 2014 as part of the original authorisation process for the Castle WEF. Van der Walt (2014) found that:

"At the start of the survey Stone Age material was immediately noticed scattered in varying densities throughout the study area… Artefacts were observed in low densities over much of the study area where hornfel is almost exclusively used as raw material. Morris (2011) notes in most cases at documented sites in the area, the predominant component appears to be Pleistocene and early Holocene in age (the greater number of artefacts are highly patinated – a weathering/oxidation process resulting from long exposure of knapped surfaces), but there are also places with a much younger component of tools, late Holocene Later Stone Age, that are still relatively fresh-looking (little or no apparent patination – the artefacts are nearly black or grey as opposed to the more heavily patinated orange-brown of older stone tools). Some of the patinated artefacts show a high degree of weathering probably being washed in from their original context and are therefore of lower archaeological value…"

Van der Walt (2014) went on to note that "MSA and LSA artefacts are mixed at some locations and indicate that downward deflation had occurred in the study area. Nine sites were recorded consisting of six Stone Age sites (Site 1, 3, 4, 6, 7, 9) of which site 6 is an engraving site, a historical stone kraal (Site 8) and 2 historical farmstead complexes (Site 2 and 5). A further total of 3 find spots were mapped, recorded and digitally photographed."

Van der walt (2014) concludes his report by noting that:
"The abundance of locally available raw material in the form of hornfels or indurated shale resulted in the use of the landscape over millennia by Stone Age people. Stone Age remains are mostly represented by thinly spread MSA scatters but more substantial quarries/workshops that are found scattered over the study and to a lesser extent also by LSA quarries/workshops on higher lying areas or hills. Erosion of the hills results in the gravitating of raw material and artefacts towards gently dipping plains between the dolerite hills and outcrops. Some of these deposits might be covered by the clay and sandy soils in the valleys or plains…"

Some remnants of the farms history is represented in the form of two dilapidated farm complexes.

In the assessments completed by CTS Heritage (2021) for the Castle WEF Walkdown, it was found that "The overall archaeological sensitivity of the development area with regard to the preservation of Early, Middle and Later Stone Age archaeology as well as Khoe and San heritage, early colonial settlement is regarded as very high. Despite this, the field assessment conducted for this project has demonstrated that the specific area proposed for development has low sensitivity for impacts to significant archaeological heritage. As indicated above, the results of this assessment align with the findings of other specialists such as Morris (2011) who notes that ephemeral MSA and LSA scatters are the dominant archaeological signature of the area and are therefore not archaeologically significant."

In 2021, ACO Associates (Gribble and Euston-Browne, SAHRIS ID 570440) completed an archaeological walkdown of this exact grid alignment. This assessment "identified a large number of archaeological occurrences which include Middle and Late Stone Age archaeological material, possible historic period stone structures, Khoikhoi stone kraal complexes, some rock engravings and scattered occurrences of historical period archaeological material. The volume of and apparently ubiquitous nature of the Middle Stone Age artefacts scattered across the landscape, and the fact that much of this material was found to be in secondary, or disturbed context, means that the combined overall impact of activities associated with this project on Middle Stone Age material will be relatively low. By contrast, the context of much of the Late Stone Age artefacts noted during the survey appears to be better preserved than the Middle Stone Age material, and is thus of greater archaeological significance… The possible Khoi kraals and other stone structures noted during the survey represent a little known aspect of the history and archaeology of this area and their damage or destruction would result in a loss of heritage." The report recommends that "the archaeologist must review the positions of the individual pylons once these have been determined, to ensure that they will not impact on any recorded heritage resources. The micro-siting of pylon positions may be required, which should also be done in consultation with the archaeologist."

All of the heritage resources identified by Gribble and Euston-Browne (2021), Kruger (2012), Van der Walt (2014) and other past heritage specialist assessments completed in the vicinity of the proposed development have been mapped relative to the proposed development in Figure 3. A number of graded archaeological sites are known to be located within the assessed 300m grid corridor. Impacts to these sites can be avoided through careful micro-siting of pylon footings and the implementation of the recommendations included in Gribble and Euston-Browne (2021). These sites are listed in Appendix 1.2 below with the recommended mitigation measures indicated.

**Palaeontology**
According to the SAHRIS Palaeosensitivity Map (Figure 4a), the area proposed for development is underlain by sediments of moderate and very high paleontological sensitivity. According to the extract from the Council for GeoSciences Map 3024 for Colesburg, the development area is underlain by Jurassic Dolerite, the Tierberg Formation of the Ecca Group and the Adelaide Subgroup of the Beaufort Group.

As part of a process undertaken for the nearby Vetlaagte PV Facility, Almond completed a field-based palaeontological assessment of the area proposed for development in this application. Almond (2012) found that "The potentially fossiliferous sediments of the Late Palaeozoic Karoo Supergroup (Ecca and Lower Beaufort Groups) that underlie the study area are almost entirely mantled in a thick layer of superficial deposits of probable Pleistocene to Recent age. These include various soils, gravels and – at least in some areas - a well-developed calcrete hardpan. The upper Ecca Group bedrocks in the northern portion of the study area contain locally abundant fossil wood (of palaeontological interest for dating and palaeoenvironmental studies), as well as low diversity non-marine trace fossil assemblages typical of the Waterford Formation, rather than the Tierberg Formation as mapped. No vertebrate fossils and only scattered woody plant impressions of the Permian Glossopteris Flora were observed within the Lower Beaufort Group rocks that are very poorly exposed in the southern portion of the Vetlaagte study area. Trace fossils, silicified wood and rare vertebrate remains (therapsids, parareptiles) of the Middle Permian Pristerognathus Assemblage Zone have recently been recorded from this succession in the De Aar region (Almond 2010b). Extensive dolerite sills and dykes of the Early Jurassic Karoo Dolerite Suite intruding the Karoo Supergroup sediments are entirely unfossiliferous, as are rare intrusive kimberlite pipe rocks of Cretaceous age. The diverse superficial deposits within the three study areas (e.g. soils, gravels, alluvium, calcrete hardpans) are of low palaeontological sensitivity as a whole . Abundant fragments of reworked fossil wood material of Ecca provenance occur widely within subsurface and surface gravels overlying the Ecca Group outcrop area."

The observations made by Almond (2012) are mapped relative to the proposed development in Figure 3. One palaeontological site may be impacted by the proposed laydown areas - SAHRIS Site 34607. This site is described by Almond (2012) as "Thin tempestite sandstones of Waterford Formation with moderately diverse trace fossil assemblages" and he indicates that no mitigation of this site is required.

Millsteed (2014, SAHRIS ID 183143) completed his palaeontology assessment for the original environmental authorisation for the Castle WEF. Millsteed (2014) found that:
"The reporting area is underlain by Late Permian sedimentary rocks of the Adelaide Subgroup, Jurassic dolerites of the Karoo Dolerite Suite and unconsolidated sands constituting a Cenozoic-age regolith. The rocks of the Adelaide Subgroup are known to be fossiliferous elsewhere in the Karoo Basin and contain famous and scientifically significant vertebrate faunas and plant macrofossil floras. Several fragmentary fossils were located within this unit during the site investigation and the density of their occurrence suggests that numerous other fossils may be present within the unit elsewhere in the reporting area. No fossils were located within the Cenozoic regolith, but similar deposits are known to be fossiliferous elsewhere in the Karoo and fossil materials may well be present within subsurface portions of the stratigraphic unit. The dolerites formed via intrusion of magma that crystallised deep in the earth's crust, and accordingly, are unfossiliferous.

The potential for a negative impact on the fossil heritage of the area can be quantified in the following manner. It is probable that there will be a negative impact on the palaeontological heritage of the Adelaide Subgroup. As the Adelaide Subgroup underlies the majority of the reporting area and is likely to be affected by the construction of the project's infrastructure, the overall probability of a negative impact is assessed as being probable. Should any undiscovered fossil materials be impacted upon, they may well be of high scientific and cultural significance."

Millsteed (2014) recommended that a Chance Fossil Finds Protocol be implemented for the duration of construction activities.

In Bamford's desktop assessment for this area in 2021, she notes that "Based on experience, other reports and the lack of any significant previously recorded fossils from the area, it is unlikely that any fossils would be preserved in the Tierberg Formation or Adelaide Subgroup. Nonetheless, a Fossil Chance Find Protocol should be added to the EMPr." This recommendation is also applicable to the proposed grid alignment.

**Conclusion**

The area proposed for the grid connection alignment has been extensively surveyed for impacts to heritage resources. We know enough about the overall heritage sensitivity of the area to be able to determine the heritage sensitivity of the area, especially due to the recent heritage impact assessment completed by ACO Associates in 2021 for the same grid alignment. A number of graded archaeological sites are known to be located within the assessed 300m grid corridor. Impacts to these sites can be avoided through the implementation of the no-go buffers and other mitigation measures recommended in Gribble and Euston-Browne (2021) (see appendix 1.2), as well as the implementation of the attached chance fossil finds procedure

**RECOMMENDATION**

**Based on the information available, the area proposed for development has been thoroughly assessed and we therefore know that significant archaeological, palaeontological and cultural landscape heritage resources are located within the grid corridor. No impact to these significant resources should take place as long as the recommendations included in Gribble and Euston Browne (2021) are implemented. As the area has been thoroughly surveyed, it is recommended that no further heritage assessments are required in terms of section 38(3) of the NHRA. The attached Fossil Chance Find Protocol must be implemented for the duration of construction activities and the recommendations included in Gribble and Euston-Browne (2021) must be implemented (Appendix 1.2).**

CTS HERITAGE

# APPENDIX 1.1

## List of built environment and archaeological heritage resources identified within the development area taken from SAHRIS

| Site ID | Site/Observation no. | Full Site Name/Description | Site Type | Grading |
|---|---|---|---|---|
| **35187** | **EMJ-5** | **Emthanjeni 5** | **Palaeontological** | **Grade IIIb** |
| 35190 | EMJ-6 | Emthanjeni 6 | Palaeontological | Grade IIIb |
| 34597 | TBS003 | Taaiboschfontein 003 | Archaeological, Transport infrastructure | Grade IIIb |
| 45362 | CAS003 | Castle WEF 003 | Artefacts | Grade IIIb |
| 45363 | CAS004 | Castle WEF 004 | Artefacts | Grade IIIb |
| 34474 | VLG004 | VETLAAGTE 4 | Artefacts | Grade IIIb |
| **135306** | **DWEF116** | **De Aar WEF** | **Artefacts** | |
| **135307** | **DWEF116** | **De Aar WEF** | **Artefacts** | **Grade IIIc** |
| 135312 | DWEF117 | De Aar WEF | Artefacts | Grade IIIc |
| 135315 | DWEF118 | De Aar WEF | Artefacts | Grade IIIc |
| **135319** | **DWEF119** | **De Aar WEF** | **Artefacts** | **Grade IIIc** |
| 135321 | DWEF120 | De Aar WEF | Artefacts | Grade IIIc |
| 135325 | DWEF121 | De Aar WEF | Artefacts | Grade IIIa |
| 135326 | DWEF122 | De Aar WEF | Artefacts | Grade IIIa |
| **135327** | **DWEF123** | **De Aar WEF** | **Artefacts** | **Grade IIIb** |
| 138030 | DA2S-001 | DE AAR 2 SOUTH | Artefacts | |

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|---|---|---|---|---|
| 138031 | DA2S-002 | DE AAR 2 SOUTH | Artefacts | |
| 138032 | DA2S-003 | DE AAR 2 SOUTH | Artefacts | |
| 138033 | DA2S-004 | DE AAR 2 SOUTH | Rock Art | Grade IIIc |
| 138034 | DA2S-005 | DE AAR 2 SOUTH | Artefacts | Grade IIIc |
| 138035 | DA2S-006 | DE AAR 2 SOUTH | Artefacts | Grade IIIc |
| 138036 | DA2S-007 | DE AAR 2 SOUTH | Artefacts | Grade IIIc |
| 134946 | DWEF077 | De Aar WEF | Artefacts | Grade IIIb |
| 134947 | DWEF078 | De Aar WEF | Artefacts | Grade IIIb |
| **134948** | **DWEF079** | **De Aar WEF** | **Artefacts** | **Grade IIIb** |
| 134949 | DWEF080 | De Aar WEF | Artefacts | Grade IIIc |
| 134950 | DWEF081 | De Aar WEF | Artefacts | Grade IIIc |
| 134951 | DWEF082 | De Aar WEF | Artefacts | Grade IIIc |
| 134952 | DWEF083 | De Aar WEF | Artefacts | Grade IIIc |
| 134953 | DWEF084 | De Aar WEF | Artefacts | Grade IIIc |
| 134954 | DWEF085 | De Aar WEF | Artefacts | Grade IIIc |
| **134955** | **DWEF086** | **De Aar WEF** | **Artefacts** | **Grade IIIc** |

CTS HERITAGE

# APPENDIX 1.2

## List of built environment and archaeological heritage resources identified within the development area taken from Gribble and Euston-Browne (2021)

| Waypoint | Latitude | Longitude | Description | Grade | Mitigation |
|---|---|---|---|---|---|
| JG001 | -30.60648 | 24.253572 | MSA stone scatter on and around existing Hydra line and service road. Very large and extends to east as far as berm modern farm. Tools noted on berm. See also GEB001-007 which defines the visible extent of one lithic scatter. Lithics exposed on eroded / deflated area of shallow river valley bottom. Density 20 + pieces/m2. Hornfels. Heavily patinated but with some, possibly later unpatinated pieces noted. Flakes, blades, cores and chips. Some retouch and possibly prepared platforms. Very edgeworn. | 3C | |
| JG002 | -30.606459 | 24.254711 | MSA stone scatter on and around existing Hydra line and service road. Very large and extends to east as far as berm modern farm. Tools noted on berm. See also GEB001-007 which defines the visible extent of one lithic scatter. Lithics exposed on eroded / deflated area of shallow river valley bottom. Density 20 + pieces/m2. Hornfels. Heavily patinated but with some, possibly later unpatinated pieces noted. Flakes, blades, cores and chips. Some retouch and possibly prepared platforms. Very edgeworn. | 3C | |
| JG003 | -30.606649 | 24.255231 | MSA stone scatter on and around existing Hydra line and service road. Very large and extends to east as far as berm modern farm. Tools noted on berm. See also GEB001-007 which defines the visible extent of one lithic scatter. Lithics exposed on eroded / deflated area of shallow river valley bottom. Density 20 + pieces/m2. Hornfels. Heavily patinated but with some, possibly later unpatinated pieces noted. Flakes, blades, cores and chips. Some retouch and possibly prepared platforms. Very edgeworn. | 3C | |
| JG004 | -30.604886 | 24.257939 | Eroded / deflated scatter of edgeworn, patinated MSA lithics. Less dense but otherwise similar to JG001-003 / GEB001-007. One of two less patinated pieces noted one with retouch along edge - possible Lockshoek LSA sidescraper. Shaley flake - grey with light patina. Also khaki/mustard flake of what looks like mudstone. | 3C | |
| JG006 | -30.595005 | 24.273707 | Large weathered MSA flake (HF) in roadway. | NCW | |
| JG007 | -30.595 | 24.27371 | Further similar MSA lithics from vicinity of JG006 | NCW | |
| JG008 | -30.592464 | 24.282744 | Worn and patinated MSA lithics in high density across very wide area (at least 100 m in all directions). Lying on and in orange sand on and around a low dolerite koppie. Possible quarry site for hornfels lag deposit. Antbear burrow kicked up hornfels chunks from ± 20-30 cm down and flaked material. Suggests good flakeable material below sand. Evidence of | 3C | |

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| | | | material being washed together in recent rainwater runnels. Some possible LSA flakes noted and later retouch on earlier MSA flakes. | | |
| JG009 | -30.592936 | 24.283568 | Part of same site as JG008 | 3C | |
| JG010 | -30.590711 | 24.280878 | Walked from road to BESS - litter of patinated and worn MSA everywhere. In orange sand. | NCW | |
| JG011 | -30.589299 | 24.280219 | Endscraper in / near BESS. Nearby lithics in eroded channels/rivulets | NCW | |
| JG012 | -30.590268 | 24.281356 | MSA scatter in rainwater runnel | NCW | |
| JG013 | -30.589434 | 24.278496 | Scatter of LSA HF lithics in sandy, sloping hollow between rocky outcrops. Some possibly on earlier MSA flakes of which there are examples present. Smithfield? - large sidescraper type flake. Also broken blade with endscraper retouch (crossmend). Site overlooks river gully. All material in orange sand. Exposed by erosion. | 3C | |
| JG014 | -30.589408 | 24.278082 | Dense MSA slope wash on side of river gully below JG013. Very waterworn. In dolerite cobbles and scree. | 3C | |
| JG015 | -30.590345 | 24.277628 | Further MSA lithics and later, possibly Smithfield (including endscrapers) in erosion wash and runnels. | 3C | |
| JG016 | -30.590532 | 24.276526 | LSA, with some possible MSA, lithic scatter on dolerite outcrop. Eroded. | 3C | |
| JG017 | -30.590717 | 24.276331 | Lithics eroding out of deposit on opposite side of outcrop to JG016. Mix of MSA with some early Holocene LSA material - large sidescraper. Single piece of flaked agate. View to BESS from dogleg. | 3C | |
| JG018 | -30.590532 | 24.274909 | Dense MSA waterworn lithics in erosion gully. Very rolled. | 3C | |
| JG019 | -30.590824 | 24.274807 | Same as JG018. Appears to be long, continuous scatter. Quarrying? | 3C | |
| JG020 | -30.591415 | 24.274568 | Same as JG018/JG019. | 3C | |
| JG021 | -30.592031 | 24.274437 | Same as JG018/JG019/JG020. | 3C | |
| JG022 | -30.601148 | 24.265414 | MSA on slope wash. Mostly very rolled and patinated. ± 10 pieces/m2. | 3C | |
| JG023 | -30.600768 | 24.265531 | Same as JG022. | 3C | |
| JG024 | -30.60068 | 24.265576 | Large MSA hornfels flake with "fresh" retouch. | NCW | |
| JG025 | -30.598577 | 24.266719 | Approximate upper limit on slope of stone tools. Gets shaley above. | Not Graded | |
| JG026 | -30.599426 | 24.265971 | Stone scatter - general and of varying density down slope above and below this mark. | NCW | |
| JG027 | -30.600102 | 24.265106 | Rough hornfels core/flaked cobble - LSA? | NCW | |
| JG028 | -30.605219 | 24.256954 | Patinated (black/grey) hornfels lithics in erosion fan. Extension/part of general scatter on | NCW | |

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| | | | either side? | | |
| JG029 | -30.60577 | 24.256471 | Hornfels lithic scatter on eroded flat. Patinated and worn (black/grey). | NCW | |
| JG030 | -30.606202 | 24.256341 | Same as JG029 above. | NCW | |
| JG031 | -30.614816 | 24.242742 | Exposed hornfels carpet. Some worn and patinated MSA. | NCW | |
| JG032 | -30.617445 | 24.239304 | Boulder outcrop on ridge. Stopped to check for engraving (nothing). But ubiquitous lithics scatter. Possible mix of MSA and LSA. Hornfels (worn & patinated) but also flake on banded ironstone. | 3C | |
| JG033 | -30.623782 | 24.227876 | Low level MSA scatter - patinated and worn hornfels. | NCW | |
| JG034 | -30.632295 | 24.214686 | Isolated hornfels flakes. Heavily patinated MSA. In red sand with dolerite cobbles. Adjacent to Carolus Poort 2 / Slingerhoek fence. | NCW | |
| JG035 | -30.632187 | 24.214838 | Small LSA agate flake. | NCW | |
| JG036 | -30.615468 | 24.241709 | Packed stone ruin - possibly old wolvehok. | 3C | 20m no-go buffer |
| JG037 | -30.639067 | 24.204355 | Area of patinated black dolerite boulders next to watercourse (approximately 30 x 100 m). Heavily patinated hornfels flakes and chunks noted - probably MSA. Low density visible on surface. Half circle of boulder may be portion of kraal. | 3C | |
| JG038 | -30.638589 | 24.207245 | Isolated MSA lithics (4-5) in open area of wash. | NCW | |
| JG039 | -30.637487 | 24.209534 | Possible Khoi kraal. Dolerite boulders in rough circle in lee of two small rocky outcrops. Approximately 10 x 7 m across. | 3C | |
| JG040 | -30.633936 | 24.213173 | Cleared raised area between three rocky outcrops. Possible kraal. ± 30 x 50 m. Small hand-size cobbles cover the surface, mixed with shale. Larger dolerite rocks and boulders in line around outside. 1 x LSA hornfels flake and some patinated MSA lithics (flakes and chunks) noted on surface. (Same as GEB010). | 3C | 40m No-Go Buffer |
| JG041 | -30.643307 | 24.199117 | MSA lithics eroding out of shallow slope. Very worn and heavily patinated. Mostly flakes. Hornfels. | NCW | |
| JG042 | -30.643273 | 24.198368 | Isolated MSA denticulated piece. Worn and heavily patinated hornfels. Upslope of JG041 on slopes of koppie. | NCW | |
| JG043 | -30.643418 | 24.197404 | Dense scatter of unpatinated LSA hornfels on western edge of koppie top. Lies against line of boulders on edge. 30-40 pieces/m2.<br>Concentrated in approximately 3m2. Chips, chunks, flakes, cores, blades. Single piece with retouch noted. Some MSA present too - some red patination. | 3C | |
| JG044 | -30.643353 | 24.197522 | (Modern) graffiti on boulder. On same koppie as JG043. North side about 10m from stone | 3C | 20m No-Go Buffer |

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| | | | scatter. Two long thin parallel lines with seven"bars" scratched between them. | | |
| JG045 | -30.643845 | 24.19811 | Hornfels lithics in bare patches on eastern slope of koppie. Some larger and worn and patinated. Most still "fresh" black. Couple of pieces, including an endscraper middle-patinated (grey) Mostly flakes and chips. Large, fresh chunky core found about 10 m SE. | 3C | |
| JG046 | -30.644182 | 24.198144 | Heavily patinated hornfels MSA eroding down hillside. Dense. Some reuse of MSA - fresh flakes and chips. | 3C | |
| JG047 | -30.644174 | 24.198304 | Heavily patinated hornfels MSA eroding down hillside. Dense. Some reuse of MSA - fresh flakes and chips. | 3C | |
| JG049 | -30.66664 | 24.159428 | Barren, vegetation free areas have with lithics. Not dense - item every few metres. LSA, including duckbilled scraper. Not patinated. Hornfels | 3C | |
| JG050 | -30.667187 | 24.161105 | Very dense LSA exposure on erosion slope. Material being exposed as bank along river channel erodes back. Suggest buried until recently. Very fresh and unpatinated hornfels. One small piece of flaked white agate. Possibly retouched piece of brown mudstone/ironstone. Formal/retouched pieces. Endscrapers (slugs?). Orangean sidescraper. Edge scraper. OES pieces noted. Possibly associated if material buried until recently? Some dolerite cobbles with flake scars. Seems to be ± 40-50 cm below modern ground level. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG051 | -30.66728 | 24.161474 | Eastern edge of JG050 at this location. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG052 | -30.6663 | 24.160471 | Same as JG050 and JG051 above. On eroding slope. OES present in quantities. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the |

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| | | | | | installation of the grid connections. |
| JG053 | -30.667739 | 24.15929 | Odd collection of broken cobbles. Rough hornfels or dolerite. On pan surface. Completely isolated. | NCW | |
| JG054 | -30.66724 | 24.158969 | Same as JG054 above. | NCW | |
| JG055 | -30.673205 | 24.148478 | Isolated edge-flaked cobble. Dolerite. Large. On edge of streambed. Period unknown | NCW | |
| JG056 | -30.673672 | 24.1478 | Odd looking boulder field - shaped? In soil below is the same patinated/worn MSA hornfels assemblage seen elsewhere but in higher concentration here than lower down slope. Boulders are on a level platform on slope. | 3C | |
| JG057 | -30.676632 | 24.143262 | Eroded wash on slope. Worn MSA lying in sheet wash. Wide area. | NCW | |
| JG058 | -30.658561 | 24.172766 | Scattered, patinated hornfels MSA lithics on slope between koppie and river. Visible where there is erosion of the surface sand - in runnels. | NCW | |
| JG059 | -30.659533 | 24.171604 | Random point in same sort of wash as JG058 - more extensive on this lower slope. Same general occurrence of rolled, patinated MSA stone. Extensive erosion runnels across landscape going down to river. | NCW | |
| JG060 | -30.659719 | 24.17128 | Smithfield(?) lithics on hornfels on eroded surface. Also patinated, earlier lithics present. ± 10/m2. Cores, flakes, chunks, blades.<br>Retouch on number of pieces. Endscrapers too (ph). Appears to be visible in ± 5m radius around waypoint - odd pieces further away.<br>Suggest it may be more widely present under covering sand. | 3C | |
| JG061 | -30.660573 | 24.170073 | Scatter of hornfels lithics - fairly thin (± 3/m2) - on eroding sandy mound in erosion wash. Lithics actively eroding, not on sheet wash. Hornfels, unpatinated - flakes, blades. Of the 17 lithics randomly picked up in area of 5 m2, 6 had retouch. 5 = endscraper type and 1 x side/end scraper. | 3C | |
| JG062 | -30.649812 | 24.053184 | Open areas of low level presence of hornfels (patinated/worn) wherever soil denuded and exposed - right along line. | NCW | |
| JG063 | -30.642762 | 24.048078 | As above. | NCW | |
| JG064 | -30.685039 | 24.129275 | Possible Khoi kraal? - not hugely convincing but there seems to be packed stone along with naturally occurring boulders of dolerite outcrop (ph). Isolated flaked stone in vicinity. | 3C | 40m No-Go Buffer |
| JG065 | -30.685468 | 24.12943 | Small stone structure. Circular - (actually more oval) - opening to east. Packed cobbles/rocks from dolerite outcrop it nestles against. On S side of outcrop = 3-4 courses of stone. Walls stand 50-70 cm high. No artefacts seen associated. There is a low level presence of the patinated/worn hornfels lithics, as well as a scatter around outcrop of more | 3C | |

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| | | | freshly flaked hornfels. Internal dimensions of structure approximately 1m wide x 1.5m long. External = 2m wide x 2.5m long. | | |
| JG066 | -30.685123 | 24.128588 | Possible kraal. Rocky outcrop with cleared centre approximately 14m x 10m. No obvious standing/packed walls, but there does seem to be a clear rocky circle. | 3C | 40m No-Go Buffer |
| JG067 | -30.690737 | 24.114019 | Stone tools on erosion slope down in wash - MSA blade with later retouch. Extension / same as GEB025 to the west. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG068 | -30.691042 | 24.114248 | Further exposure like JG067 and GEB025. Shale background with hornfels lithics. Calcrete like nodules present. Below ± 40-50 cm orange sand. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG069 | -30.691134 | 24.114276 | Same as JG068 above. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG070 | -30.691206 | 24.114263 | Same as JG068 and JG069 above. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |

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| JG071 | -30.690651 | 24.113478 | Opposite side of wash hollow. Same eroding slope with lithics. As on other side, mainly fresh hornfels (whole range), but some older, grey patinated pieces too. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG072 | -30.690631 | 24.113098 | Similar exposure to JG067-071. Less dense artifactually. But mix of old and new. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG073 | -30.693613 | 24.113338 | Large hornfels sidescraper, isolated in eroded area (same surface as JG067-072) but in larger river eroded system. | NCW | |
| JG074 | -30.694075 | 24.113321 | Concentration of hornfels (probably LSA) lithics on eroded surface. | 3C | |
| JG075 | -30.695239 | 24.111199 | Lithics in erosion gully. Grey patinated hornfels flakes. | 3C | |
| JG076 | -30.695336 | 24.110892 | Lithics (hornfels, fresh) on calcrety eroded surface. Below bottom of orange sand. | NCW | |
| JG077 | -30.695918 | 24.110349 | Dense (± 20/m2) scatter of large, fresh HF lithics. In sand. Still eroding out. Area approximately 10 x 20 m. 1 x flaked agate pebble. Some banded ironstone. Mainly large flakes and cores. No retouched pieces noted. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| JG078 | -30.70594 | 24.101496 | Hornfels scatter in neck between koppies. Fresh. Associated with piece of grass-tempered pottery. Has views to north and south.<br>Protected in hollow. Scatter covers large part of hollow. | 3C | |
| JG079 | -30.705935 | 24.101464 | Hornfels scatter in neck between koppies. Fresh. Associated with piece of grass-tempered pottery. Has views to north and south.<br>Protected in hollow. Scatter covers large part of hollow. | 3C | |

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| JG080 | -30.706201 | 24.101419 | Hornfels scatter in neck between koppies. Fresh. Associated with piece of grass-tempered pottery. Has views to north and south.<br>Protected in hollow. Scatter covers large part of hollow. | 3C | |
| JG081 | -30.706136 | 24.101435 | Modern stone circle (?) with glass and burned plastic. Old spade head with broad arrow. "R Steelface". | 3C | 40m No-Go Buffer centred on JG088 |
| JG082 | -30.706104 | 24.101675 | Centre stone kraal - circular with JG083 (stone bothy) in kraal. | 3C | 40m No-Go Buffer centred on JG088 |
| JG083 | -30.706149 | 24.10174 | Stone bothy in kraal. Approximately 1.5 x 1.5 cm. Entrance to East. | 3C | 40m No-Go Buffer centred on JG088 |
| JG084 | -30.706069 | 24.101819 | Kraal 2? | 3C | 40m No-Go Buffer centred on JG088 |
| JG085 | -30.706136 | 24.101832 | Line of kraal 2 wall. Not fully enclosed/circular | 3C | 40m No-Go Buffer centred on JG088 |
| JG086 | -30.706028 | 24.101865 | Line of kraal 2 wall. Not fully enclosed/circular | 3C | 40m No-Go Buffer centred on JG088 |
| JG087 | -30.706021 | 24.101766 | Line of kraal 2 wall. Not fully enclosed/circular | 3C | 40m No-Go Buffer centred on JG088 |
| JG088 | -30.705949 | 24.101484 | Possible kraal 3 on far side of hollow. Walls not complete. | 3C | 40m No-Go Buffer centred on JG088 |
| JG089 | -30.705877 | 24.101336 | | | |
| JG090 | -30.705959 | 24.101346 | Bothy 2. Circular ± 1.8 x 1.8 m. Door to East. | 3C | 40m No-Go Buffer centred on JG088 |
| GEB005 | -30.591628 | 24.278963 | Scatter of biggish worn, patinated MSA flakes in deflation hollows. Area ± 10 x 10 m | 3C | |
| GEB006 | -30.592196 | 24.274613 | Scatter of lithics in hollow between small hills, in front of tree'd area. Worn, patinated MSA, including an endscraper, and a couple of small unpatinated LSA flakes. All lithics are hornfels. Area ± 15 x 15 m. | NCW | |
| GEB007 | -30.60089 | 24.265697 | Worn, patinated MSA flakes scattered all alongside the fence. Gets denser about half-way up towards the mountain. | NCW | |
| GEB008 | -30.604612 | 24.256805 | Just a few lithics on flat area, near pylon. Includes one side scraper. | NCW | |
| GEB009 | -30.639628 | 24.204219 | One patinated hornfels MSA flake amongst area of dolerite boulders. On outskirts of JG037. | NCW | |
| GEB010 | -30.634055 | 24.213184 | Just a handful of MSA flakes in hollow on top of hill which is surrounded by boulders. Possible kraal - the centre of hill has been cleared of boulders (Same as JG040). | 3C | |

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|---|---|---|---|---|---|
| GEB011 | -30.643086 | 24.198144 | Scatter of lithics around foot of small hill (top of hill recorded by John - JG043). Fresh, unpatinated hornfels and ? Flakes. A flake every metre or so. They appear to run all around the base of the hill. | 3C | |
| GEB012 | -30.644727 | 24.195703 | Light scatter of patinated hornfels flakes in a slight hollow surrounded by boulder outcrops. | NCW | |
| GEB013 | -30.666459 | 24.160531 | Same as JG050 next to river channel. Quite a few pieces of OES, particularly in the runnels. | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| GEB014 | -30.666493 | 24.160731 | On the other side of little hill to GEB013, so it is a continuation of this site. | 3A | |
| GEB015 | -30.665938 | 24.159066 | A scatter of unpatinated hornfels flakes across an area of ± 20 x 20 m. A number of cores and some OES. | 3C | |
| GEB016 | -30.674615 | 24.145283 | Initially thought to be a kraal, but closer inspection suggested it is probably the result of clearing for an electricity pylon. | Not Graded | |
| GEB017 | -30.67449 | 24.144903 | Initially thought to be a kraal, but closer inspection suggested it is probably the result of clearing for an electricity pylon. | Not Graded | |
| GEB018 | -30.67417 | 24.144871 | Initially thought to be a kraal, but closer inspection suggested it is probably the result of clearing for an electricity pylon. | Not Graded | |
| GEB019 | -30.657462 | 24.175029 | A single patinated hornfels MSA blade on plateau before going down to river valley. Area between pylon and hill with stone structure (GEB020). | NCW | |
| GEB020 | -30.655841 | 24.171715 | Small stone structure on the side and top of a flattened koppie, which is on escarpment above the river bed. It is round, and the highest point (opposite the entrance way) consists of about 8 courses of stone. This side appears pretty intact still. The diameter is ± 2 m. Found an upper grind stone inside the structure. On the slope about 8 m down from the structure, were a handful of very nice tools: an upper grind stone, a core and two scrapers. There were a few pieces of modern metal lying around, so maybe structure has been reused. | 3C | |
| GEB021 | -30.714167 | 24.095526 | A handful of worn hornfels MSA flakes, on open, flat area. | NCW | |
| GEB022 | -30.654228 | 24.056064 | A scatter of very worn, patinated MSA flakes on the farm Lochinvaar. Wherever there's a deflated area, they are visible. | NCW | |
| GEB023 | -30.681224 | 24.134149 | A general scatter of worn, patinated hornfels MSA flakes. | NCW | |

| | | | | | |
|---|---|---|---|---|---|
| GEB024 | -30.682218 | 24.133163 | Mass of patinated hornfels, but no obvious flakes. | NCW | |
| GEB025 | -30.690479 | 24.113964 | Big area of lithics eroding out of a bank. Joins up with JG067(?). MSA hornfels flakes (incl a large side scraper) as well as smaller, unpatinated LSA lithics (incl side scrapers). | 3A | Mapping, recording and collection by the archaeologist of exposed artefactual material prior to the commencement of any activities related to the installation of the grid connections. |
| GEB026 | -30.705946 | 24.101517 | Piece of grass-tempered pottery at site JG092. | 3C | |
| GEB027 | -30.706092 | 24.102212 | Stone with striations found in shoulder between two koppies, before hill slopes down. Below sites JG082 - JG090. | NCW | |

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**APPENDIX 2**
**Reference List from SAHRIS**

| Heritage Impact Assessments | | | | |
|---|---|---|---|---|
| **Nid** | **Report Type** | **Author/s** | **Date** | **Title** |
| 104574 | Heritage Scoping | Wouter Fourie | 10/10/2012 | Heritage Scoping Report for the Proposed Wind Farm Facility for Renosterberg Wind Energy Company (RWEC) near Petrusville, Northern Cape Province |
| 104576 | Heritage Scoping | Wouter Fourie | 10/10/2012 | Heritage Scoping Report for the Proposed Solar PV Facility for Renosterberg Wind Energy Company (RWEC) near Petrusville, Northern Cape Province |
| 104804 | PIA Desktop | John E Almond | 01/09/2012 | Palaeontological specialist assessment: desktop study PROPOSED RENOSTERBERG SOLAR PV AND WIND ENERGY FACILITIES NEAR DE AAR, NORTHERN CAPE PROVINCE |
| 133138 | HIA Phase 1 | Jayson Orton, Lita Webley | 09/07/2013 | HERITAGE IMPACT ASSESSMENT FOR MULTIPLE PROPOSED SOLAR ENERGY FACILITIES |
| 133536 | Palaeontological Specialist Reports | John E Almond | 01/07/2013 | PALAEONTOLOGICAL SPECIALIST STUDY |
| 138865 | HIA Phase 1 | Jayson Orton | 10/07/2013 | HERITAGE IMPACT ASSESSMENT FOR MULTIPLE PROPOSED SOLAR ENERGY FACILITIES ON DU PLESSIS DAM 179, DE AAR, NORTHERN CAPE |
| 138940 | PIA Phase 1 | John E Almond | 10/07/2013 | Palaeontological Specialist Study: Combined desktop and field-based assessments for the proposed Photovoltaic (Solar) Energy Facilities on Du Plessis Dam Farm near De Aar, Northern Cape |
| 151280 | Archaeological Specialist Reports | Jaco van der Walt | 26/08/2013 | Archeological Scoping Report for the Proposed Castle WEF near De Aar, Northern Cape Province |
| 151284 | PIA Desktop | John E Almond | 31/08/2013 | Palaeontological Heritage Assessment: Desktop Study |
| 160512 | Archaeological Monitoring | Lita Webley, Dave Halkett | 17/03/2014 | HERITAGE IMPACT ASSESSMENT: WALKDOWN OF FINAL LAYOUT OF THE LONGYUAN MULILO DE AAR 2 NORTH WIND ENERGY FACILITY, NORTHERN CAPE PROVINCE |

| | | | | |
|---|---|---|---|---|
| 163982 | Palaeontological Specialist Reports | | 31/08/2013 | Palaeontological specialist assessment: combined desktop and field study: Proposed development PV Solar Facility near De Aar, Northern CApe Province |
| 163994 | Heritage Impact Assessment Specialist Reports | Wouter Fourie | 03/08/2013 | Proposed PV Facility: Heritage Impact Report |
| 177599 | AIA Phase 1 | Jonathan Kaplan | 01/04/2010 | ARCHAEOLOGICAL IMPACT ASSESSMENT PROPOSED PHOTOVOLTAIC POWER GENERATION FACILITY IN DE AAR NORTHERN CAPE |
| 177600 | Site Inspection Report | Will Archer, Jonathan Kaplan | 01/05/2012 | Reconnaissance and plan for further mitigation: sites impacted on by proposed photovoltaic power generation facility in De Aar Northern Cape |
| 183142 | Archaeological Specialist Reports | Jaco van der Walt | 30/10/2014 | Archaeological Impact Assessment Report for the Proposed Castle Wind Energy Facility, De Aar, Northern Cape |
| 183143 | Heritage Impact Assessment Specialist Reports | Barry Millsteed | 24/11/2014 | Full Palaeontological Heritage Impact Assessment Report on a Portion of a Proposed Wind Energy Generation Facility (The Castle Project); This Being on the Eastern Extent of the Farm Knapdaar 8 near De Aar, Northern Cape Province |
| 256363 | Palaeontological Specialist Reports | John Almond | 15/06/2013 | Palaeontological Specialist Study: Combined Desktop and Field-based Assessments: Proposed Photovoltaic (Solar) Energy Facilities on Du Plessis Dam Farm near De Aar, Northern Cape. |
| 256364 | Heritage Impact Assessment Specialist Reports | Jayson Orton | 10/07/2013 | Heritage Impact Assessment for Multiple Proposed Solar Energy Facilities on Du Plessis Dam 179, De Aar, Northern Cape |
| 256408 | Palaeontological | John E Almond | 16/07/2013 | Palaeontological Specialist Study: Combined Desktop and Field-based Assessments - Proposed |

| | | | | |
|---|---|---|---|---|
| | Specialist Reports | | | Photovoltaic (Solar) Energy Facilities on Badenhorst Dam Farm near De Aar, Northern Cape |
| 256413 | Heritage Impact Assessment Specialist Reports | Jayson Orton | 09/07/2013 | Heritage Impact Assessment for Multiple Proposed Solar Energy Facilities on De Aar 180/1 (Badenhorst Dam Farm), De Aar, Northern Cape |
| 339820 | Heritage Impact Assessment Specialist Reports | Lita Webley, Jayson Orton | 01/12/2011 | Proposed De Aar Wind Energy Facility on the North and South Plateau, Northern Cape Province |
| 339824 | Heritage Impact Assessment Specialist Reports | Lita Webley, David Halkett | 01/06/2015 | Addendum: Proposed Wind Energy Facility situated on the Eastern plateau (South) near De Aar, Northern Cape Province. |
| 4052 | HIA Phase 1 | Albert van Jaarsveld | 01/03/2006 | Hydra-Perseus and Beta-Perseus 765 kV Transmission Power Lines Environmental Impact Assessment. Impact on Cultural Heritage Resources |
| 49745 | AIA Phase 1 | Neels Kruger | 01/03/2012 | ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF DEMARCATED SURFACE AREAS ON THE OF THE FARM VETLAAGTE 4, DE AAR, NORTHERN CAPE PROVINCE |
| 49843 | PIA Phase 1 | John E Almond | 01/05/2012 | PALAEONTOLOGICAL SPECIALIST STUDY: COMBINED DESKTOP AND FIELD-BASED ASSESSMENTS Proposed solar power generation facilities on the remaining extent of the farm Vetlaagte No. 4, De Aar, Northern Cape Province |
| 50006 | HIA Phase 1 | Jayson Orton | 20/02/2012 | HERITAGE IMPACT ASSESSMENT FOR THREE SOLAR ENERGY FACILITIES AT DE AAR, WESTERN CAPE |
| 6970 | AIA Phase 1 | David Morris | 02/09/2011 | Paarde Valley. Ilanga Lethemba PV Solar Energy Facility. Specialist input for the environmental impact assessment phase and environmental management programme for the proposed Ilanga Lethemba Solar Energy Facility, near De Aar, Northern Cape province |
| 6971 | AIA Desktop | Johnny Van | 30/04/2011 | Heritage Impact Scoping report for the proposed establishment of the Ilanga Lethemba PV Solar Energy |

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|---|---|---|---|---|
| | | Schalkwyk | | Facility, near De Aar, Northern Cape Province. |
| 8378 | HIA Phase 1 | Jayson Orton | 29/02/2012 | HIA for three solar energy facilities at the De Aar, Northern Cape (Paarde Valley, Badenhorst Dam Farm and Annex Du Plessis Dam Farm) |
| 89361 | HIA Phase 1 | Neels Kruger | 01/03/2012 | ENNEX DEVELOPMENTS: PROPOSED ESTABLISHMENT OF A SOLAR ENERGY FACILITY NEAR DE AAR, NORTHERN CAPE PROVINCE Phase 1 Archaeological Impact Assessment Report |
| 8992 | PIA Phase 1 | John E Almond | 29/01/2012 | Palaeontological Specialist Study: Combined Desktop and Field -based Assessments. Two wind energy facilities on the Eastern Plateau near De Aar, Northern Cape Province proposed by Mulilo Renewable Energy (Pty) Ltd |
| 114648 | PIA Desktop | John E Almond | 01/09/2012 | Palaeontological specialist assessment: desktop study<br>PROPOSED 16 MTPA EXPANSION OF TRANSNETâ€™S EXISTING MANGANESE ORE EXPORT RAILWAY LINE & ASSOCIATED INFRASTRUCTURE BETWEEN HOTAZEL AND THE PORT OF NGQURA, NORTHERN & EASTERN CAPE.<br>Part 1: Hotazel to Kimberley, Northern Cape |
| 129751 | HIA Phase 1 | Elize Becker | 20/02/2013 | Phase 1 Heritage Impact Assessment Hotazel to Kimberley and De Aar to Port of Ngqura |
| 151768 | PIA Phase 1 | John E Almond | 01/11/2013 | Palaeontological specialist assessment: combined desktop and field-based study: PROPOSED 16 MTPA EXPANSION OF TRANSNETâ€™S EXISTING<br>MANGANESE ORE EXPORT RAILWAY LINE & ASSOCIATED INFRASTRUCTURE BETWEEN HOTAZEL AND THE PORT OF NGQURA, NORTHERN & EASTERN CAPE. |
| 163451 | Archaeological Specialist Reports | Wouter Fourie | 27/03/2014 | Proposed construction of a 132kV transmission line from the Longyuan Mulilo De Aar 2 North Wind Energy Facility on the Eastern Plateau (De Aar 2) near De Aar, Northern Cape |
| 8086 | AIA Phase 1 | Johan Nel | 14/11/2008 | Final Report Heritage Resources Scoping Survey & Preliminary Assessment Transnet Freight Line EIA, Eastern Cape and Northern Cape |
| 92575 | HIA Phase 1 | Elize Becker | 10/10/2012 | Phase 1 Heritage Impact Assessment Kimberley to De Aar |
| 93185 | HIA Phase 1 | Elize Becker | 01/11/2012 | Phase 1 Heritage Impact Assessment Hotazel to Kimberley and De Aar to Port Ngqura |

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# APPENDIX 3 - Keys/Guides

## Key/Guide to Acronyms

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

## Full guide to Palaeosensitivity Map legend

| | | |
|---|---|---|
| | **RED**: | VERY HIGH - field assessment and protocol for finds is required |
| | **ORANGE/YELLOW**: | HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely |
| | **GREEN**: | MODERATE - desktop study is required |
| | **BLUE/PURPLE**: | LOW - no palaeontological studies are required however a protocol for chance finds is required |
| | **GREY**: | INSIGNIFICANT/ZERO - no palaeontological studies are required |
| | **WHITE/CLEAR**: | 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 PALAEONTOLOGICAL 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.

**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
- 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.**

environmental affairs

Department:
Environmental Affairs
**REPUBLIC OF SOUTH AFRICA**

# DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

| | (For official use only) |
|---|---|
| File Reference Number: | |
| NEAS Reference Number: | DEA/EIA/ |
| Date Received: | |

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

**PROJECT TITLE**

CASTLE WEF TO HYDRA OHL

**Kindly note the following:**

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

**Departmental Details**

**Postal address:**
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

**Physical address**:
Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

## 1. SPECIALIST INFORMATION

| | | | | |
|---|---|---|---|---|
| Specialist Company Name: | CTS HERITAGE | | | |
| B-BBEE | Contribution level (indicate 1 to 8 or non-compliant) | 4 | Percentage Procurement recognition | |
| Specialist name: | JENNA LAWIN | | | |
| Specialist Qualifications: | MSC. ARCHAEOLOGY | | | |
| Professional affiliation/registration: | ASAPA<br>APHP | | | |
| Physical address: | 34 HARRIES ST. PLUMSTEAD | | | |
| Postal address: | " | | | |
| Postal code: | 7800 | Cell: | 083 619 0854 | |
| Telephone: | / | Fax: | / | |
| E-mail: | JENNA.LAWIN@CTSHERITAGE.COM | | | |

## 2. DECLARATION BY THE SPECIALIST

I, JENNA LAWIN, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

CTS HERITAGE

Name of Company:

06/07/2022

Date

## 3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

Signature of the Specialist

CTS HERITAGE

Name of Company

06/07/2022

Date

Signature of the Commissioner of Oaths

2022/07/06

Date

SUID-AFRIKAANSE POLISIEDIENS
COMMUNITY SERVICE CENTRE
MUIZENBERG
06 JUL 2022
COMMUNITY SERVICE CENTRE
MUIZENBERG
SOUTH AFRICAN POLICE SERVICE