

CTS HERITAGE

HERITAGE SCREENER

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|-----------------------|---|
| CTS Reference Number: | CTS19_016 |
| SAHRA Case No: | |
| Client: | Savannah |
| Date: | 1 March 2019 |
| Author: | Jenna Lavin |
| Title: | Proposed development of Khunab PV Facilities |

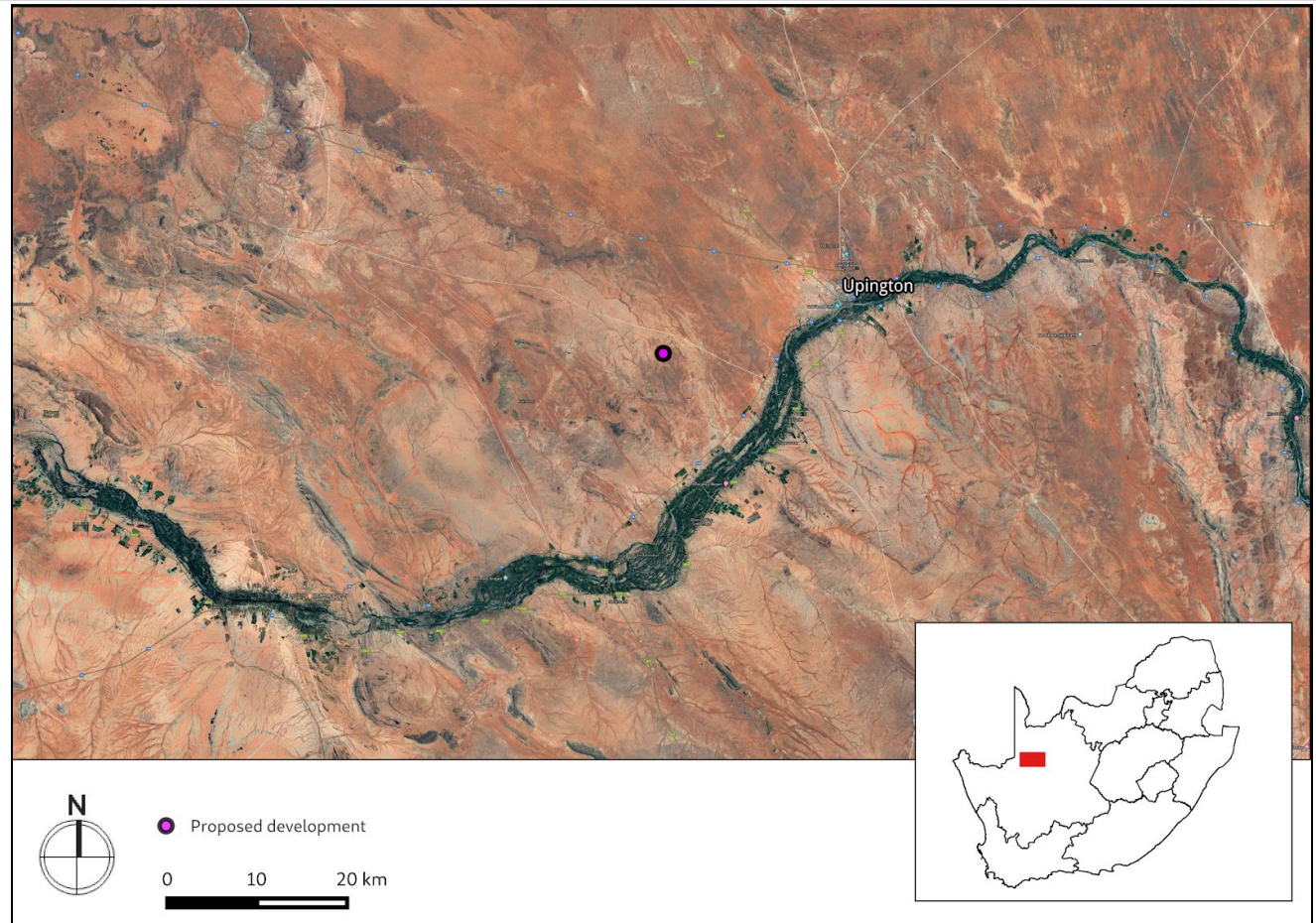


Figure 1a. Satellite map indicating the location of the proposed development in the Northern Cape Province

| | |
|--|--|
| Recommendation by CTS Heritage Specialists | <p>RECOMMENDATION: The heritage resources in the area proposed for development are not sufficiently recorded. Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that an archaeological field assessment and a desktop palaeontological assessment be conducted to inform a full Heritage Impact Assessment. (see section 8 for details)</p> |
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1. Proposed Development Summary

Information about project required

2. Application References

| | |
|--|-------|
| Name of relevant heritage authority(s) | SAHRA |
| Name of decision making authority(s) | DEA |

3. Property Information

| | |
|-------------------------------|---|
| Latitude / Longitude | 28°30'8.22"S 21° 2'46.03"E |
| Erf number / Farm number | <i>Information about project required</i> |
| Local Municipality | Dawid Kruiper |
| District Municipality | ZF Mgcawu |
| Previous Magisterial District | Gordonia |
| Province | Northern Cape |
| Current Use | None |
| Current Zoning | Agriculture |
| Total Extent | |

4. Nature of the Proposed Development

| | |
|---|---|
| Total Surface Area | <i>Information about project required</i> |
| Depth of excavation (m) | 3m |
| Height of development (m) | 3m |
| Expected years of operation before decommission | NA |

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5. Category of Development

| | |
|----------|---|
| x | Triggers: Section 38(8) of the National Heritage Resources Act |
| | Triggers: Section 38(1) of the National Heritage Resources Act |
| | 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

Information about project required

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

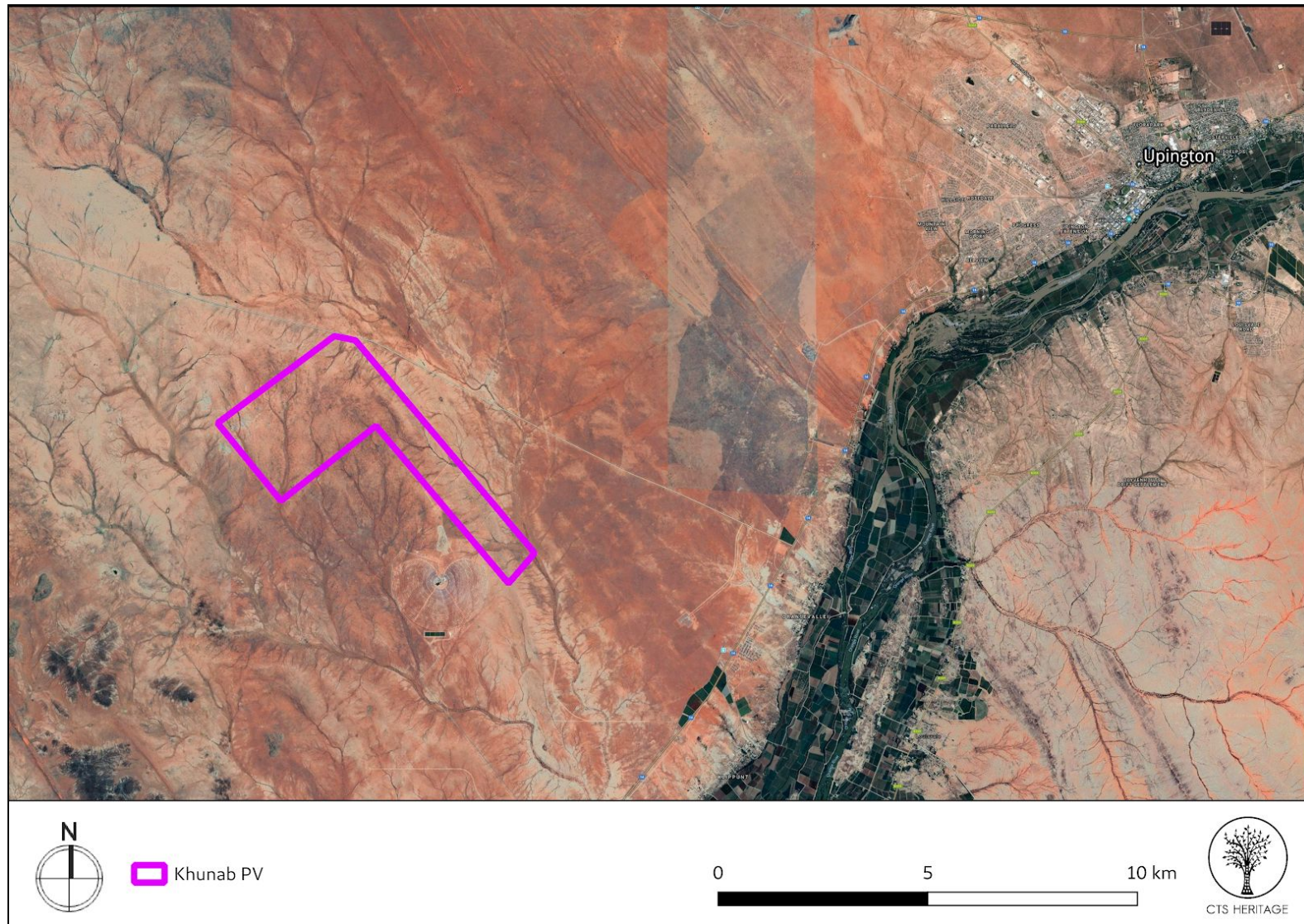


Figure 1b. Overview Map. Satellite image (2017) indicating the proposed development area at closer range, relative to Uppington.

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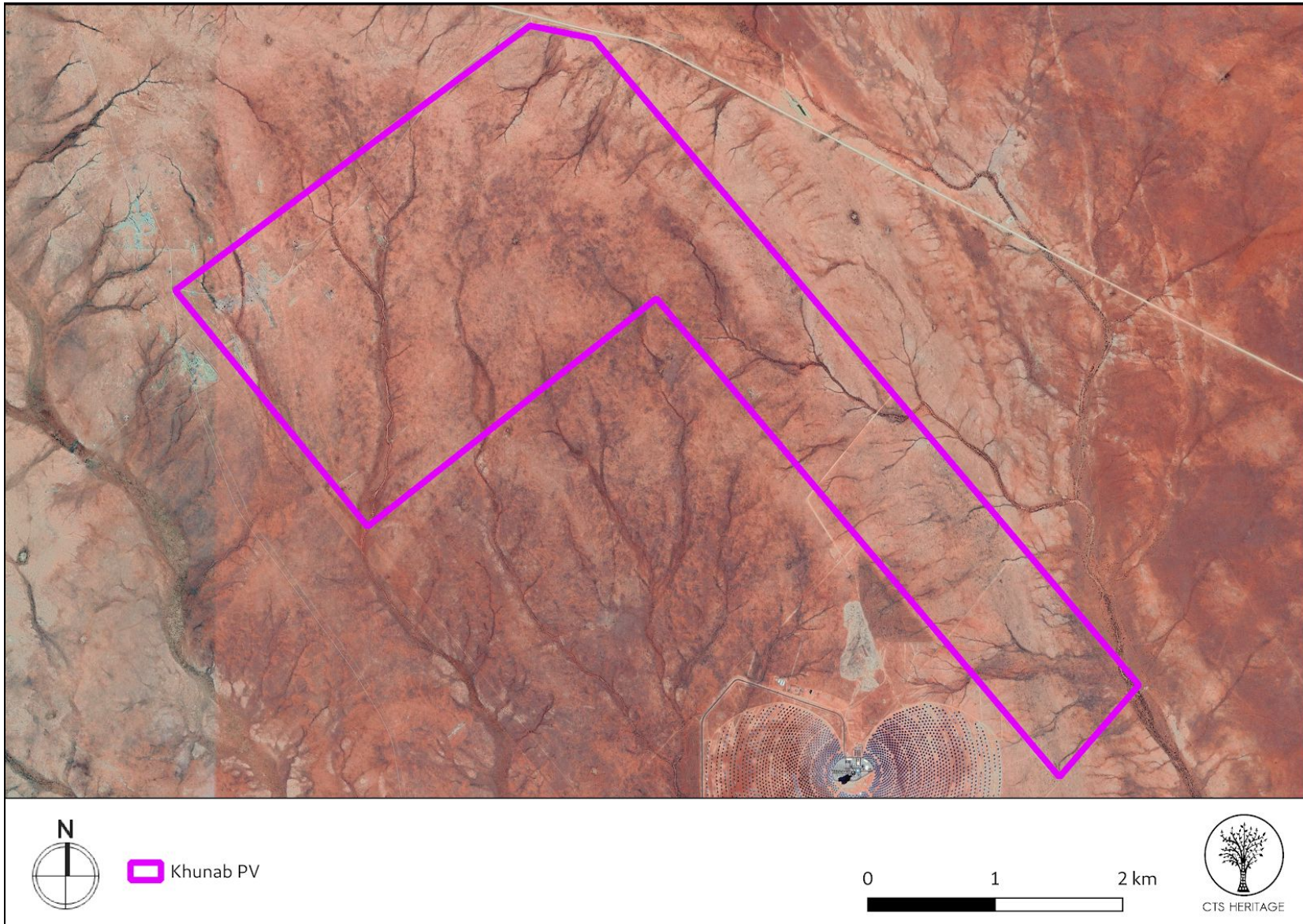
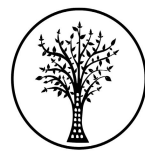


Figure 1c. Overview Map. Satellite image (2017) indicating the proposed development area at closer range.

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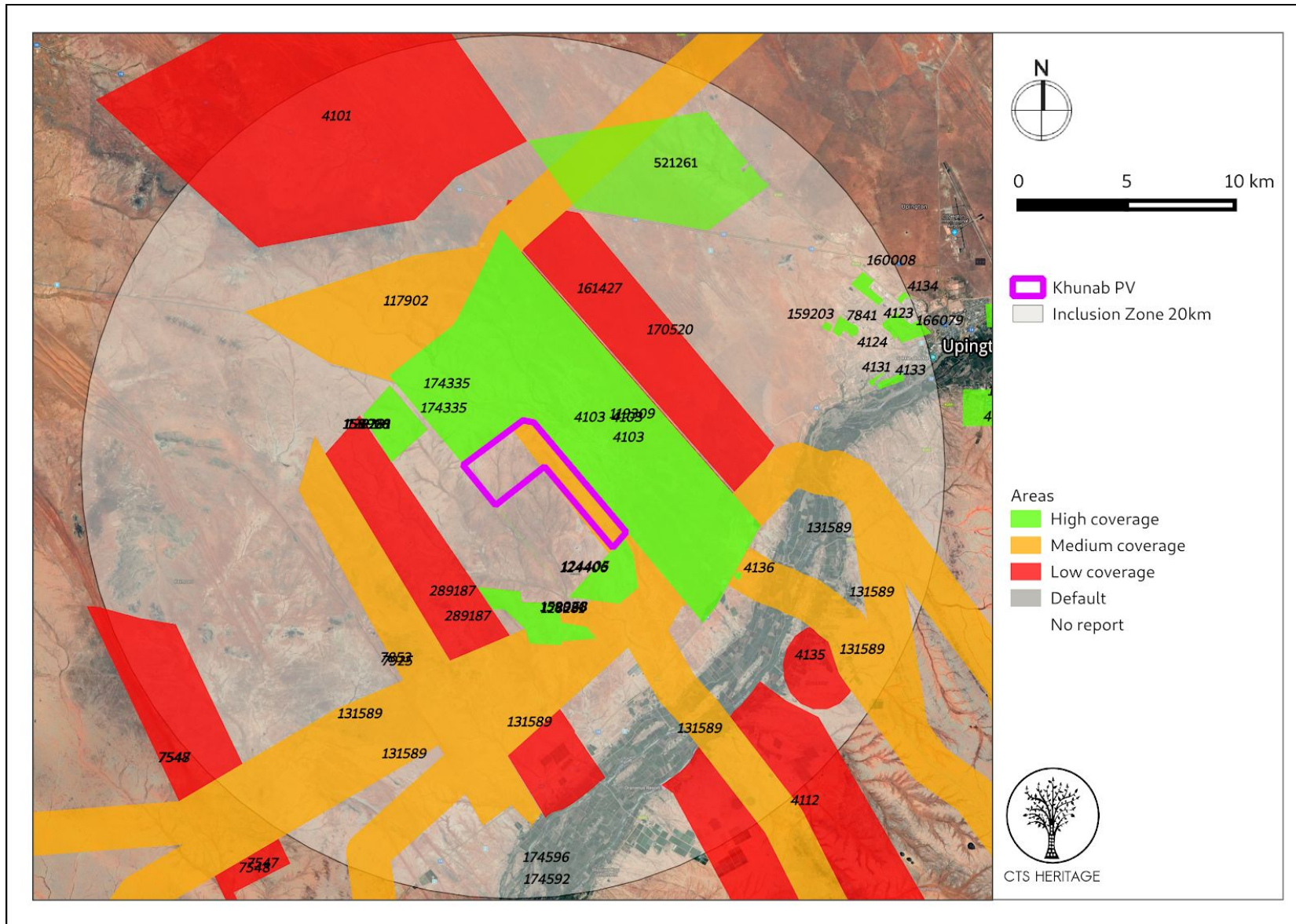


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 20km, with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.

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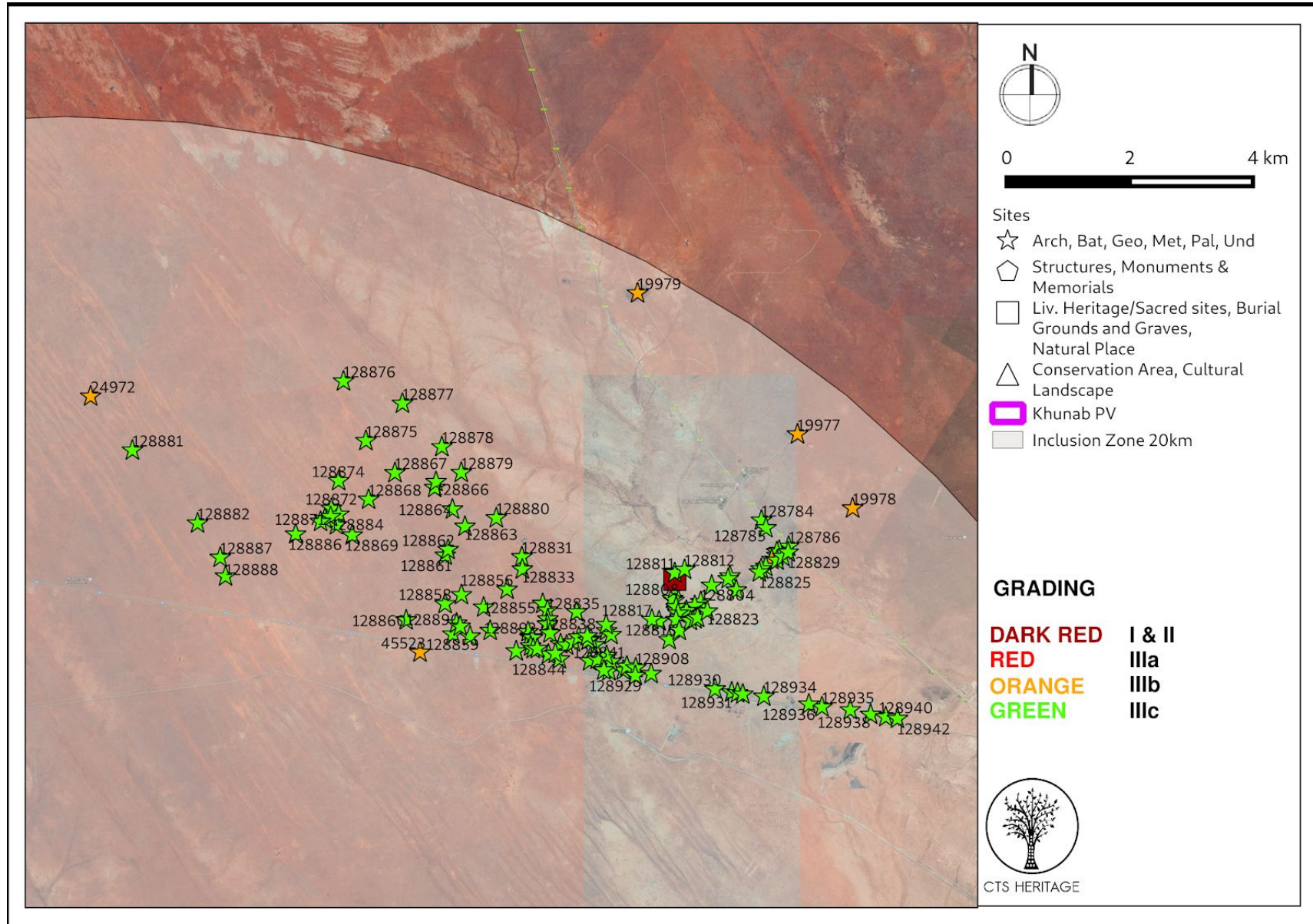


Figure 3a. Heritage Resources Map.

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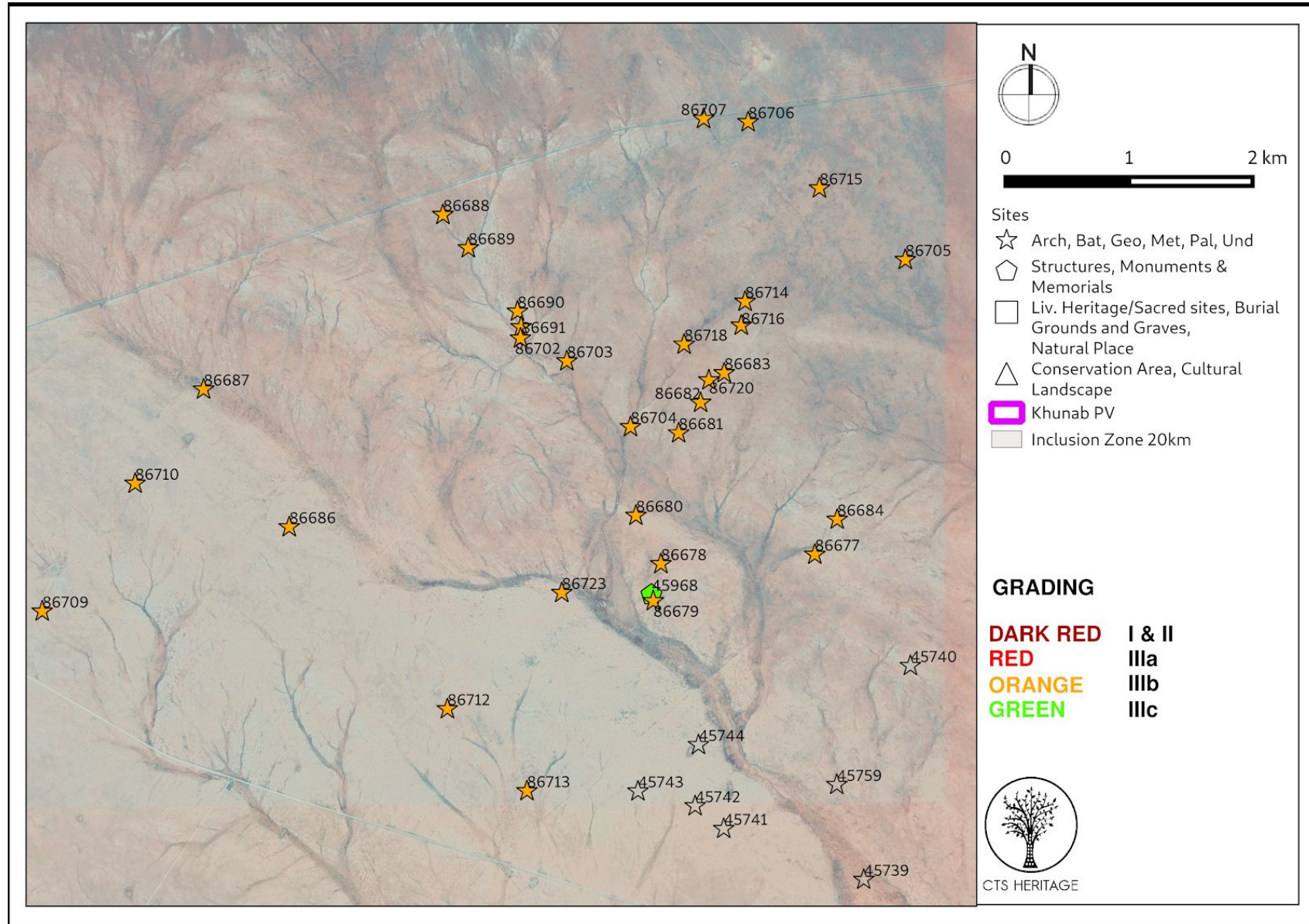


Figure 3b. Heritage Resources Map.

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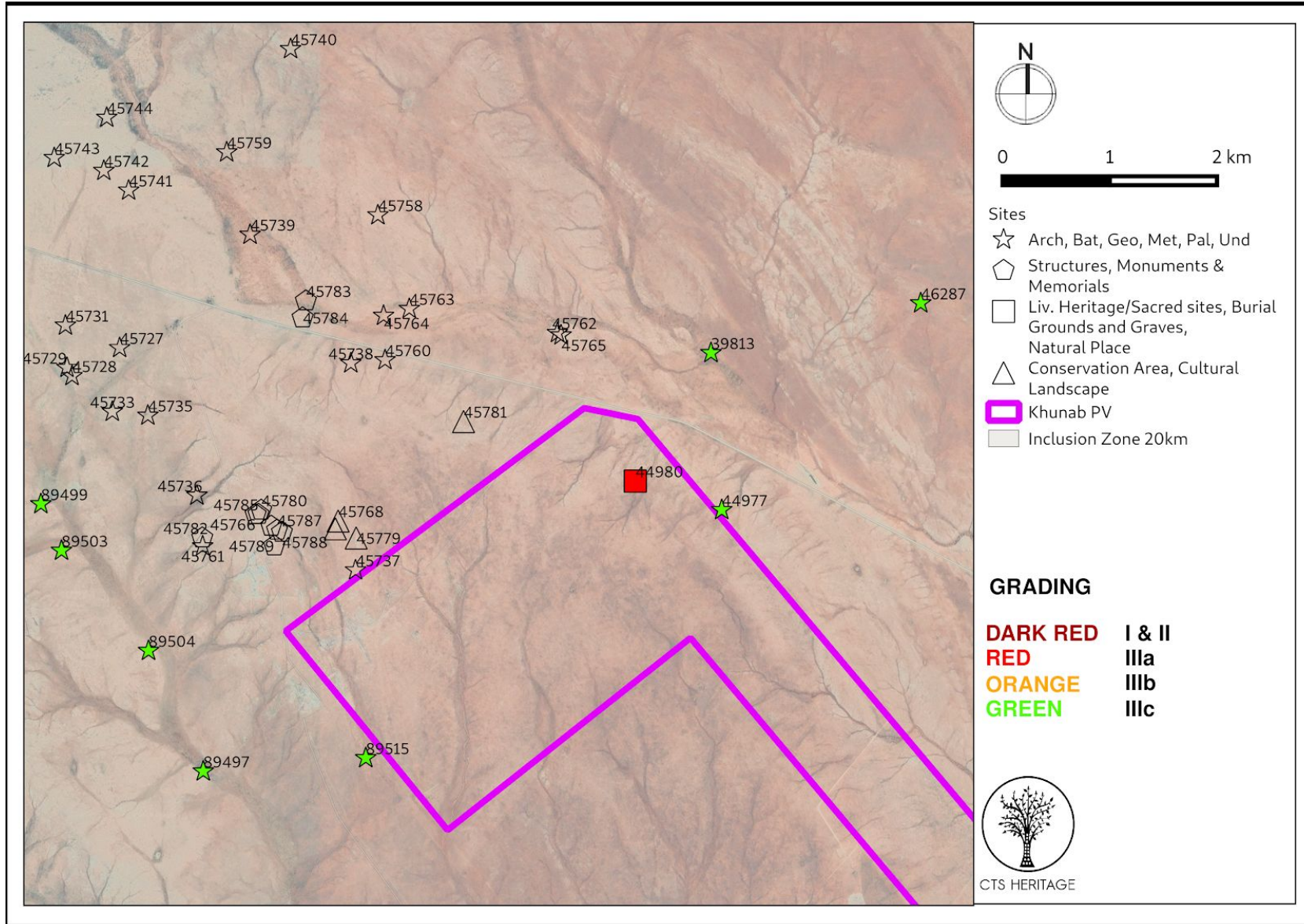


Figure 3c. Heritage Resources Map.

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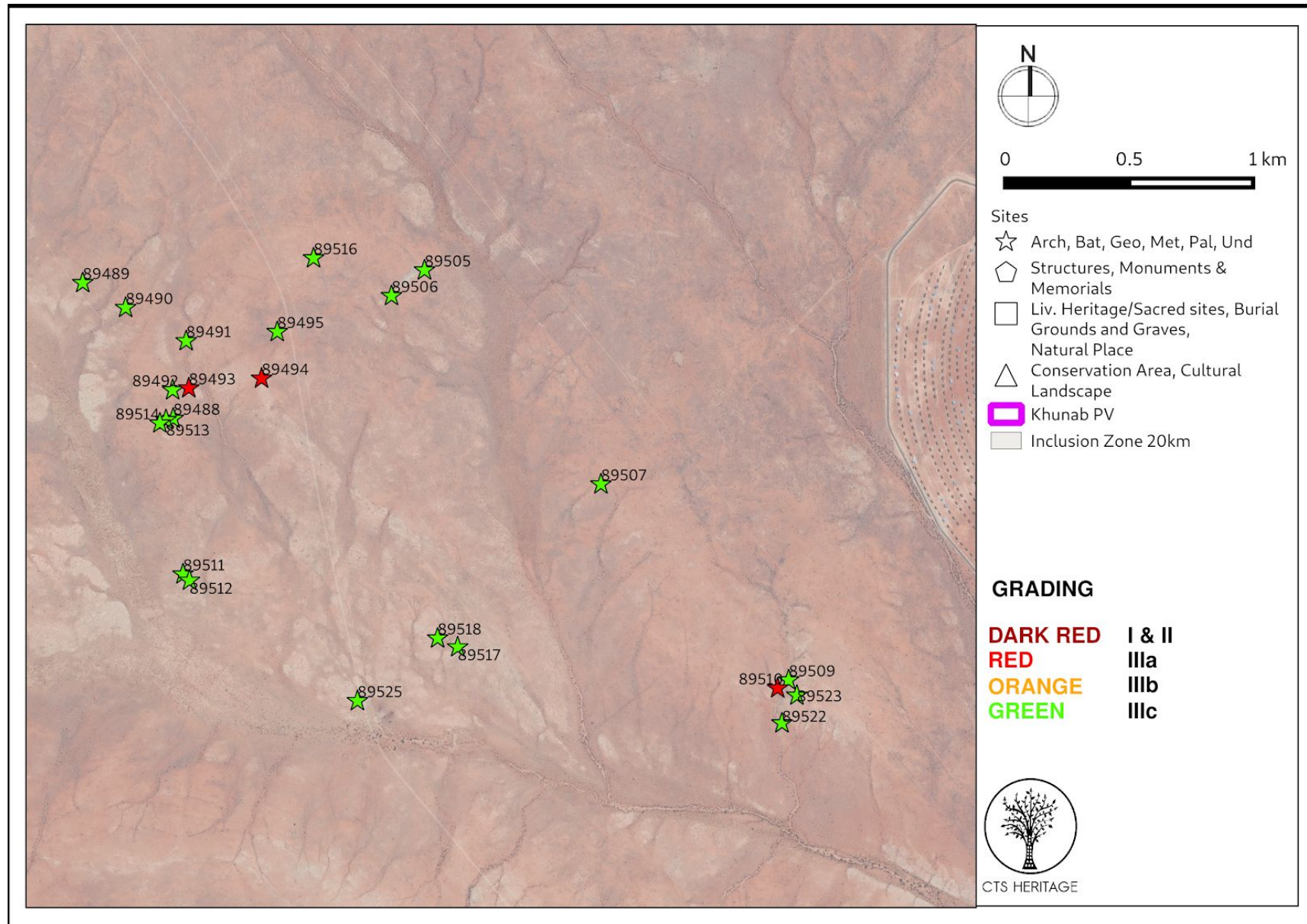


Figure 3d. Heritage Resources Map.

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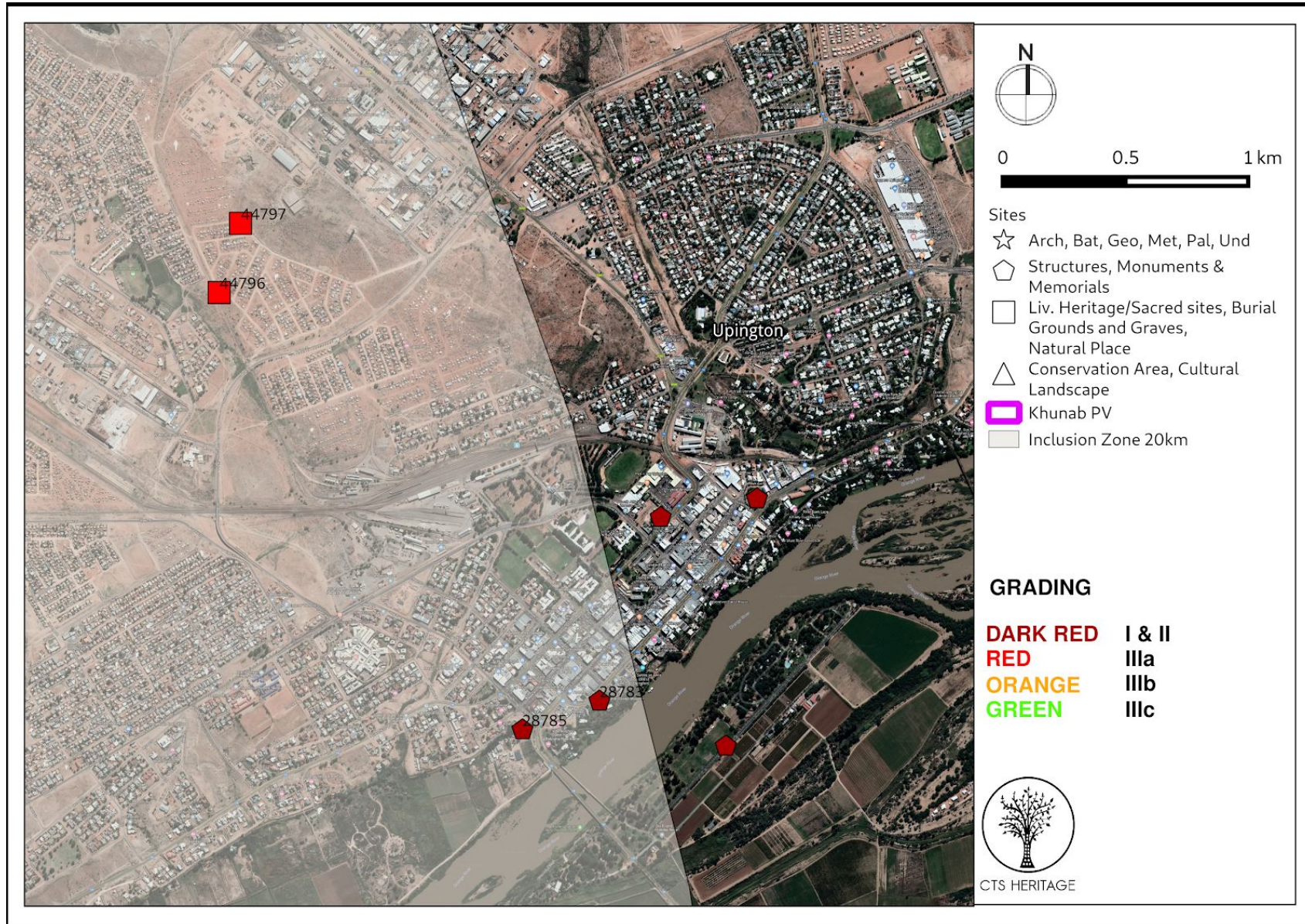


Figure 3e. Heritage Resources Map.

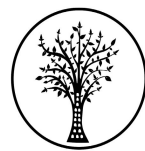
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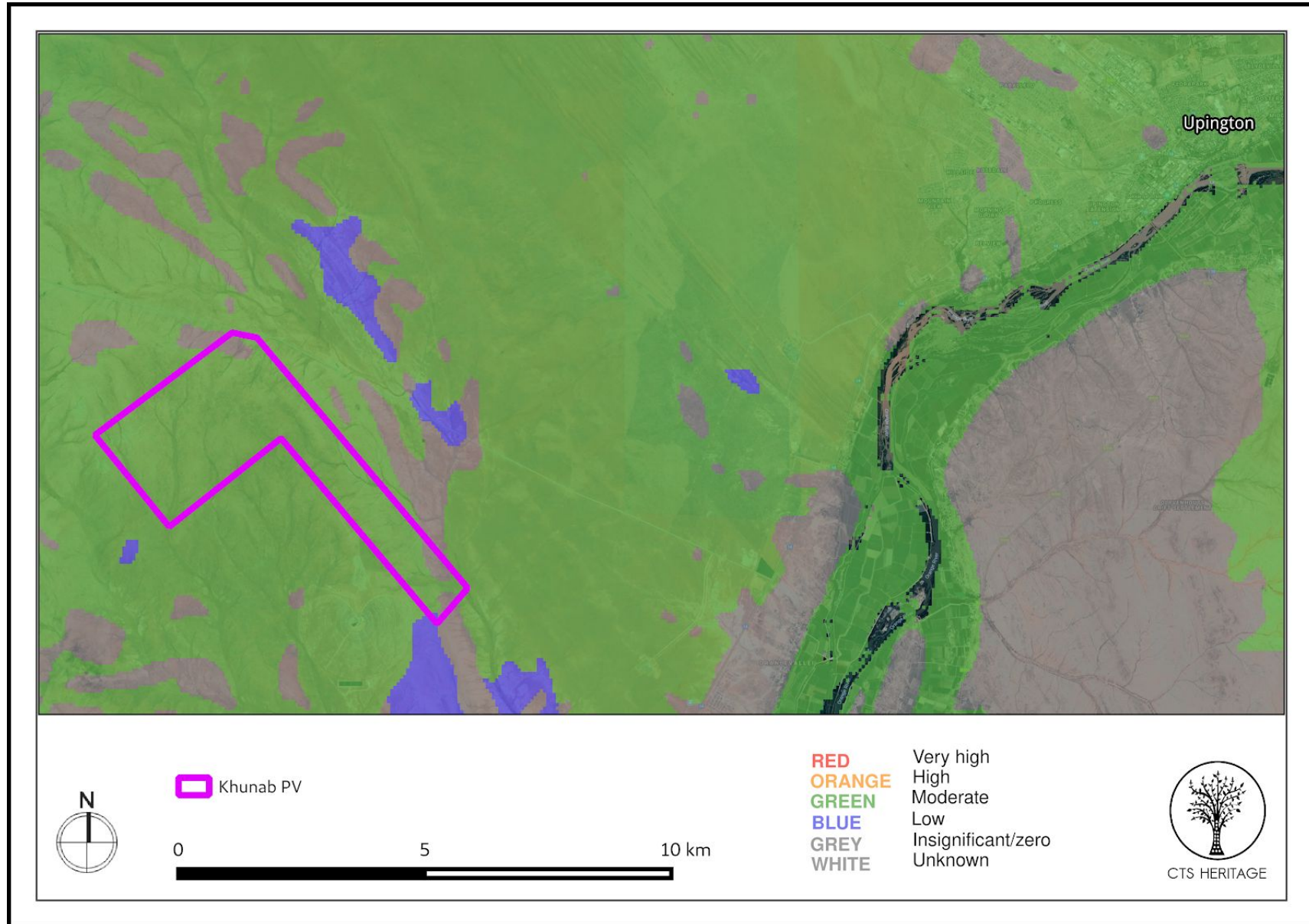


Figure 4. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for full guide to the legend.

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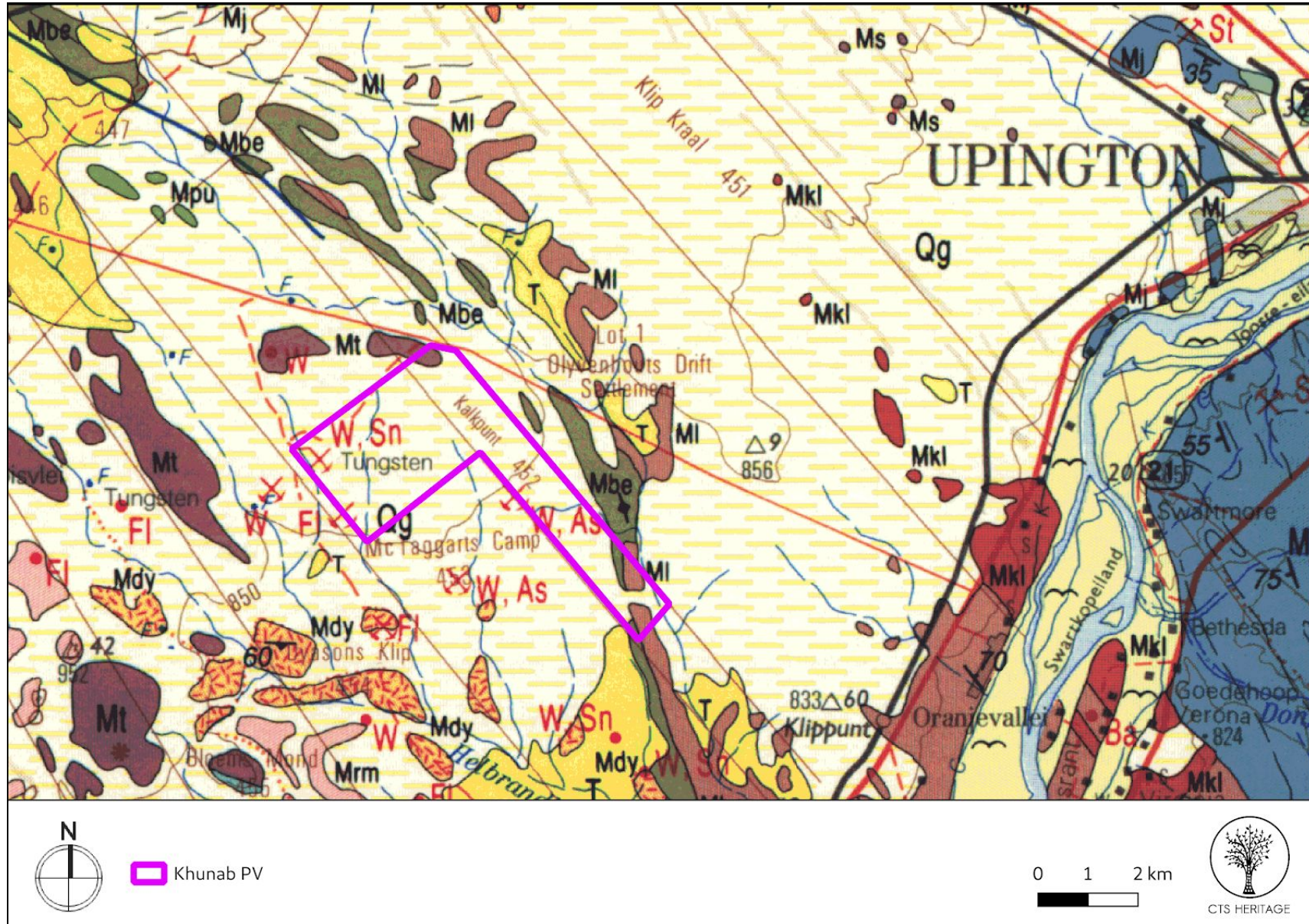


Figure 5.1 Extract from the 1:250 000 Geological Map of South Africa: Council of GeoScience Map 2820

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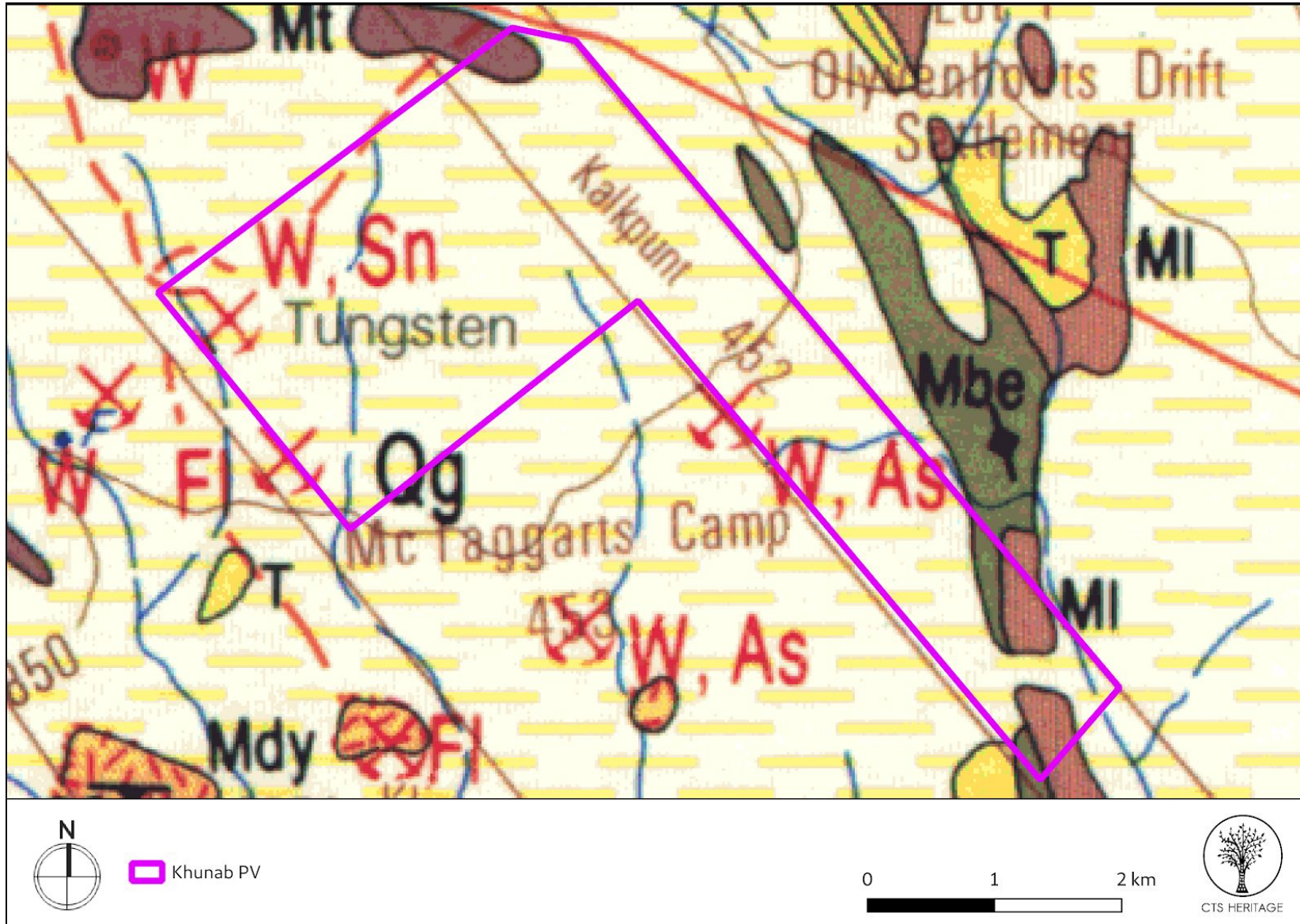
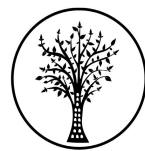


Figure 5.2 Extract from the 1:250 000 Geological Map of South Africa: Council of GeoScience Map 2820 Zoomed in. [Qg: Gordonia Formation (Quaternary coversands) Mbe: Bethesda Formation Mt: Toeslaan Formation MI: Louisvale Granite Mdy: Dyason's Klip Gneiss T: Tertiary]

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8. Heritage statement and character of the area

Information about project required

Cultural Landscape

According to Van Schalkwyk (2014 SAHRIS NID 170520), “The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a pre-colonial (stone age) component and a later colonial (farmer) component. This rural landscape has always been sparsely populated. The second component is an urban one, consisting of a number of smaller towns, most of which developed during the last 150 years or less.” According to Von Vollenhoven (2012 SAHRIS NID 117902), “the environment of the area is mostly undisturbed although it is being used for sheep farming... The natural topography... is reasonably flat, but in the north-west a hill dominates the area resulting in an even slope up to the crest. This area also is very rocky. The stones here are dark in colour and may be of a basaltic origin. However in the flat areas adjacent to the hill the rocks are white coloured and most likely are soft calcrete, which would not have been suitable for the manufacture of stone tools. Different non-perennial streams run through the area...” According to Fourie’s assessment of the impacts of similar infrastructure in this area (2014), due to the landscape’s topography the solar park infrastructure will be prominent in the landscape and alter the rural appearance. Due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant. In addition, there is an existing solar park located in very close proximity to the proposed development area (Figure 1c), setting a precedent for this kind of infrastructure in this area.

Archaeology and the Built Environment

Many farm portions in the immediate vicinity of the area proposed for development have been assessed in terms of impacts to heritage resources (Figure 2). It has been found that the area surrounding Upington has a rich historical and archaeological past (Fourie, 2014 SAHRIS NID 174335). Based on the outcomes of these assessments, it is noted that most of the heritage resources identified are stone age artefact scatters of varying significance. In Fourie’s assessment (2014), the field work identified numerous areas where low density scatters of Middle and Later Stone Age lithics were found. As no context and *in situ* preservation were identified these sites were graded as having low heritage significance. In addition, one possible herder site was identified during the survey. No other material or deposits were identified but does not exclude the possibility of subsurface material. The ruins of old mining infrastructure were also identified. In Von Vollenhoven’s assessment (2012 SAHRIS NID 117902), he identified a number of very interesting and significant rock art engravings depicting various animals including giraffes and an aardvark. In addition, he identified a significant historical site known as the “Rebellion Tree” as well as graves associated with farmers in this area.

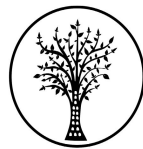
Numerous heritage resources have been identified within the immediate vicinity of the area proposed for development (Figure 3 and insets b, c and d). The vast majority of these are archaeological artefacts with little or no contextual information associated with them, resulting in their low heritage significance assessment. Dreyer (2006, SAHRIS NID 4103) identified a number of stone flakes and flaked stone cores on the surface of a neighbouring site (Figure 2). He determined that the raw material originated from the local geological horizon and is broadly described as chalcedony, meta-quartzite and banded ironstone from the Griquastad Layer. He also identified a heavily soldered food tin resembling British rations from the Anglo-Boer War (1899-1902). Dreyer (2006) anticipated that there could have been a British camp in the vicinity during the War, but nothing else to confirm this expectation was discovered. Fourie (2014, SAHRIS NID 174335) identified a number of heritage resources in his assessment of Farm Rooipunt 617 including stone age tools and sites, possible herder sites and historical structures associated with mining and prospecting.

Based on the available information, it is likely that the proposed development will impact on significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase. (see impact tables below).

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Palaeontology

According to the SAHRIS Palaeosensitivity Map (Figure 4), the extract from the CGS Sheet 2820 Figure 5.1 and 5.2), this area is underlain by the Gordonia Formation (Quaternary coversands of moderate palaeontological sensitivity). Nearby geology includes the Bethesda Formation, the Toeslaan Formation, the Louisvale Granite and Dyasons Klip Gneiss, all of which have zero palaeontological sensitivity. The primary risk associated with impacts to palaeontological heritage is related to impacting fossils preserved within the Quaternary coversands of the Gordonia Formation (wind-blown alluvial sands). According to Almond's assessment for similar infrastructure development in this area (2011 SAHRIS NID 174335), "overall impact significance of the proposed solar park development is likely to be LOW because: Most of the study area is underlain by unfossiliferous igneous and metamorphic basement rocks (granites, gneisses etc.) or mantled by superficial sediments (wind-blown sands, alluvium etc.) of low palaeontological sensitivity; Extensive, deep excavations are unlikely to be involved in this sort of solar park project."

As such, and for the same reasons, it is anticipated that the proposed development will not impact on significant palaeontological heritage and therefore no further assessment of impacts to palaeontological heritage is recommended.

Cumulative Impacts

Of the 34 Heritage Assessments conducted within 20km of the proposed development area (Appendix 2), 14 are for Solar Energy/PV Facilities and 3 are for electrical infrastructure. The remaining assessments relate to mining infrastructure and residential township developments. At this stage, there is the potential for the cumulative impact of proposed solar energy facilities to negatively impact the cultural landscape due to a change in the landscape character from natural wilderness to semi-industrial, however, due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant. In addition, there is an existing solar park located in very close proximity to the proposed development area (Figure 1c).

RECOMMENDATION:

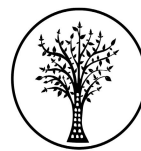
The heritage resources in the area proposed for development are not sufficiently recorded.

Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that an archaeological field assessment and a desktop palaeontological assessment be conducted to inform a full Heritage Impact Assessment.

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9. Scoping Assessment Impact Table

Impact

- Impact to archaeological and built environment resources
- Impact to palaeontological resources
- Impact to Cultural Landscape
- Cumulative Impact

Desktop Sensitivity Analysis of the Site

- Impact to significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase.
- Impacts to palaeontological resources are unlikely.
- There is the potential for the cumulative impact of proposed solar energy facilities to negatively impact the cultural landscape due to a change in the landscape character from natural wilderness to semi-industrial, however, due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant.

| Issue | Nature of Impact | Extent of Impact | No-Go Areas |
|---|--|--|--|
| Impact to significant archaeological resources such as Stone Age artefact scatters, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase. | Destruction of significant archaeological and other heritage resources resources | Local scale with broader impacts to scientific knowledge | To be identified through the field assessment. |

Gaps in knowledge & recommendations for further study

The heritage resources in the area proposed for development are not sufficiently recorded.

Based on the available information, including the scale and nature of the proposed development, it is likely that significant heritage resources will be impacted by the proposed development and as such it is recommended that an **archaeological field assessment** be conducted to inform a full Heritage Impact Assessment. This field assessment will identify all heritage resources of significance within the development footprint, map them and grade them in terms of their significance. This will inform the Heritage Impact Assessment which will clarify the impacts anticipated and provide mitigation measures, recommendations and possible no-go zones, as well as an assessment of the proposed alternatives.



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APPENDIX 1

List of heritage resources within the 20km Inclusion Zone

| Site ID | Site no | Full Site Name | Site Type | Grading |
|---------|------------|----------------------------|------------------------------------|------------|
| 128787 | ALP4 | Allepad 4 | Artefacts | Grade IIIc |
| 128788 | ALP5 | Allepad 5 | Artefacts | Grade IIIc |
| 89513 | DYA022 | DYASON'S KLIP 454/022 | Artefacts | Grade IIIc |
| 89521 | DYA030 | DYASON'S KLIP 454/030 | Artefacts | Grade IIIc |
| 89523 | DYA032 | DYASON'S KLIP 454/032 | Artefacts | Grade IIIc |
| 128784 | ALP1 | ALP1 | Artefacts | Grade IIIc |
| 86683 | SASOL008 | SASOL CSP 008 | Artefacts | Grade IIIb |
| 86684 | SASOL009 | SASOL CSP 009 | Artefacts | Grade IIIb |
| 93886 | Zoovoorbij | Zoovoorbij | Archaeological | |
| 45425 | GEELKOP02 | Geelkop 456 02 | Artefacts | Grade IIIc |
| 86680 | SASOL005 | SASOL CSP 005 | Artefacts | Grade IIIb |
| 44980 | UP09 | Uppington 09 | Burial Grounds & Graves | Grade IIIa |
| 86681 | SASOL006 | SASOL CSP 006 | Artefacts | Grade IIIb |
| 86682 | SASOL007 | SASOL CSP 007 | Artefacts | Grade IIIb |
| 44796 | DAKOTA01 | Dakota Drive, Uppington 01 | Artefacts, Burial Grounds & Graves | Grade IIIa |
| 44797 | DAKOTA02 | Dakota Drive, Uppington 02 | Burial Grounds & Graves | Grade IIIa |
| 86688 | SASOL013 | SASOL CSP 013 | Artefacts | Grade IIIb |
| 89525 | DYA033 | DYASON'S KLIP 454/033 | Artefacts | Grade IIIc |
| 45427 | GEELKOP01 | Geelkop 456 01 | Archaeological | Grade IIIb |
| 39813 | SOA001 | Solar-Aries 001 | Artefacts | Grade IIIc |
| 45429 | GEELKOP03 | Geelkop 456 03 | Archaeological | Grade IIIc |

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|-------|----------------|--------------------------------|------------------------------|------------|
| 39814 | SOA002 | Solar-Aries 002 | Living Heritage/Sacred sites | Grade IIIc |
| 19978 | SPITZ2 | Spitzkop 2 | Artefacts | Grade IIIb |
| 86686 | SASOL011 | SASOL CSP 011 | Artefacts | Grade IIIb |
| 86687 | SASOL012 | SASOL CSP 012 | Artefacts | Grade IIIb |
| 7820 | 2830BD 317 | | Ruin > 100 years | Grade IIIb |
| 86689 | SASOL014 | SASOL CSP 014 | Artefacts | Grade IIIb |
| 86690 | SASOL015 | SASOL CSP 015 | Artefacts | Grade IIIb |
| 86691 | SASOL016 | SASOL CSP 016 | Artefacts | Grade IIIb |
| 19977 | SPITZ1 | Spitzkop 1 | Artefacts | Grade IIIb |
| 89492 | DYA005 | DYASON'S KLIP 454/005 | Artefacts | Grade IIIc |
| 89494 | DYA007 | DYASON'S KLIP 454/007 | Artefacts | Grade IIIa |
| 89495 | DYA008 | DYASON'S KLIP 454/008 | Artefacts | Grade IIIc |
| 89499 | DYA010 | DYASON'S KLIP 454/010 | Artefacts | Grade IIIc |
| 86702 | SASOL017 | SASOL CSP 017 | Artefacts | Grade IIIb |
| 86703 | SASOL018 | SASOL CSP 018 | Artefacts | Grade IIIb |
| 24972 | Van Roois Vley | Van Roois Vlei Stone Age sites | Artefacts | Grade IIIb |
| 89491 | DYA004 | DYASON'S KLIP 454/004 | Artefacts | Grade IIIc |
| 45762 | ROOI020 | Rooipunt 020 | Artefacts | Grade IV |
| 45523 | VRV01 | Van Rooy's Vlei 01 | Artefacts | Grade IIIb |
| 45763 | ROOI021 | Rooipunt 021 | Artefacts | Grade IV |
| 45764 | ROOI022 | Rooipunt 022 | Artefacts | Grade IV |
| 45758 | ROOI016 | Rooipunt 016 | Artefacts | Grade IV |
| 45759 | ROOI017 | Rooipunt 017 | Artefacts | Grade IV |
| 45760 | ROOI018 | Rooipunt 018 | Artefacts | Grade IV |

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| 45761 | ROOI019 | Rooipunt 019 | Artefacts | Grade IV |
| 84417 | SSF001 | Sirius Solar Facilities 001 | Artefacts | Grade IIIc |
| 84418 | SSF002 | Sirius Solar Facilities 002 | Artefacts | Grade IIIc |
| 45779 | ROOI027 | Rooipunt 027 | Conservation Area | Grade IV |
| 45780 | ROOI028 | Rooipunt 028 | Structures | Grade IV |
| 45765 | ROOI023 | Rooipunt 023 | Stone walling | Grade IV |
| 45766 | ROOI024 | Rooipunt 024 | Structures | Grade IV |
| 45767 | ROOI025 | Rooipunt 025 | Conservation Area | Grade IV |
| 45768 | ROOI026 | Rooipunt 026 | Conservation Area | Grade IV |
| 45785 | ROOI033 | Rooipunt 033 | Structures | Grade IV |
| 45786 | ROOI034 | Rooipunt 034 | Structures | Grade IV |
| 45787 | ROOI035 | Rooipunt 035 | Structures | Grade IV |
| 45788 | ROOI036 | Rooipunt 036 | Structures | Grade IV |
| 45781 | ROOI029 | Rooipunt 029 | Conservation Area | Grade IV |
| 45782 | ROOI030 | Rooipunt 030 | Structures | Grade IV |
| 45783 | ROOI031 | Rooipunt 031 | Structures | Grade IV |
| 45784 | ROOI032 | Rooipunt 032 | Structures | Grade IV |
| 86677 | SASOL002 | SASOL CSP 002 | Artefacts | Grade IIIb |
| 86678 | SASOL003 | SASOL CSP 003 | Artefacts | Grade IIIb |
| 44977 | UP08 | Upington 08 | Artefacts | Grade IIIc |
| 86679 | SASOL004 | SASOL CSP 004 | Artefacts | Grade IIIb |
| 45789 | ROOI037 | Rooipunt 037 | Structures | Grade IV |
| 19979 | SPITZ3 | Spitzkop 3 | Artefacts | Grade IIIb |
| 46287 | OLYV01 | OLYVENHOUTS DRIFT 01 | Artefacts | Grade IIIc |
| 45968 | SASOL001 | SASOL CSP 001 | Structures | Grade IIIc |

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| 86709 | SASOL024 | SASOL CSP 024 | Artefacts | Grade IIIb |
| 86710 | SASOL025 | SASOL CSP 025 | Artefacts | Grade IIIb |
| 86711 | SASOL026 | SASOL CSP 026 | Artefacts | Grade IIIb |
| 86712 | SASOL027 | SASOL CSP 027 | Artefacts | Grade IIIb |
| 86704 | SASOL019 | SASOL CSP 019 | Artefacts | Grade IIIb |
| 86705 | SASOL020 | SASOL CSP 020 | Artefacts | Grade IIIb |
| 86706 | SASOL021 | SASOL CSP 021 | Artefacts | Grade IIIb |
| 86707 | SASOL022 | SASOL CSP 022 | Artefacts | Grade IIIb |
| 86715 | SASOL030 | SASOL CSP 030 | Artefacts | Grade IIIb |
| 86716 | SASOL031 | SASOL CSP 031 | Artefacts | Grade IIIb |
| 86718 | SASOL032 | SASOL CSP 032 | Artefacts | Grade IIIb |
| 86720 | SASOL033 | SASOL CSP 033 | Artefacts | Grade IIIb |
| 28785 | 9/2/032/0016 | Old Watermill, Upington | Building | Grade II |
| 28783 | 9/2/032/0018 | Museum Complex, 4 Schroder Street, Upington | Building | Grade II |
| 86713 | SASOL028 | SASOL CSP 028 | Artefacts | Grade IIIb |
| 86714 | SASOL029 | SASOL CSP 029 | Artefacts | Grade IIIb |
| 45733 | ROOI005 | Rooipunt 005 | Artefacts | Grade IV |
| 45735 | ROOI006 | Rooipunt 006 | Artefacts | Grade IV |
| 45736 | ROOI007 | Rooipunt 007 | Artefacts | Grade IV |
| 45737 | ROOI008 | Rooipunt 008 | Artefacts | Grade IV |
| 45727 | ROOI001 | Rooipunt 001 | Artefacts | Grade IV |
| 45728 | ROOI002 | Rooipunt 002 | Artefacts | Grade IV |
| 45729 | ROOI003 | Rooipunt 003 | Artefacts | Grade IV |
| 45731 | ROOI004 | Rooipunt 004 | Artefacts | Grade IV |
| 45742 | ROOI013 | Rooipunt 013 | Artefacts | Grade IV |

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|--------|----------|---------------|-----------|------------|
| 45743 | ROOI014 | Rooipunt 014 | Artefacts | Grade IV |
| 45744 | ROOI015 | Rooipunt 015 | Artefacts | Grade IV |
| 86723 | SASOL034 | SASOL CSP 034 | Artefacts | Grade IIIb |
| 45738 | ROOI009 | Rooipunt 009 | Artefacts | Grade IV |
| 45739 | ROOI010 | Rooipunt 010 | Artefacts | Grade IV |
| 45740 | ROOI011 | Rooipunt 011 | Artefacts | Grade IV |
| 45741 | ROOI012 | Rooipunt 012 | Artefacts | Grade IV |
| 128910 | ALP105 | Allepad 105 | Artefacts | Grade IIIc |
| 128911 | ALP106 | Allepad 106 | Artefacts | Grade IIIc |
| 128912 | ALP107 | Allepad 107 | Artefacts | Grade IIIc |
| 128914 | ALP108 | Allepad 108 | Artefacts | Grade IIIc |
| 128906 | ALP101 | Allepad 101 | Artefacts | Grade IIIc |
| 128907 | ALP102 | Allepad 102 | Artefacts | Grade IIIc |
| 128908 | ALP103 | Allepad 103 | Artefacts | Grade IIIc |
| 128909 | ALP104 | Allepad 104 | Artefacts | Grade IIIc |
| 128920 | ALP113 | Allepad 113 | Artefacts | Grade IIIc |
| 128922 | ALP114 | Allepad 114 | Artefacts | Grade IIIc |
| 128928 | ALP115 | Allepad 115 | Artefacts | Grade IIIc |
| 128929 | ALP116 | Allepad 116 | Artefacts | Grade IIIc |
| 128915 | ALP109 | Allepad 109 | Artefacts | Grade IIIc |
| 128916 | ALP110 | Allepad 110 | Artefacts | Grade IIIc |
| 128917 | ALP111 | Allepad 111 | Artefacts | Grade IIIc |
| 128919 | ALP112 | Allepad 112 | Artefacts | Grade IIIc |
| 128934 | ALP121 | Allepad 121 | Artefacts | Grade IIIc |
| 128935 | ALP123 | Allepad 123 | Artefacts | Grade IIIc |

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|--------|--------|-------------|-----------|------------|
| 128936 | ALP122 | Allepad 122 | Artefacts | Grade IIIc |
| 128937 | ALP124 | Allepad 124 | Artefacts | Grade IIIc |
| 128930 | ALP117 | Allepad 117 | Artefacts | Grade IIIc |
| 128931 | ALP118 | Allepad 118 | Artefacts | Grade IIIc |
| 128932 | ALP119 | Allepad 119 | Artefacts | Grade IIIc |
| 128933 | ALP120 | Allepad 120 | Artefacts | Grade IIIc |
| 128942 | ALP129 | Allepad 129 | Artefacts | Grade IIIc |
| 128938 | ALP125 | Allepad 125 | Artefacts | Grade IIIc |
| 128939 | ALP126 | Allepad 126 | Artefacts | Grade IIIc |
| 128940 | ALP127 | Allepad 127 | Artefacts | Grade IIIc |
| 128941 | ALP128 | Allepad 128 | Artefacts | Grade IIIc |
| 128876 | ALP73 | Allepad 73 | Artefacts | Grade IIIc |
| 128877 | ALP74 | Allepad 74 | Artefacts | Grade IIIc |
| 128878 | ALP75 | Allepad 75 | Artefacts | Grade IIIc |
| 128879 | ALP76 | Allepad 76 | Artefacts | Grade IIIc |
| 128871 | ALP69 | Allepad 69 | Artefacts | Grade IIIc |
| 128872 | ALP70 | Allepad 70 | Artefacts | Grade IIIc |
| 128874 | ALP71 | Allepad 71 | Artefacts | Grade IIIc |
| 128875 | ALP72 | Allepad 72 | Artefacts | Grade IIIc |
| 128884 | ALP81 | Allepad 81 | Artefacts | Grade IIIc |
| 128885 | ALP82 | Allepad 82 | Artefacts | Grade IIIc |
| 128886 | ALP83 | Allepad 83 | Artefacts | Grade IIIc |
| 128887 | ALP84 | Allepad 84 | Artefacts | Grade IIIc |
| 128880 | ALP77 | Allepad 77 | Artefacts | Grade IIIc |
| 128881 | ALP78 | Allepad 78 | Artefacts | Grade IIIc |

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| 128882 | ALP79 | Allepad 79 | Artefacts | Grade IIIc |
| 128883 | ALP80 | Allepad 80 | Artefacts | Grade IIIc |
| 128892 | ALP89 | Allepad 89 | Artefacts | Grade IIIc |
| 128893 | ALP90 | Allepad 90 | Artefacts | Grade IIIc |
| 128895 | ALP91 | Allepad 91 | Artefacts | Grade IIIc |
| 128897 | ALP92 | Allepad 92 | Artefacts | Grade IIIc |
| 128888 | ALP85 | Allepad 85 | Artefacts | Grade IIIc |
| 128889 | ALP86 | Allepad 86 | Artefacts | Grade IIIc |
| 128890 | ALP87 | Allepad 87 | Artefacts | Grade IIIc |
| 128891 | ALP88 | Allepad 88 | Artefacts | Grade IIIc |
| 128902 | ALP97 | Allepad 97 | Artefacts | Grade IIIc |
| 128903 | ALP98 | Allepad 98 | Artefacts | Grade IIIc |
| 128904 | ALP99 | Allepad 99 | Artefacts | Grade IIIc |
| 128905 | ALP100 | Allepad 100 | Artefacts | Grade IIIc |
| 128898 | ALP93 | Allepad 93 | Artefacts | Grade IIIc |
| 128899 | ALP94 | Allepad 94 | Artefacts | Grade IIIc |
| 128900 | ALP95 | Allepad 95 | Artefacts | Grade IIIc |
| 128901 | ALP96 | Allepad 96 | Artefacts | Grade IIIc |
| 128836 | ALP42 | Allepad 42 | Artefacts | Grade IIIc |
| 128837 | ALP43 | Allepad 43 | Artefacts | Grade IIIc |
| 128838 | ALP44 | Allepad 44 | Artefacts | Grade IIIc |
| 128839 | ALP45 | Allepad 45 | Artefacts | Grade IIIc |
| 128831 | ALP38 | Allepad 38 | Artefacts | Grade IIIc |
| 128833 | ALP39 | Allepad 39 | Artefacts | Grade IIIc |
| 128834 | ALP40 | Allepad 40 | Artefacts | Grade IIIc |

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|--------|-------|------------|-----------|------------|
| 128835 | ALP41 | Allepad 41 | Artefacts | Grade IIIc |
| 128846 | ALP50 | Allepad 50 | Artefacts | Grade IIIc |
| 128852 | ALP51 | Allepad 51 | Artefacts | Grade IIIc |
| 128853 | ALP51 | Allepad 51 | Artefacts | Grade IIIc |
| 128854 | ALP52 | Allepad 52 | Artefacts | Grade IIIc |
| 128840 | ALP46 | Allepad 46 | Artefacts | Grade IIIc |
| 128841 | ALP47 | Allepad 47 | Artefacts | Grade IIIc |
| 128842 | ALP48 | Allepad 48 | Artefacts | Grade IIIc |
| 128844 | ALP49 | Allepad 49 | Artefacts | Grade IIIc |
| 128859 | ALP57 | Allepad 57 | Artefacts | Grade IIIc |
| 128860 | ALP58 | Allepad 58 | Artefacts | Grade IIIc |
| 128861 | ALP59 | Allepad 59 | Artefacts | Grade IIIc |
| 128862 | ALP60 | Allepad 60 | Artefacts | Grade IIIc |
| 128855 | ALP53 | Allepad 53 | Artefacts | Grade IIIc |
| 128856 | ALP54 | Allepad 54 | Artefacts | Grade IIIc |
| 128857 | ALP55 | Allepad 55 | Artefacts | Grade IIIc |
| 128858 | ALP56 | Allepad 56 | Artefacts | Grade IIIc |
| 128867 | ALP65 | Allepad 65 | Artefacts | Grade IIIc |
| 128868 | ALP66 | Allepad 66 | Artefacts | Grade IIIc |
| 128869 | ALP67 | Allepad 67 | Artefacts | Grade IIIc |
| 128870 | ALP68 | Allepad 68 | Artefacts | Grade IIIc |
| 128863 | ALP61 | Allepad 61 | Artefacts | Grade IIIc |
| 128864 | ALP62 | Allepad 62 | Artefacts | Grade IIIc |
| 128865 | ALP63 | Allepad 63 | Artefacts | Grade IIIc |
| 128866 | ALP64 | Allepad 64 | Artefacts | Grade IIIc |

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| 128800 | ALP10 | Allepad 10 | Artefacts | Grade IIIc |
| 128801 | ALP11 | Allepad 11 | Artefacts | Grade IIIc |
| 128802 | ALP12 | Allepad 12 | Artefacts | Grade IIIc |
| 128804 | ALP13 | Allepad 13 | Artefacts | Grade IIIc |
| 128789 | ALP6 | Allepad 6 | Artefacts | Grade IIIc |
| 128790 | ALP7 | Allepad 7 | Artefacts | Grade IIIb |
| 128798 | ALP8 | Allepad 8 | Artefacts | Grade IIIc |
| 128799 | ALP9 | Allepad 9 | Artefacts | Grade IIIc |
| 128809 | ALP18 | Allepad 18 | Artefacts | Grade IIIc |
| 128810 | ALP19 | Allepad 19 | Burial Grounds & Graves | Grade II |
| 128811 | ALP20 | Allepad 20 | Artefacts | Grade IIIc |
| 128812 | ALP21 | Allepad 21 | Artefacts | Grade IIIc |
| 128805 | ALP14 | Allepad 14 | Artefacts | Grade IIIc |
| 128806 | ALP15 | Allepad 15 | Artefacts | Grade IIIc |
| 128807 | ALP16 | Allepad 16 | Artefacts | Grade IIIc |
| 128808 | ALP17 | Allepad 17 | Artefacts | Grade IIIc |
| 128817 | ALP26 | Allepad 26 | Artefacts | Grade IIIc |
| 128818 | ALP27 | Allepad 27 | Artefacts | Grade IIIc |
| 128819 | ALP28 | Allepad 28 | Artefacts | Grade IIIc |
| 128820 | ALP29 | Allepad 29 | Artefacts | Grade IIIc |
| 128813 | ALP22 | Allepad 22 | Artefacts | Grade IIIc |
| 128814 | ALP23 | Allepad 23 | Artefacts | Grade IIIc |
| 128815 | ALP24 | Allepad 24 | Artefacts | Grade IIIc |
| 128816 | ALP25 | Allepad 25 | Artefacts | Grade IIIc |
| 128825 | ALP34 | Allepad 34 | Artefacts | Grade IIIc |

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| 128826 | ALP35 | Allepad 35 | Artefacts | Grade IIIc |
| 128827 | ALP36 | Allepad 36 | Artefacts | Grade IIIc |
| 128829 | ALP37 | Allepad 37 | Artefacts | Grade IIIc |
| 128821 | ALP30 | Allepad 30 | Artefacts | Grade IIIc |
| 128822 | ALP31 | Allepad 31 | Artefacts | Grade IIIc |
| 128823 | ALP32 | Allepad 32 | Artefacts | Grade IIIc |
| 128824 | ALP33 | Allepad 33 | Artefacts | Grade IIIc |
| 89506 | DYA015 | DYASON'S KLIP 454/015 | Artefacts | Grade IIIc |
| 89507 | DYA016 | DYASON'S KLIP 454/016 | Artefacts | Grade IIIc |
| 89509 | DYA018 | DYASON'S KLIP 454/018 | Artefacts | Grade IIIc |
| 89510 | DYA019 | DYASON'S KLIP 454/019 | Artefacts | Grade IIIa |
| 89502 | DYA011 | DYASON'S KLIP 454/011 | Artefacts | Grade IIIc |
| 89503 | DYA012 | DYASON'S KLIP 454/012 | Artefacts | Grade IIIc |
| 89504 | DYA013 | DYASON'S KLIP 454/013 | Artefacts | Grade IIIc |
| 89505 | DYA014 | DYASON'S KLIP 454/014 | Artefacts | Grade IIIc |
| 89516 | DYA025 | DYASON'S KLIP 454/025 | Artefacts | Grade IIIc |
| 89517 | DYA026 | DYASON'S KLIP 454/026 | Artefacts | Grade IIIc |
| 89518 | DYA027 | DYASON'S KLIP 454/027 | Artefacts | Grade IIIc |
| 89519 | DYA028 | DYASON'S KLIP 454/028 | Artefacts | Grade IIIc |
| 89511 | DYA020 | DYASON'S KLIP 454/020 | Artefacts | Grade IIIc |
| 89512 | DYA021 | DYASON'S KLIP 454/021 | Artefacts | Grade IIIc |
| 89514 | DYA023 | DYASON'S KLIP 454/023 | Artefacts | Grade IIIc |
| 89515 | DYA024 | DYASON'S KLIP 454/024 | Artefacts | Grade IIIc |
| 89490 | DYA003 | DYASON'S KLIP 454/003 | Artefacts | Grade IIIc |
| 89493 | DYA006 | DYASON'S KLIP 454/006 | Artefacts | Grade IIIa |

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| 89497 | DYA009 | DYASON'S KLIP 454/009 | Artefacts | Grade IIIc |
| 89508 | DYA017 | DYASON'S KLIP 454/017 | Artefacts | Grade IIIc |
| 89520 | DYA029 | DYASON'S KLIP 454/029 | Artefacts | Grade IIIc |
| 89522 | DYA031 | DYASON'S KLIP 454/031 | Artefacts | Grade IIIc |
| 89488 | DYA001 | DYASON'S KLIP 454/001 | Artefacts | Grade IIIc |
| 89489 | DYA002 | DYASON'S KLIP 454/002 | Artefacts | Grade IIIc |
| 128785 | ALP2 | ALP2 | Artefacts | Grade IIIc |
| 128786 | ALP3 | ALP3 | Artefacts | Grade IIIc |

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APPENDIX 2 Reference List

| Heritage Impact Assessments | | | | |
|-----------------------------|-------------|-------------------|------------|---|
| Nid | Report Type | Author/s | Date | Title |
| 4103 | AIA | Cobus Dreyer | 10/03/2006 | First Phase Archaeological and Cultural Heritage Assessment of the Proposed Concentrated Solar Thermal Plant (Csp) at the Farms Olyvenhouts Drift, Upington, Bokpoort 390 and Tampansrus 294/295, Groblershoop, Northern Cape |
| 4112 | AIA | Peter Beaumont | 29/01/2008 | Phase 1 Heritage Impact Assessment Report on a Portion of the Farm Keboes 37, near Kanoneiland, Siyanda District Municipality, Northern Cape Province |
| 4123 | AIA | Peter Beaumont | 01/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Residential Development Flanking Dakota Drive in Upington, //Khara Hais Municipality, Northern Cape Province |
| 4101 | AIA | Peter Beaumont | 22/10/2005 | Archaeological Impact Assessment at and in the Vicinity of a Quartzite Quarry on Portion 4 of the Farm Droogehout 442 near Upington |
| 4103 | AIA | Cobus Dreyer | 10/03/2006 | First Phase Archaeological and Cultural Heritage Assessment of the Proposed Concentrated Solar Thermal Plant (Csp) at the Farms Olyvenhouts Drift, Upington, Bokpoort 390 and Tampansrus 294/295, Groblershoop, Northern Cape |
| 4135 | AIA | Peter Beaumont | 20/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Raaswater Township, Siyanda District Municipality, Northern Cape Province |
| 4136 | AIA | Peter Beaumont | 22/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Extension of Kalksloot Settlement, Siyanda District Municipality, Northern Cape |
| 7547 | AIA | Jaco van der Walt | 30/10/2011 | AIA for the proposed OfriZX Photovoltaic Plant, Keimoes, Northern Cape |
| 7548 | AIA | Jaco van der Walt | 31/07/2011 | Heritage Scoping Report for the proposed Ofir ZX Photovoltaic Plant near Keimoes, Northern Cape |
| 4124 | AIA | Peter Beaumont | 24/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Rosedale Settlement in Upington, //Khara Hais Municipality, Northern Cape Province |
| 4131 | AIA | Peter Beaumont | 18/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Township Extension Flanking Keimoesweg, //Khara Hais Municipality, Northern Cape Province |
| 4133 | AIA | Peter Beaumont | 19/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Township Extension Flanking Lemoendraai in Upington, //Khara Hais Municipality, Northern Cape Province |
| 4134 | AIA | Peter Beaumont | 19/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Industrial Area Expansion at Laboria, //Khara Hais |

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| | | | | Municipality, Northern Cape Province |
|--------|-----|-----------------------|------------|---|
| 119309 | HIA | Stephan Gaigher | 10/10/2012 | HERITAGE IMPACT ASSESSMENT REPORT Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province |
| 124405 | HIA | Stephan Gaigher | 29/10/2013 | Heritage Impact Assessment Report for the Proposed Sirius Solar Project near Upington in the Northern Cape Province |
| 124406 | PIA | JF Durand | 02/04/2013 | Palaeontology Scoping Report |
| 128281 | HIA | David Morris | 30/07/2013 | RE Capital 3 Solar Development on the property Dyasons Klip west of Upington, Northern Cape: Scoping phase Heritage Input |
| 7841 | AIA | Peter Beaumont | 17/08/2006 | Phase 1 Heritage Impact Assessment Report on a Planned Extension of the Rosedale Township, //Khara Hais Municipality, Northern Cape Province |
| 7853 | AIA | Jaco van der Walt | 31/07/2011 | Heritage Scoping Report for the proposed S Kol Photovoltaic Plant near Keimoes, Northern Cape |
| 7925 | AIA | Jaco van der Walt | 31/10/2011 | AIA for the proposed S-Kol Photovoltaic Plant, Keimoes, Northern Cape |
| 117902 | HIA | Anton van Vollenhoven | 25/05/2012 | A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED SASOL CSP PROJECT NEAR UPINGTON IN THE NORTHERN CAPE PROVINCE |
| 131589 | AIA | Stephan Gaigher | 22/02/2013 | Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province |
| 159203 | HIA | Johnny Van Schalkwyk | 11/03/2014 | Cultural Heritage Impact Assessment Proposed Township development of Erf 1, UPINGTON, //KHARA HAIS MUNICIPALITY |
| 160008 | HIA | Johnny Van Schalkwyk | 15/03/2014 | Cultural Heritage Impact Assessment for the proposed township development, Paballelo, Upington, //Khara Hais Municipality |
| 161427 | HIA | Stephan Gaigher | 15/04/2014 | Proposed Establishment of Several Electricity Distribution Lines within the Northern Cape Province |
| 166079 | HIA | Johnny Van Schalkwyk | 12/03/2014 | Proposed extension of Dakota Road, Upington |
| 158920 | HIA | David Morris | 01/02/2013 | RE Capital 3 Solar Development on the property Dyasons Klip west of Upington, Northern Cape: Archaeological Impact Assessment proposed central development footprint |
| 159068 | PIA | John E Almond | 07/03/2014 | PALAEONTOLOGICAL HERITAGE BASIC ASSESSMENT: DESKTOP STUDY Proposed RE Capital 3 Solar Development on the property Dyason's Klip near Upington , Northern Cape |
| 174596 | PIA | John E Almond | 05/08/2013 | RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES: PROPOSED UPGRADE & REPAIR OF WATER SUPPLY INFRASTRUCTURE, EKSTEENSKUIL, SOVERBY & CURRIES CAMP NEAR KEIMOES, NORTHERN CAPE |

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|--------|-----|----------------------|------------|---|
| 289187 | HIA | Jaco van der Walt | 01/06/2015 | Heritage Scoping Report for the proposed Bloemsmond Solar 1 and Solar 2 PV Project, Keimoes, NC Province |
| 170520 | HIA | Johnny Van Schalkwyk | 01/01/2014 | Heritage Impact Assessment Report for the proposed 1GW Upington Solar Park within the // Khara Hais Municipality, Northern Cape Province |
| 174335 | HIA | Wouter Fourie | 24/03/2014 | Heritage Impact Assessment for the proposed Solar Power Park for SolarReserve SA (Pty) Ltd, Farm Rooipunt 617, Gordonia RD, Siyanda District Municipal Region, Northern Cape. |
| 174592 | HIA | Cobus Dreyer | 05/09/2013 | FIRST PHASE ARCHAEOLOGICAL & HERITAGE ASSESSMENT OF THE BORROW PITS FOR THE REPAIR & UPGRADE OF THE IRRIGATION INFRASTRUCTURE AT SOVERBY & CURRIES CAMP NEAR KEIMOOES, NORTHERN CAPE PROVINCE |

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 |

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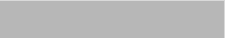

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Full guide to Palaeosensitivity Map legend

| | | |
|--|-----------------------|--|
|  | 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. |

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.

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DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

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

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

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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

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

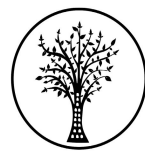
The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(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.

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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.

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.

The compilation of the Heritage Screener will not include any field assessment. The Heritage Screener will be submitted to the applicant within 24 hours from receipt of full payment. **If the 24-hour deadline is not met by CTS, the applicant will be refunded in full.**

CTS Heritage

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