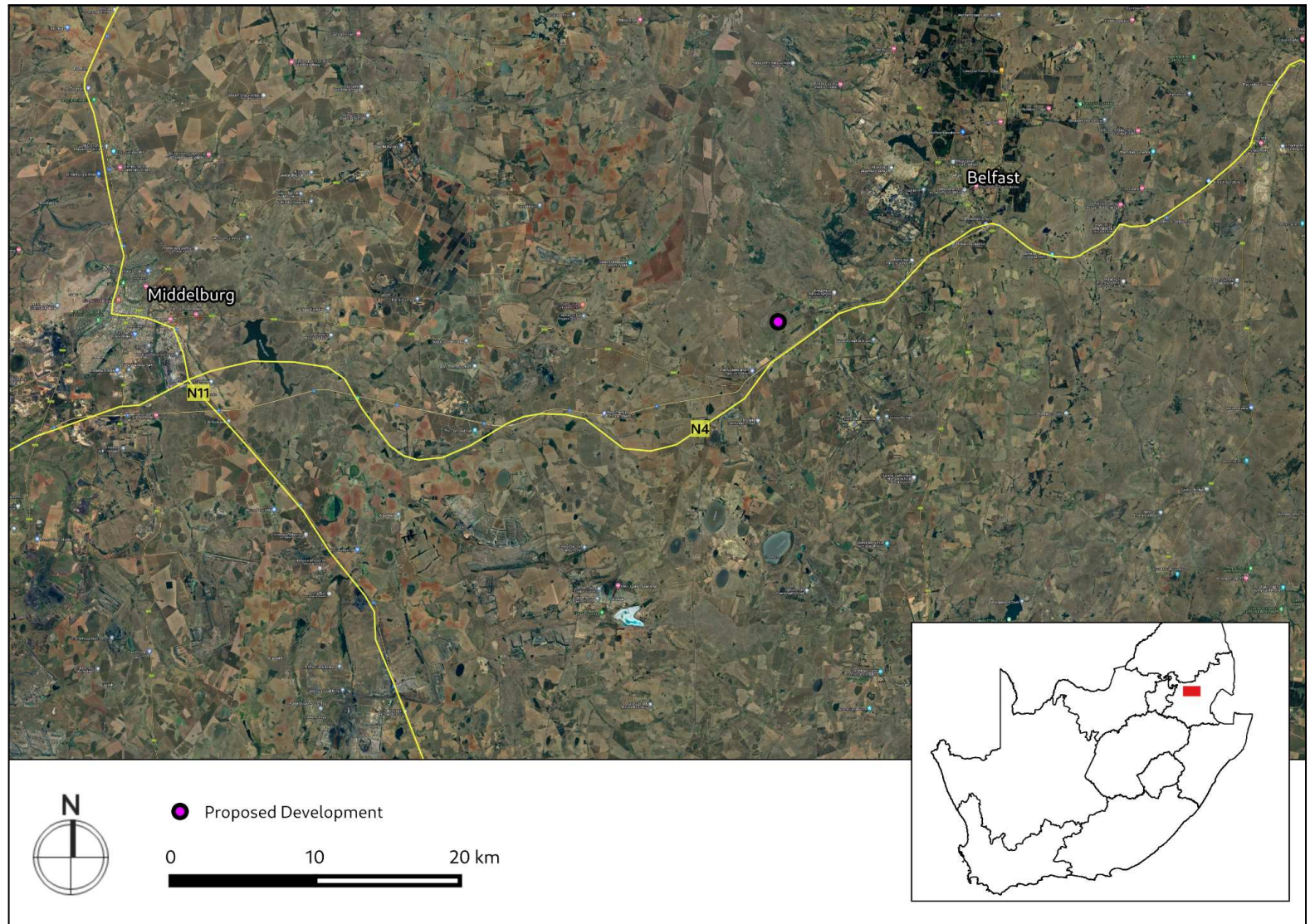




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# HERITAGE SCREENER

CTS Reference Number:	<b>CTS22_353</b>
SAHRIS Reference:	
Client:	<b>SiVEST</b>
Date:	<b>March 2023</b>
Title:	<b>Proposed development of the Roos PV Facility near Belfast, Mpumalanga</b>



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

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## 1. Proposed Development Summary

juwi South Africa (Pty) Ltd (hereafter referred to as juwi) is proposing to develop a hybrid renewable energy cluster, located on various land parcels in the western part of Mpumalanga, in the Emakhazeni Local Municipality. All of the projects fall within the Emalahleni Renewable Energy Development Zone (REDZ) but outside of the strategic transmission corridor.

The Roos PV facility is envisioned to be the solar PV component of a hybrid wind and solar facility. The intention is to develop (through one BA process) a cluster of five 20MW solar PV facilities and associated infrastructure on the property, depending on site sensitivities. The joint PV cluster will be located on the portions of the properties not used for wind energy development. So far these are in the west of the area. This will be confirmed prior to commencement of the EIA process – overall 270Ha of PV development area (indicated in white shading below) should be authorised. The associated infrastructure would include a BESS, site camp, substation and OHL, and O&M building. The 132kV OHL route will be confirmed prior to the commencement of the BA.

## 2. Application References

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

## 3. Property Information

<b>Latitude / Longitude</b>	25°46'27.64"S 29°55'2.72"E
<b>Local Municipality</b>	Steve Tshwete
<b>District Municipality</b>	Nkangala
<b>Province</b>	Mpumalanga
<b>Current Use</b>	Agricultural
<b>Current Zoning</b>	Agricultural

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#### 4. Nature of the Proposed Development

Total Area	
Depth of excavation (m)	
Height of development (m)	

#### 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 <sup>2</sup> in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m <sup>2</sup>
	5. Other (state):

#### 6. Additional Infrastructure Required for this Development

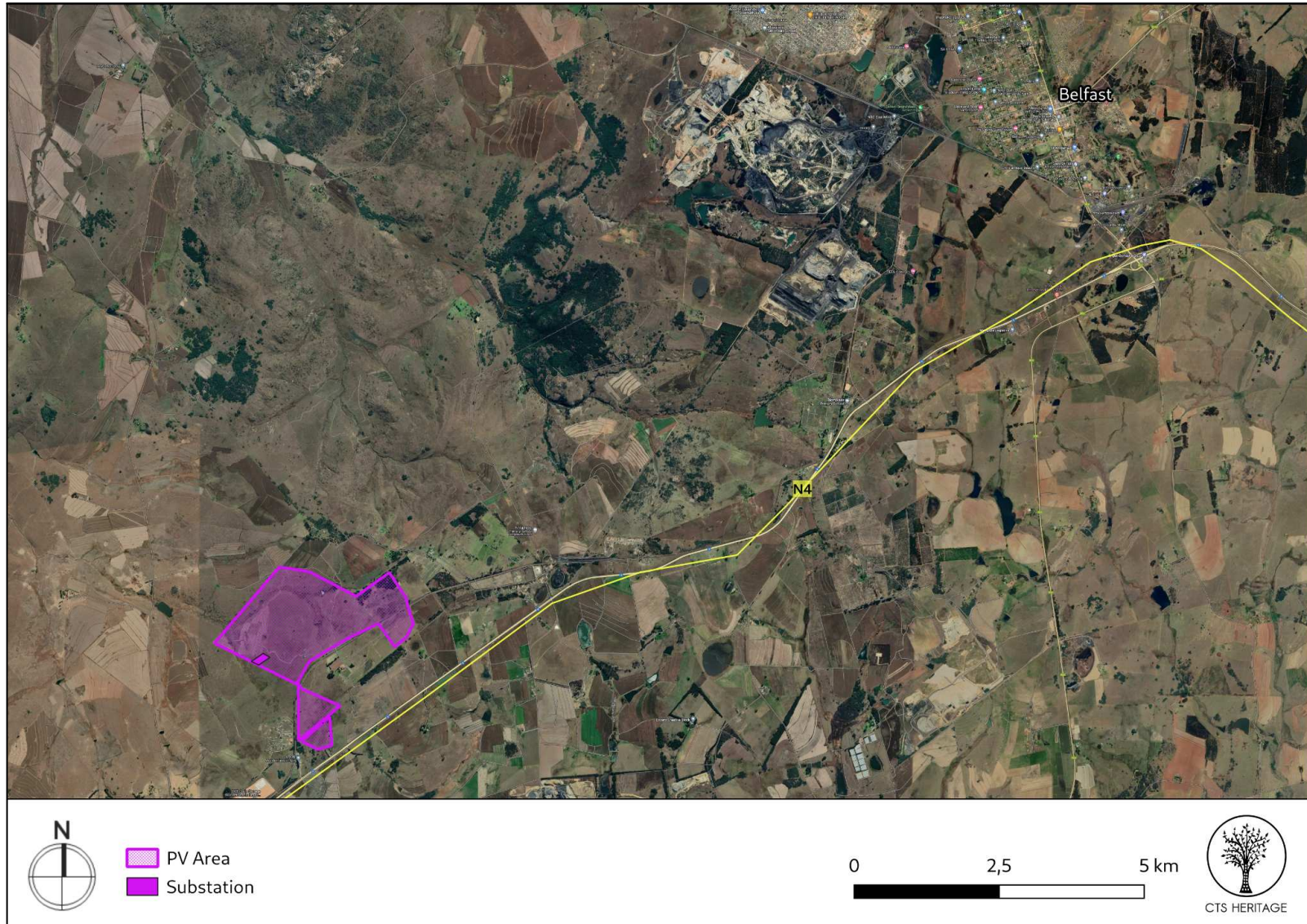
See project description
-------------------------

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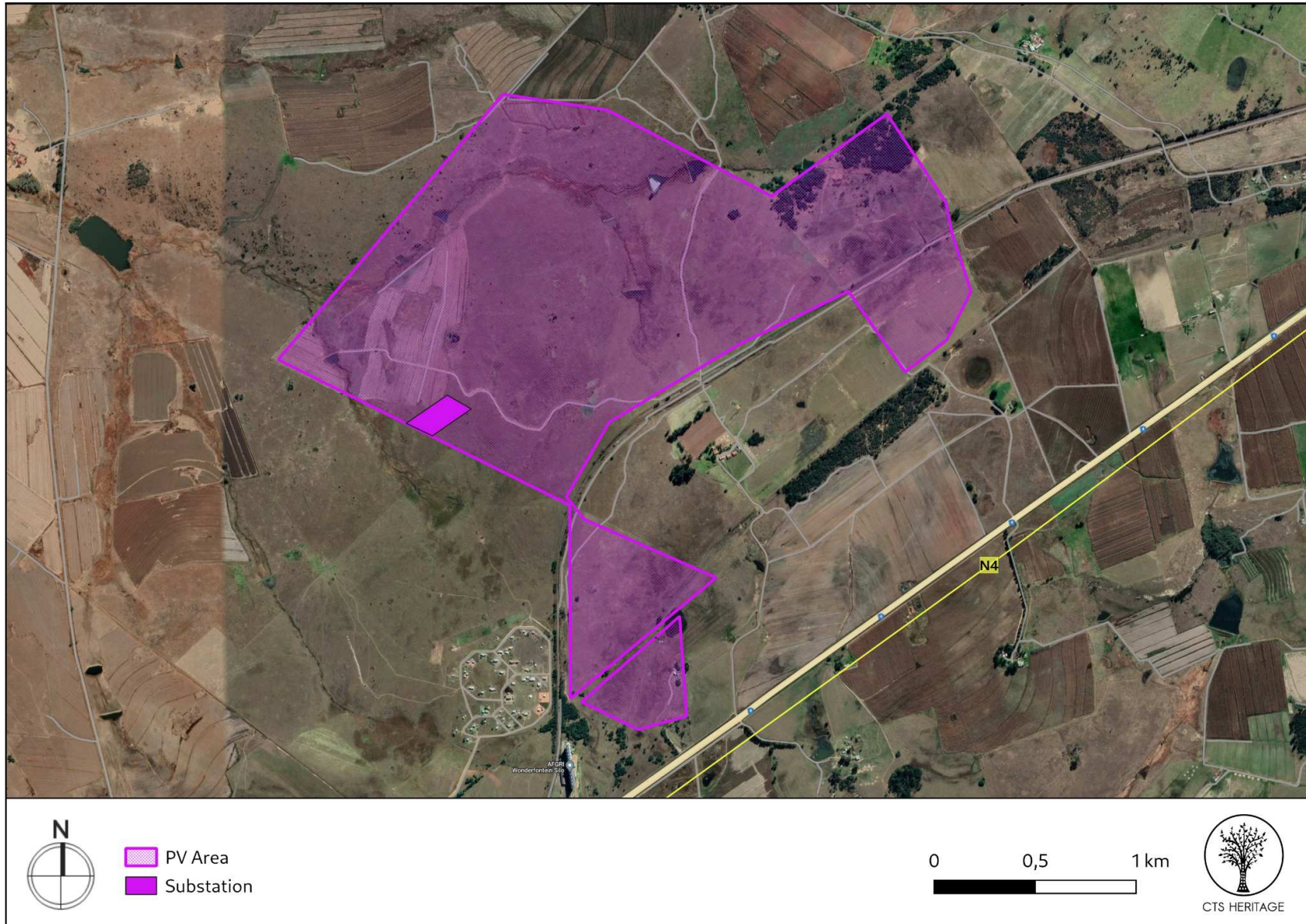
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## 7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



**Figure 1b. Overview Map.** Satellite image (2022) indicating the proposed development area



**Figure 1c. Overview Map.** Satellite image (2022) indicating the proposed development area



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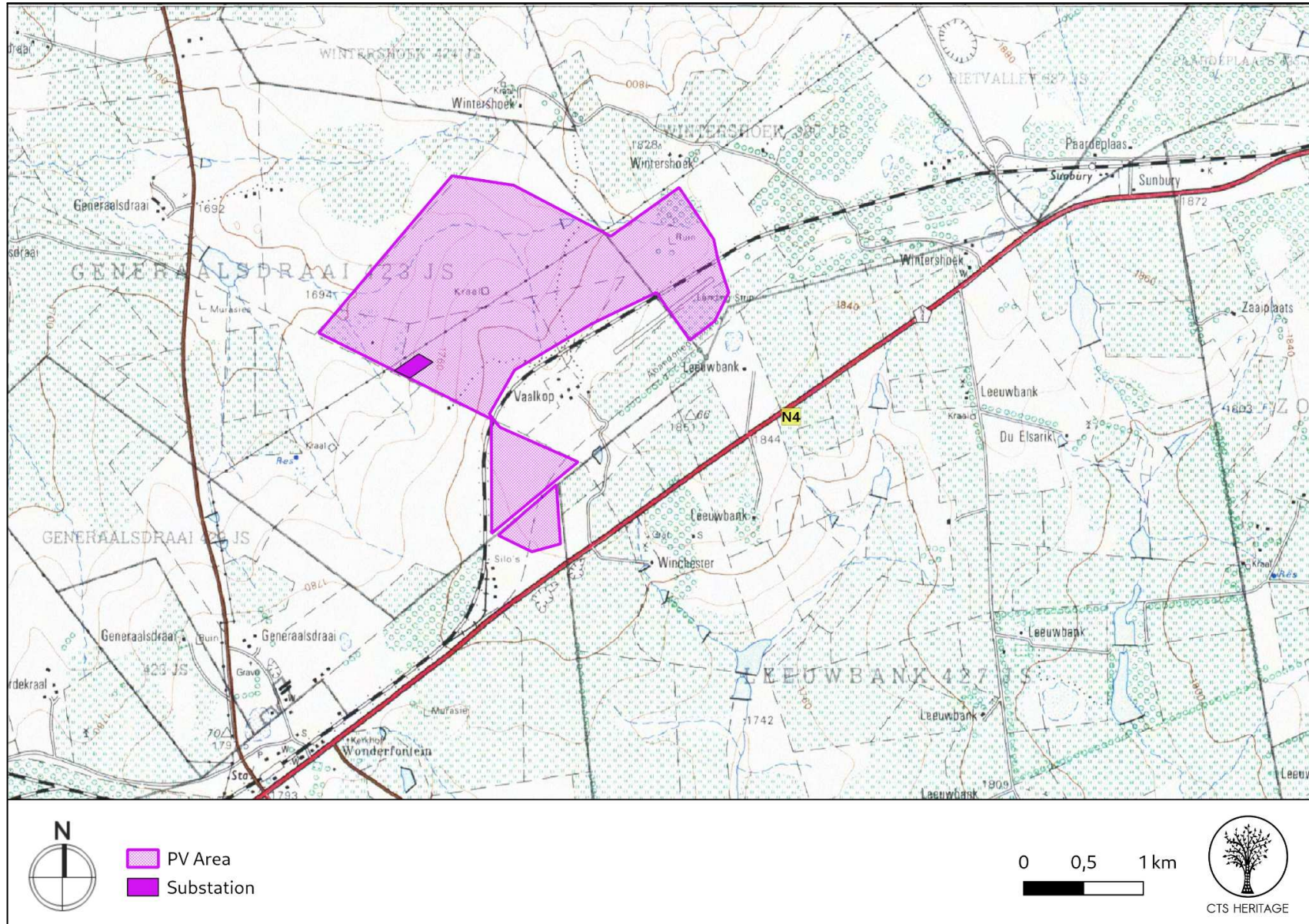
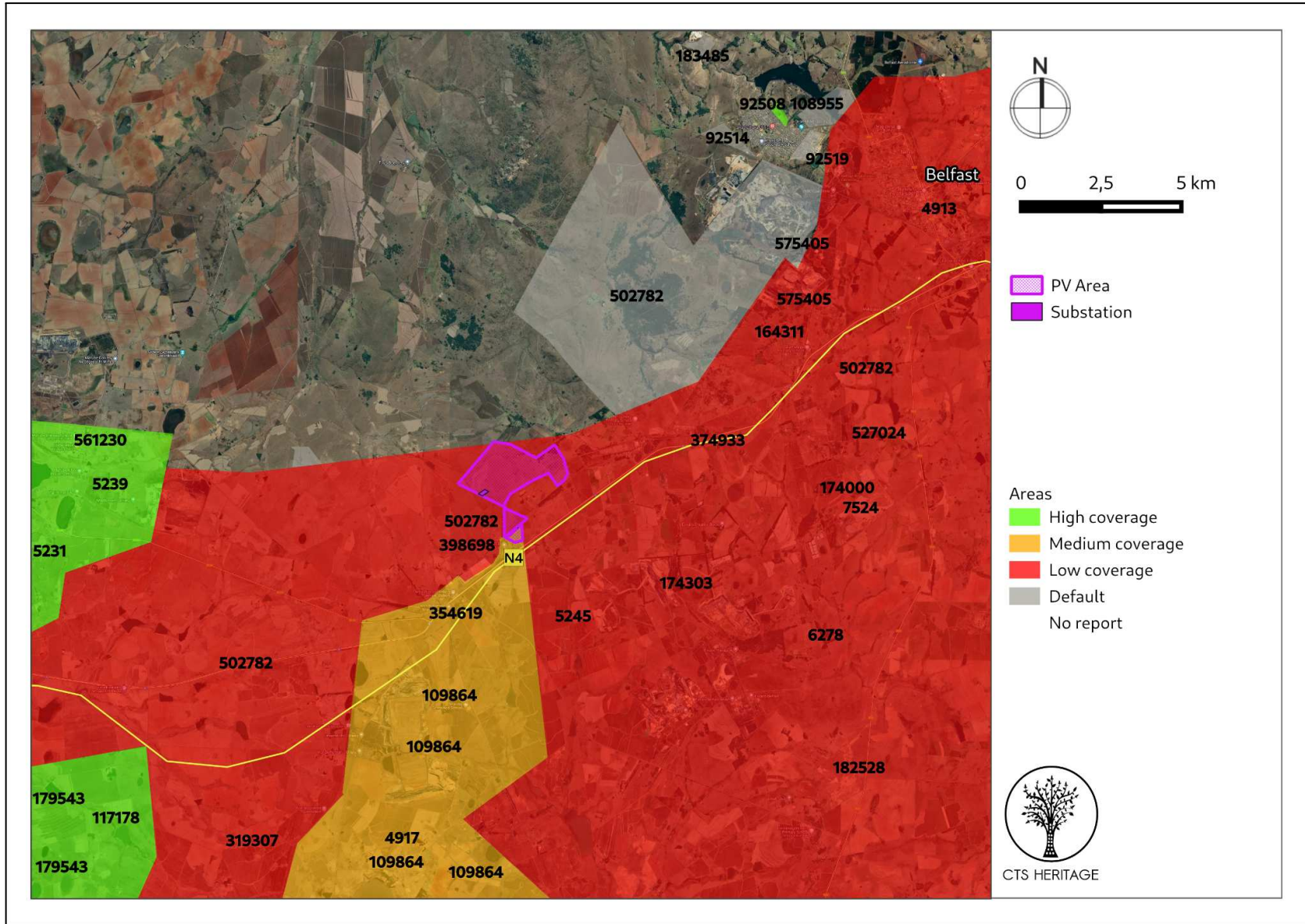


Figure 1d. Overview Map. 1:50 000 Topo Map indicating the proposed development area

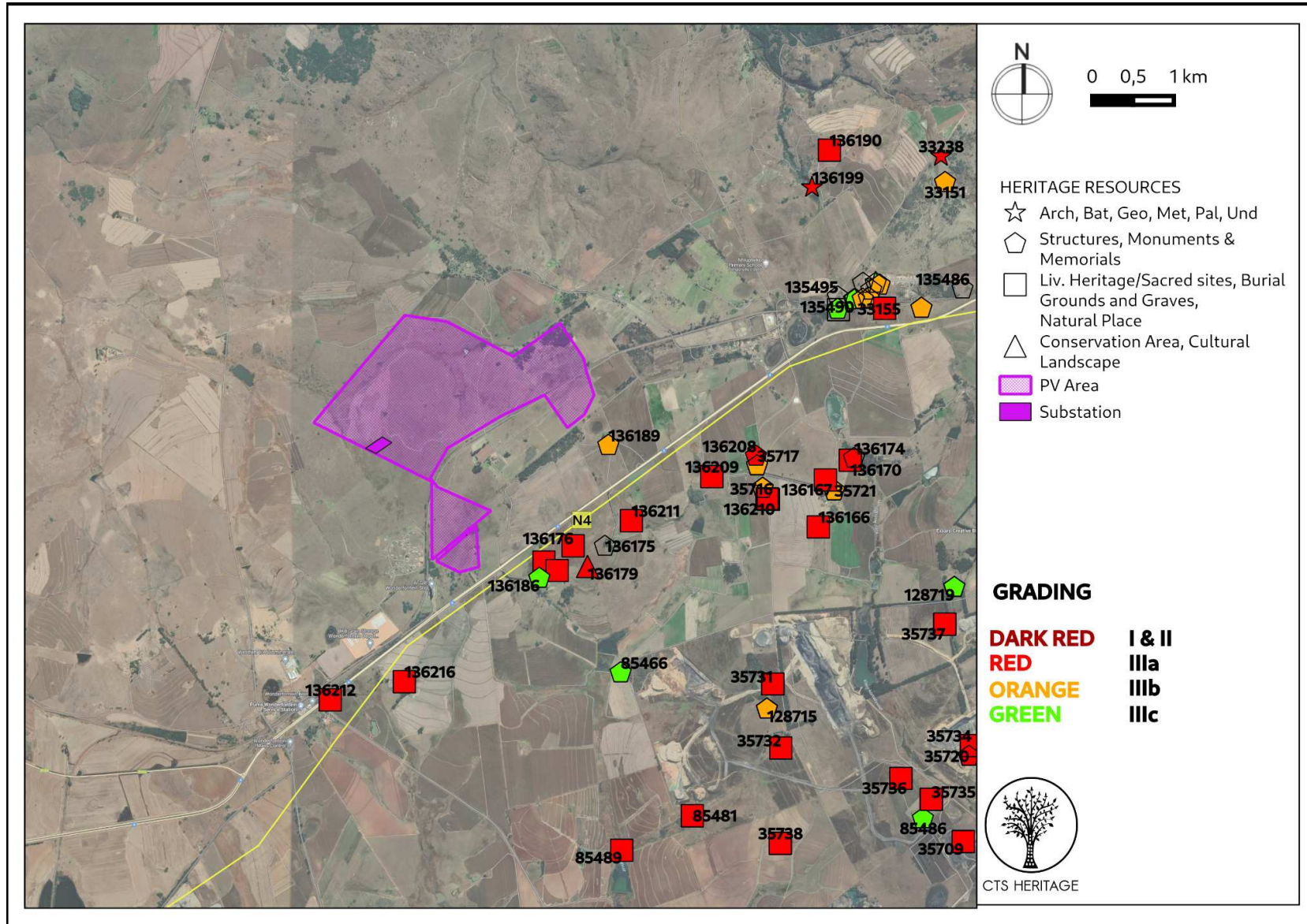
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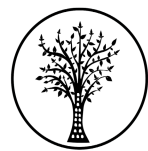


**Figure 2a. Previous HIAs Map.** Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

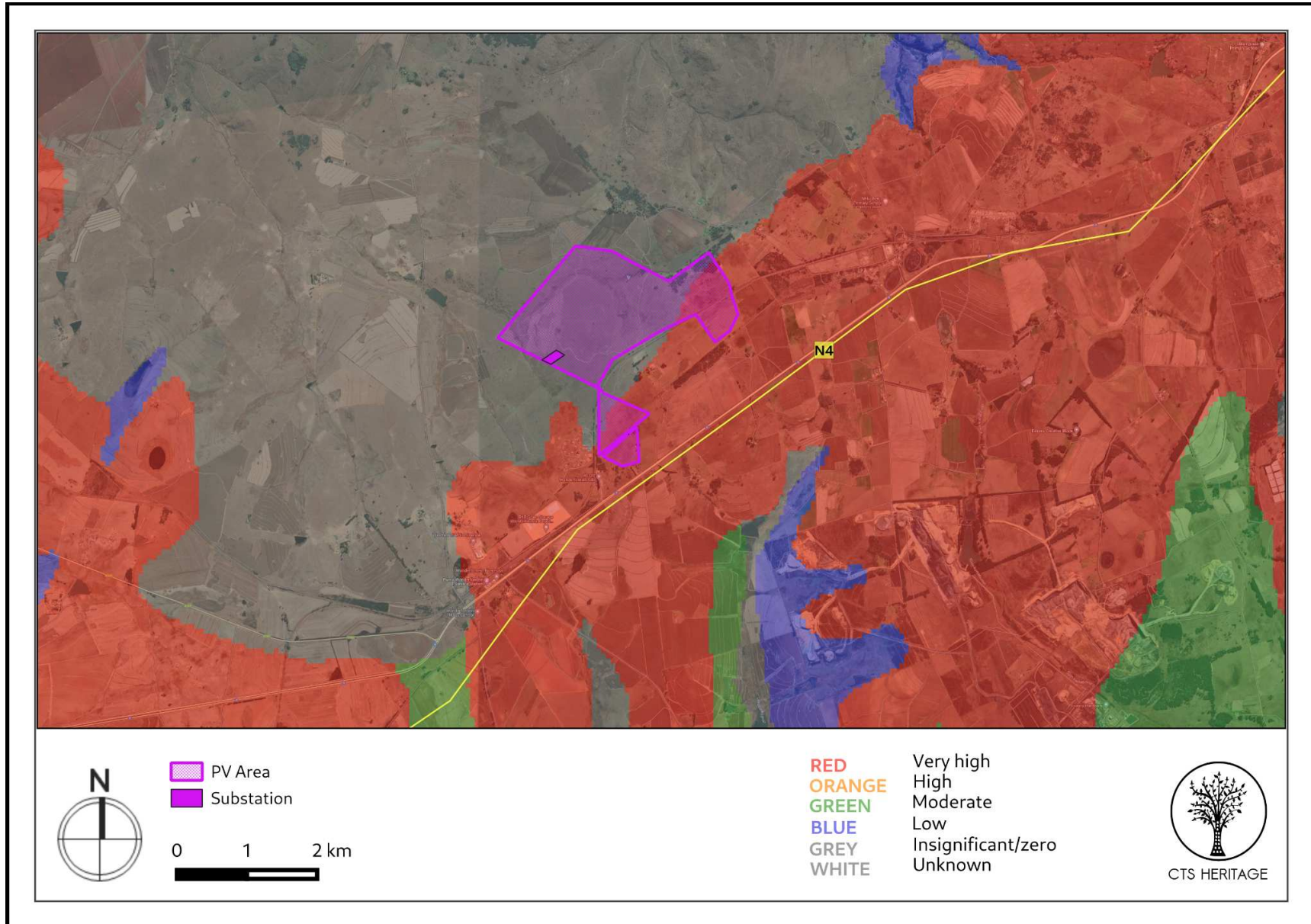


**Figure 3. Heritage Resources Map.** Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for a full description of heritage resource types.





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

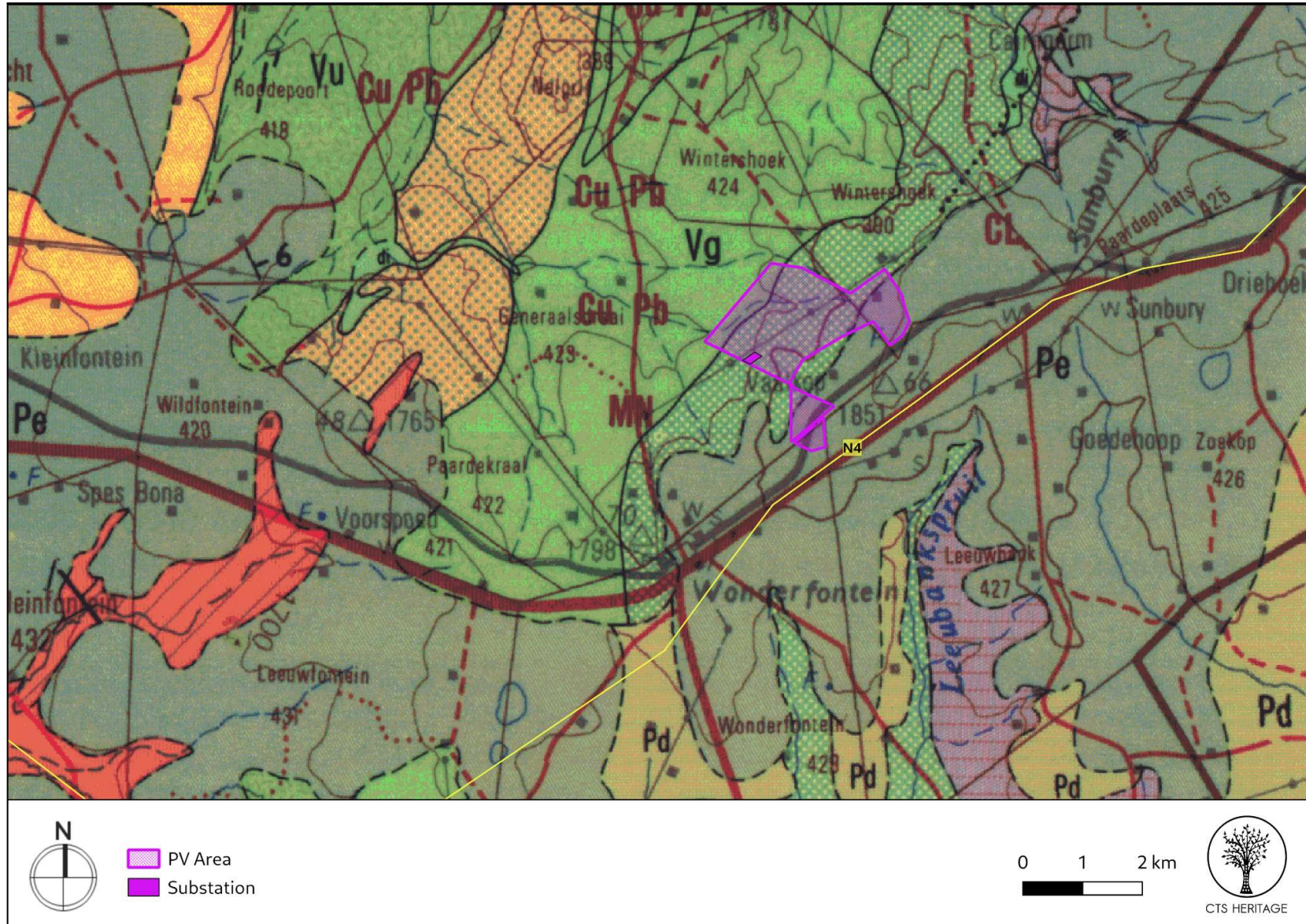
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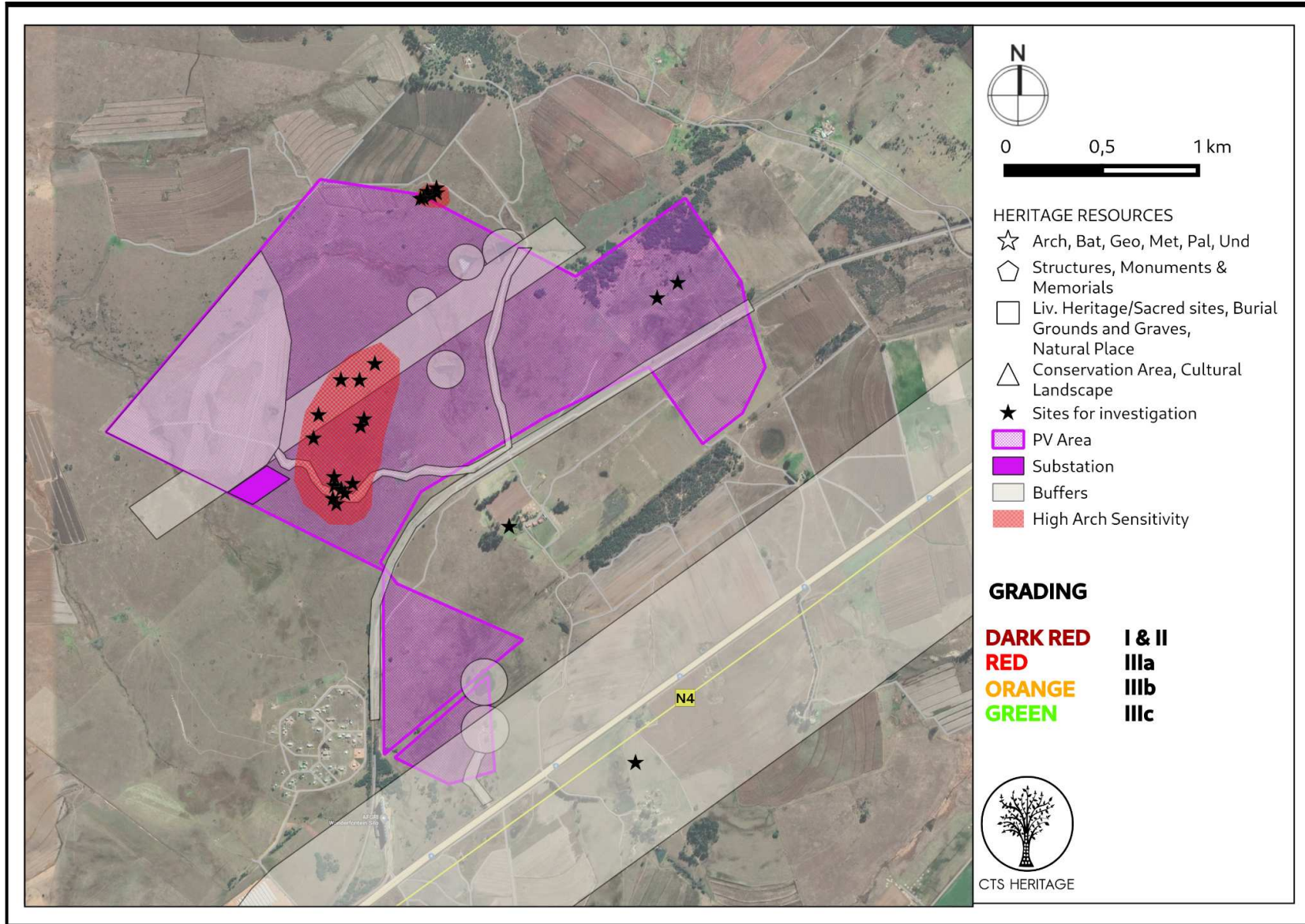


**Figure 4b. Geology Map.** Extract from the CGS 2528 Pretoria Map indicating that the development area for the REF development is underlain by sediments of Vg: Rustenburg Suit sediments and Pe: Eccca Group sediments (Vryheid Formation)

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**Figure 5. Sensitivities Map.** Areas of high archaeological significant mapped against the development area and restricted development areas provided by the client



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## 8. Heritage Assessment

The area proposed for this Renewable Energy Development is located immediately in the area between Middelburg and Belfast in Mpumalanga. This area is known for its agriculture, rolling hills and extensive granite and coal mine infrastructure. Middelburg was initially established as a halfway station between Lydenburg and Pretoria by the Republic of Lydenburg in 1860.

Angel (2017) notes that “Early farming communities moved into the Mpumalanga area around AD 500. These early farmers used metal tools and pottery and lived in fairly permanent agricultural villages. The most well known EIA site in the area is the Lydenburg Heads site in the Sterkstroom Valley.” She goes on to note that “Late Farmer societies developed extensive stone settlements around Lydenburg, Badfontein, Sekhukhuneland, Roossenekal and Steelpoort. The greater Belfast area specifically, is known for its large complexes of LIA stonewalling.” Hardwick and Du Pisanie (2019) note that “migration, population growth, climatic variation and trade to the east significantly impacted the Pedi, Koni and other groups on the Mpumalanga Highveld. The rise of power blocs, including violent displacement and political centralisation, characterised this time.” They go on to note that “As a result of social and political upheaval, the Mpumalanga Highveld was vulnerable to intrusive groups including the Swazi and the Voortrekkers.”

Hardwick and Du Pisanie (2019) note that “Soon after settling in the Mpumalanga Highveld area, the Trekboers (now farmers) discovered and exploited the Highveld Coalfields. The Boers originally used the coal as a domestic resource; however the discovery of gold in the Witwatersrand in 1886 created an enormous demand for this coal.” This continued until the out-break of the South African War in 1899. Hardwick and Du Pisanie (2019) identify two notable battles associated with this war within the broader study area - the Battles of Lake Chrissie (February 6th, 1900) and Bakenlaagte (October 30th, 1901). It has been reported that three concentration camps were situated in the town. Many battles and skirmishes took place in the First and Second Anglo-Boer Wars, including Berg-en-Dal (also known as the Battle of Dalmanutha), Helvetia, and the Battle of Leliefontein<sup>1</sup>. Van Schalkwyk (2017) notes that “The cultural landscape qualities of the region essentially consist of two components. The first is made up of a pre-colonial (Stone Age and Iron Age) occupation. The second component is a rural settlement largely based on farming, but also in which coal mining activities in recent years contributed to a densification of settlement and concurrent business development.”

This brief history points to the layered cultural landscape that is present in this area. Furthermore, it is evident from the known heritage resources located in proximity to the development area (Figure 3 and Appendix 1) that the known heritage resources are dominated by burial grounds and graves, structures and stone walling. Due to the scale of the proposed development, and the potential for cumulative impact, it is likely to change the sense of place associated with this landscape, and may impact the way that this historic landscape reads by obscuring layers of the past. Cognisance must be taken of this unique cultural landscape, consisting of farm werfs etc in the proposed layout. Based on the desktop assessment, this area has MODERATE sensitivity for impacts to the cultural landscape. In order to mitigate this impact, it is recommended that a 500m no development be implemented around the N4 route between Middelburg and Belfast. This recommendation is based on best-practice precedent for PV development.

### Archaeology

None of the area proposed for development has been previously assessed in any heritage impact assessment process. Heritage Impact Assessments have been completed nearby for projects near to Belfast and these can be used to infer the archaeological sensitivity in the development area. Hardwick and Du Pisanie (2019) note that there are no known Stone Age sites located within the broader study area; however MSA and LSA resources are known from other places in Mpumalanga. In an assessment completed for a mining project located adjacent to the area proposed for development, Angel (2017) notes that “An Earlier Stone Age (ESA) site is located at Maleoskop near Groblersdal. Concentrations of ESA stone tools were found in erosion gullies along the Rietspruit (Esterhuysen & Smith, 2007). Evidence for the Middle Stone Age (MSA) period has been excavated from Bushman Rock Shelter, situated on the farm Klipfonteinhoek in the Ohrigstad District. The MSA layers indicated that the cave was visited repeatedly over a long period, between approximately 40 000 years ago and 27 000 years Before Present (Esterhuysen & Smith, 2007). Two Later Stone Age (LSA) sites were found at the farm Honingklip near Badplaas in the Carolina District,

<sup>1</sup> <https://lowvelder.co.za/782428/mpumalanga-heritage-society-takes-the-road-less-travelled-through-belfast/>



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(Esterhuysen & Smith, 2007).”

Angel (2017) goes on to note that “Early farming communities moved into the Mpumalanga area around AD 500. These early farmers used metal tools and pottery and lived in fairly permanent agricultural villages. The most wellknown EIA site in the area is the Lydenburg Heads site in the Sterkstream Valley.” Angel (2017) notes that the greater Belfast area specifically, is known for its large complexes of LIA stonewalling. Surveys of aerial photographs from the general area were undertaken in the 1960s and 1970 and identified a vast number of such settlements between Lydenburg and Machadodorp. These are not evenly distributed over the area, largely for topographical reasons (Evers, 1975). Angel (2017) notes that these settlements typically consisted of three interrelated elements: homesteads, with cattle kraals surrounded by enclosures for human habitation; stone-edged paths or roadways, probably for movement of cattle; and stone terraces, for agricultural cultivation. Most of the homesteads were built in symmetrical patterns, some of which were reproduced in rock engravings found close to these settlements (Delius and Hay; 2009).

According to Van Schalkwyk’s report completed for a project located just outside of Belfast (2021), “Archaeological sites identified in the region date to the Late Iron Age, and it seems as if they can be divided into two distinct categories. The older of these are sites with quite high walls and are conventionally linked with the Koni-group of people that have been settled in the region since the 1600s. The second groups of sites also have stone walling, but this is in most cases much less developed, in many cases making them difficult to detect. This latter group of sites probably date to a later period and can also be linked to settlement during early historic times of Ndebele- and Swazi-speakers in the region. The large and complex site of Kwasimkhulu west of the project area, is associated with the Ndebele occupation of the region and date from the mid-1600s. According to oral tradition this was the first site settled by Ndzundza-Ndebele when they arrived in the region.”

While no known sites have been formally recorded within or near the development area, aerial imagery has enabled us to identify a number of features that are very likely to be associated with Late Iron Age occupation of the area. As the development area has not previously been assessed, these features require ground-truthing however, based on the available information it is very likely that the proposed development will impact negatively on archaeological resources associated with the Late Iron Age and also likely burial grounds and graves as well as stone age archaeological resources. Areas of high archaeological sensitivity based on a survey of aerial imagery as well as the topographic map for the area have been mapped in Figure 5. These may well be conservative estimates and the areas of sensitivity may be amended following ground-truthing. Further investigation of the archaeological significance of the development area is recommended. Based on the desktop assessment, this area has HIGH sensitivity for impacts to archaeological heritage.

### **Palaeontology**

According to the SAHRIS Palaeosensitivity Map, the area proposed for the development of the Roos PV Facility is predominantly underlain by sediments of zero palaeontological sensitivity however some of the southern sections may impact on sediments which have very high palaeontological sensitivity (Figure 4a). According to the extract from the Council of Science Map for Pretoria 2528 (Figure 4b), the geology underlying this development area is ascribed to the Dullstroom Formation (Zero sensitivity) and the Vryheid Formation (Very High sensitivity). Groenewald (2014, SAHRIS NID 167013) completed a field-based palaeontological assessment for the Waaihoek WEF in which he interrogates the palaeontological sensitivity of this formation. In this assessment, Groenewald (2014) notes that “The Vryheid Formation consists of interbedded very coarse-grained sandstone and mudstone that yields plant and trace fossils as well as some prominent coal seams.” In this assessment, Groenewald (2014) made the following recommendations for the WEF development within the Vryheid Formation “The PEA and CEO be made aware of the possibility of finding fossils in the Vryheid and Volksrust Formation sediments during excavation of the foundations for the turbines and other infrastructure. A professional palaeontologist is appointed to monitor possible palaeontological finds during excavation of turbine foundations and infrastructure where turbine positions and infrastructure fall on Vryheid and Volksrust Formation sediments.” The sediments underlying the development area have very high levels of palaeontological sensitivity, the nature of the excavations associated with Renewable Energy facilities tends to be deep and as such, the likelihood of impacting intact Vryheid Formation sediments is high. Further investigation of the palaeontological sensitivity of the development area is recommended.

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## 9. Scoping Assessment

<b>Impact</b> Destruction of significant heritage resources			
<b>Issue</b>	<b>Nature of Impact</b>	<b>Extent of Impact</b>	<b>No-go Areas</b>
<b>Destruction of archaeological heritage</b>	Direct impact to archaeological heritage of scientific significance	Within project boundary	See Figure 5 for preliminary no-go areas
<b>Destruction of palaeontological heritage</b>	Direct impact to palaeontological heritage of scientific significance	Within project boundary	None identified at this stage
<b>Negative impact to significant cultural landscapes</b>	Indirect impact to significant cultural landscapes and cultural landscape elements including historic farm werfs	Regional	Buffer areas identified around the N4 - 500m recommended
<p><b>Description of expected significance of impact</b> Field assessment will determine the significance of the resources likely to be impacted. Impacts can be minimised through the implementation of appropriate mitigation measures.</p>			
<p><b>Gaps in knowledge &amp; recommendations for further study</b> The project area and the area more broadly have not been subjected to many heritage impact assessments and therefore substantial gaps in knowledge exist. Field assessment will fill these gaps.</p>			
<p><b>Recommendations with regards to general field surveys</b> Archaeological field surveys must provide sufficient ground-coverage of the areas to be developed to be able to determine the nature of the resources likely to be impacted. Palaeontological and cultural landscape field surveys will target sensitive geological and cultural landscape features.</p>			

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## APPENDIX 1

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

Site ID	Site no	Full Site Name	Site Type	Grading
33150	PP016	Paardeplaats 16	Stone walling, Settlement	Grade IIIb
33159	PP025	Paardeplaats 25	Settlement	Grade IIIb
33162	PP028	Paardeplaats 28	Burial Grounds & Graves	Grade IIIa
35704	BEL034	Belfast 034	Building	Grade IIIb
35719	BEL038	Belfast 038	Building	Grade IIIb
35720	BEL039	Belfast 039	Building	Grade IIIb
35721	BEL040	Belfast 040	Building	Grade IIIb
35722	BEL041	Belfast 041	Building	Grade IIIb
35723	BEL042	Belfast 042	Building	Grade IIIb
35725	BEL044	Belfast 044	Building	Grade IIIb
35726	BEL045	Belfast 045	Building	Grade IIIb
35742	BEL046	Belfast 046	Building	Grade IIIb
35743	BEL047	Belfast 047	Building	Grade IIIb
35744	BEL048	Belfast 048	Building	Grade IIIb
33093	PP004	Paardeplaats 4	Burial Grounds & Graves	Grade IIIa
33138	PP007	Paardeplaats 7	Building	Grade IIIb

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33140	PP008	Paardeplaats 8	Building	Grade IIIb
33141	PP009	Paardeplaats 9	Structures	Grade IIIb
33144	PP010	Paardeplaats 10	Burial Grounds & Graves	Grade IIIa
33145	PP011	Paardeplaats 11	Building	Grade IIIb
33238	PP012	Paardeplaats 12	Archaeological	Grade IIIa
33147	PP013	Paardeplaats 13	Structures	Grade IIIa
33149	PP014	Paardeplaats 14	Rock Art	Grade IIIb
33148	PP015	Paardeplaats 15	Stone walling, Settlement	Grade IIIc
33153	PP019	Paardeplaats 19	Stone walling	Grade IIIc
33156	PP022	Paardeplaats 22	Structures	Grade IIIc
33157	PP023	Paardeplaats 23	Building	Grade IIIc
33158	PP024	Paardeplaats 24	Building, Structures	Grade IIIc
33160	PP026	Paardeplaats 26	Stone walling	Grade IIIc
33161	PP027	Paardeplaats 27	Building	Grade IIIb
33163	PP029	Paardeplaats 29	Building	Grade IIIc
85452	WELTE003	Weltevreden HIA 003	Building	Grade IIIb
85453	WELTE004	Weltevreden HIA 004	Stone walling	Grade IIIb
85454	WELTE005	Weltevreden HIA 005	Stone walling	Grade IIIb
85456	WELTE007	Weltevreden HIA 007	Burial Grounds & Graves	Grade IIIa

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85457	BELFA001	Belfast HIA 001	Burial Grounds & Graves	Grade IIIa
85458	BELFA002	Belfast HIA 002	Building	Grade IIIb
85459	BELFA003	Belfast HIA 003	Burial Grounds & Graves	Grade IIIa
85465	BELFA009	Belfast HIA 009	Burial Grounds & Graves	Grade IIIa
85466	BELFA010	Belfast HIA 010	Structures	Grade IIIc
85475	BELFA013	Belfast HIA 013	Building	Grade IIIb
85476	BELFA014	Belfast HIA 014	Building	Grade IIIc
85477	BELFA015	Belfast HIA 015	Burial Grounds & Graves	Grade IIIa
85478	BELFA016	Belfast HIA 016	Building	Grade IIIb
85479	BELFA017	Belfast HIA 017	Burial Grounds & Graves	Grade IIIa
85480	BELFA018	Belfast HIA 018	Burial Grounds & Graves	Grade IIIa
85481	BELFA019	Belfast HIA 019	Burial Grounds & Graves	Grade IIIa
85482	BELFA020	Belfast HIA 020	Burial Grounds & Graves	Grade IIIa
33151	PP017	Paardeplaats 17	Structures	Grade IIIb
33152	PP018	Paardeplaats 18	Structures	Grade IIIb
33154	PP020	Paardeplaats 20	Building	Grade IIIb
33155	PP021	Paardeplaats 21	Structures	Grade IIIb
85487	BELFA025	Belfast HIA 025	Burial Grounds & Graves	Grade IIIa
85483	BELFA021	Belfast HIA 021	Burial Grounds & Graves	Grade IIIa

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85484	BELFA022	Belfast HIA 022	Burial Grounds & Graves	Grade IIIa
85485	BELFA023	Belfast HIA 023	Building	Grade IIIa
85486	BELFA024	Belfast HIA 024	Building	Grade IIIc
85489	BELFA027	Belfast HIA 027	Burial Grounds & Graves	Grade IIIa
85490	BELFA028	Belfast HIA 028	Building	Grade IIIb
85492	BELFA030	Belfast HIA 030	Burial Grounds & Graves	Grade IIIa
35700	BEL031	Belfast 031	Building	Grade IIIb
35717	BEL036	Belfast 036	Building	Grade IIIb
35718	BEL037	Belfast 037	Building	Grade IIIb
35724	BEL043	Belfast 043	Building	Grade IIIb
85494	BELFA032	Belfast HIA 032	Burial Grounds & Graves	Grade IIIa
85495	BELFA033	Belfast HIA 033	Burial Grounds & Graves	Grade IIIa
85497	BELFA035	Belfast HIA 035	Building	Grade IIIc
85488	BELFA026	Belfast HIA 026	Burial Grounds & Graves	Grade IIIa
85491	BELFA029	Belfast HIA 029	Building	Grade IIIc
35695	BEL026	Belfast 026	Burial Grounds & Graves	Grade IIIa
35696	BEL027	Belfast 027	Burial Grounds & Graves	Grade IIIa
35697	BEL028	Belfast 028	Burial Grounds & Graves	Grade IIIa
35698	BEL029	Belfast 029	Burial Grounds & Graves	Grade IIIa

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35699	BEL030	Belfast 030	Burial Grounds & Graves	Grade IIIa
35709	BEL005	Belfast 005	Burial Grounds & Graves	Grade IIIa
35710	BEL006	Belfast 006	Burial Grounds & Graves	Grade IIIa
35714	BEL010	Belfast 010	Burial Grounds & Graves	Grade IIIa
35716	BEL012	Belfast 012	Burial Grounds & Graves	Grade IIIa
35728	BEL014	Belfast 014	Burial Grounds & Graves	Grade IIIa
35730	BEL013	Belfast 013	Burial Grounds & Graves	Grade IIIa
35731	BEL015	Belfast 015	Burial Grounds & Graves	Grade IIIa
35732	BEL016	Belfast 016	Burial Grounds & Graves	Grade IIIa
35733	BEL017	Belfast 017	Burial Grounds & Graves	Grade IIIa
35734	BEL018	Belfast 018	Burial Grounds & Graves	Grade IIIa
35735	BEL019	Belfast 019	Burial Grounds & Graves	Grade IIIa
35736	BEL020	Belfast 020	Burial Grounds & Graves	Grade IIIa
35737	BEL021	Belfast 021	Burial Grounds & Graves	Grade IIIa
35738	BEL022	Belfast 022	Burial Grounds & Graves	Grade IIIa
35739	BEL023	Belfast 023	Burial Grounds & Graves	Grade IIIa
35740	BEL024	Belfast 024	Burial Grounds & Graves	Grade IIIa
35741	BEL025	Belfast 025	Burial Grounds & Graves	Grade IIIa
85493	BELFA031	Belfast HIA 031	Burial Grounds & Graves	Grade IIIa

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85496	BELFA034	Belfast HIA 034	Building	Grade IIIc
85498	BELFA036	Belfast HIA 036	Burial Grounds & Graves	Grade IIIa
85499	BELFA037	Belfast HIA 037	Burial Grounds & Graves	Grade IIIa
85500	BELFA038	Belfast HIA 038	Natural	Grade IIIb
85501	BELFA039	Belfast HIA 039	Burial Grounds & Graves	Grade IIIa
85502	BELFA040	Belfast HIA 040	Building	Grade IIIc
85503	BELFA041	Belfast HIA 041	Burial Grounds & Graves	Grade IIIa
85504	BELFA042	Belfast HIA 042	Building	Grade IIIa
85505	BELFA043	Belfast HIA 043	Burial Grounds & Graves	Grade IIIa
85506	BELFA044	Belfast HIA 044	Building	Grade IIIb
85507	BELFA045	Belfast HIA 045	Building	Grade IIIc
85508	BELFA046	Belfast HIA 046	Building	Grade IIIc
138078	ECBM-001		Burial Grounds & Graves	
135433	2529DD/ RDP housing developments/ farm Zoekop 462 JS/ Site PZ1	Ruined remains of a building	Structures	Grade IV
135438	2529DD/ RDP housing developments/ farm Zoekop 462 JS/ Site PZ2	Ruin & concrete dam	Structures	Grade IV
135441	2529DD/ RDP housing developments/ farm Zoekop 462 JS/ Site PZ3	Ruins	Structures	Grade IV
135480	2529DD/ RDP housing developments/	Remains of a historic farmstead	Structures	Grade IV

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	farm Zoekop 462 JS/ Site PZ4			
135486	2529DD/ RDP housing developments/ farm Zoekop 462 JS/ Site PZ5	Ruin	Structures	Grade IV
135490	2529DD/ RDP housing developments/ farm Zoekop 462 JS/ Site PZ6	Ruin	Structures	Grade IV
135495	2529DD/ RDP housing developments/ farm Zoekop 462 JS/ Site PZ7	Ruin	Structures	Grade IV
129903	King Ndzundza Heritage Site	King Ndzundza Grave	Burial Grounds & Graves	
128715	L7F	6278/L7F	Building	
128717	L10F	6278/L10F	Building	
128718	Z2F	6278/Z2F	Building	
128719	Z5H	Permit Application (EXX3775)	Building	
136166	UM-001	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136167	UM-002	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136170	UM-003	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136174	UM-004	Umsimbithi eMakhazeni	Building	
136175	UM-005	Umsimbithi eMakhazeni	Structures	
136176	UM-006	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136178	UM-007	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136179	UM-008	Umsimbithi eMakhazeni	Conservation Area	Grade IIIa

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136183	UM-009	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136186	UM-010	Umsimbithi eMakhazeni	Building	Grade IIIc
136187	UM-011	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136189	UM-012	Umsimbithi eMakhazeni	Building	Grade IIIb
136190	UM-013	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136199	UM-014	Umsimbithi eMakhazeni	Rock Art	Grade IIIa
136207	UM-019	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136208	UM-020	Umsimbithi eMakhazeni	Building, Structures	Grade IIIa
136209	UM-021	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136210	UM-022	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136211	UM-023	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136212	UM-024	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136213	UM-025	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136215	UM-027	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136216	UM-028	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
136217	UM-029	Umsimbithi eMakhazeni	Burial Grounds & Graves	Grade IIIa
137821	2529DD/ Opencast Coal Mining/ Farm Blijvooruitzicht 383 JT/ Site BV6G	Farm workers grave	Burial Grounds & Graves	Grade IIIa
137822	2529DD/ Opencast Coal Mining/ Farm Blijvooruitzicht 383 JT/ Site BV8F	Modern Farmstead	Structures	Ungraded

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137824	2529DD/ Opencast Coal Mining/ Farm Blijvooruitzicht 383 JT/ Site BV8G	Mtsweni Graveyard	Burial Grounds & Graves	Grade IIIa
137875	2529DD/ Opencast Coal Mining/ Farm Blijvooruitzicht 383 JT/ Site BV18G	Coetzer Graves	Burial Grounds & Graves	Grade IIIa
137876	2529DD/ Opencast Coal Mining/ Farm Blijvooruitzicht 383 JT/ Site BV18F	Farmstead	Structures	Ungraded
137879	2529DD/ Opencast Coal Mining/ Farm Leeuwbank 427 JS/ Site L5F	Farmstead	Structures	Ungraded
137880	2529DD/ Opencast Coal Mining/ Farm Leeuwbank 427 JS/ Site L5H	Homestead	Structures	Ungraded
137881	2529DD/ Opencast Coal Mining/ Farm Leeuwbank 427 JS/ Site L5G	Cemetery	Burial Grounds & Graves	Grade IIIa
137883	2529DD/ Opencast Coal Mining/ Farm Leeuwbank 427 JS/ Site L7F	Modern farmstead with historic buildings	Structures	Ungraded

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## APPENDIX 2

### Reference List with relevant AIAs and PIAs

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
108955	AIA Phase 1	Johnny Van Schalkwyk	01/10/2011	Heritage Impact Assessment for the Proposed Development of the High Altitude Sports Centre , Belfast, Mpumalanga Province
109864	HIA Phase 1	Julius CC Pistorius	01/08/2008	A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE PROPOSED WONDERFONTEIN COLLIERY NEAR BELFAST IN THE MPUMALANGA PROVINCE OF SOUTH AFRICA
110569	HIA Phase 1	Julius CC Pistorius	01/02/2013	A REVISED PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE PROPOSED WONDERFONTEIN COLLIERY NEAR BELFAST IN THE MPUMALANGA PROVINCE OF SOUTH AFRICA
117178	HIA Phase 1	Wouter Fourie	02/10/2009	Heritage Assessment The Kwagga North Project, Optimum Coal, Arnot, Mpumalanga
119156	Significance Report	Sidney Miller	01/03/2013	A phase 2 architectural documentation of two farmyards on the farm Wonderfontein 428 JS district Belfast, Mpumalanga Province.
119484	HIA Phase 2	Wouter Fourie	09/09/2012	FOLLOW-UP EVALUATION AS REQUIRED BY HIA COMPILED FOR OPTIMUM COLLIERY " KWAGGA NORTH PROJECT
120255	HIA Phase 1	Anton Pelsler	13/05/2013	A REVISION OF PHASE 1 HIA FOR THE PROPOSED WONDERFONTEIN COLLIERY NEAR BELFAST IN MPUMALANGA
124289	PIA Desktop	Gideon Groenewald	07/07/2013	PALAEONTOLOGICAL DESKTOP ASSESSMENT FOR THE KWAGGA NORTH PROJECT: AN EXTENSION OF THE OPTIMUM COLLIERY NEAR THE TOWN OF ARNOT, STEVE TSHWETE LOCAL MUNICIPALITY, NKANGALA DISTRICT MUNICIPALITY, MPUMALANGA
162667	AIA Phase 1	Wouter Fourie		Archaeological Impact Assessment: Northern Coal Portion 15 and 16 of the farm Weltevreden 381 JT, Belfast, Mpumalanga
164311	PIA Desktop	Rose Prevec	01/07/2012	Exxaro Paardeplaats Palaeontological Scoping Report: Desktop level

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164350	Heritage Impact Assessment Specialist Reports	Jennifer Kitto	26/10/2012	Exxaro Paardeplaats Project: Heritage Impact Assessment Report
164351		Jennifer Kitto	26/07/2012	EXXARO PAARDEPLAATS PROJECT Heritage Impact Assessment Report
169668	Heritage Statement	M Naude	01/06/2013	HERITAGE ASSESSMENT (ARCHITECTURAL) OF BUILDINGS ON THE FARM MOOIFONTEIN “ Middelburg-Arnot (Mpumalanga Province)
174000	HIA Phase 1	Natasha Higgitt, Shahzaadee Karodia Khan	25/08/2014	Environmental Impact Assessment for the Weltevreden Open Cast Coal Mine, Weltevreden 381JT, Belfast, Mpumalanga Province: Heritage Impact Assessment
174303	HIA Phase 1	R. C. De Jong	31/12/2009	Heritage Impact Assessment Report: Proposed Belfast Mining Project located on portions of the farms Leeuwbank 427 JS, Blyvooruitzicht 383 JT, Zoekop 426 JS, south of Wonderfontein and Belfast, Mpumalanga
179543	HIA Phase 1	Julius CC Pistorius	30/09/2011	A Phase 1 Heritage Impact Assessment (HIA) Study for the Consolidated Environmental Management Programme Report (Consolidated EMPR) for Arnot Coal on the Eastern Highveld in the Mpumalanga Province
180527	Burial Grounds and Graves Specialist Reports	Johan Nel	17/10/2014	Exxaro Arnot Mooifontein Expansion Project. Burial Grounds and Graves: Social Consultation and Entitlement Framework Report.
319306	HIA Phase 1	Anton van Vollenhoven	30/04/2015	A Report on an Archaeological and Built Environment Heritage Impact Assessment for a Proposed Piggery on Portion 19 of the Farm Grootlaagte 449 JS, Close to Middelburg, Mpumalanga Province.
319307	PIA Phase 1	Dr. Heidi Fourie	02/07/2015	Palaeontological Impact Assessment: Phase 1 Field Study. The Construction and Operation of a Breeder Sow Unit and Associated Infrastructure, Steve Tshwete Local Municipality, Mpumalanga Province. Farm: Portion 19 Grootlaagte 449 JS, Middelburg.

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323331	HIA Phase 1	Christine Van Wyk Rowe	30/04/2015	A PHASE 1 ARCHAEOLOGICAL / HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF A WASTE TRANSFER AND SORTING FACILITY AT SIKHULULIWE VILLAGE, ON PORTION 9 OF THE FARM SPRINGBOKLAAGTE 416JS, EAST OF MIDDELBURG (STEVE TSHWETE LOCAL MUNICIPALITY)
333541	Palaeontologica I Monitoring	Heidi Fourie	28/09/2015	Protocol for Finds
354619	HIA Letter of Exemption	Anton van Vollenhoven	18/01/2016	Letter for HIA Exemption Request: Wonderfontein Portion 24
373944	BGG Phase 2	Johan Nel	06/10/2016	Burial Grounds and Graves: Grave Relocation Report. Exxaro Arnot Mooifontein Expansion Project
374933	AIA Phase 1	JP Cilliers	10/03/2016	Phase 1 Archaeological Impact Assessment for the Belfast Implementation Project: Resettlement Site, Mpumalanga Province
4913	AIA Phase 1	Johnny Van Schalkwyk	10/01/2005	Heritage Impact Assessment: Belfast Extension 6 Township
4917	HIA Phase 1	Anton Pelser, Jaco van der Walt	01/11/2008	A Report on a Heritage Impact Assessment for the Proposed OpenCape Archaeological Survey CCt Coal Mining Operations for the Klippan Colliery on the Farm Klippan 452 JS (Emachibini), Wonderfontein, Mpumalanga
5231	AIA Phase 1	Johnny Van Schalkwyk	01/06/2002	A Survey of Cultural Resources for the Arnot Mining Development, Middleburg District
5239	AIA Phase 1	McEdward Murimbika	01/04/2006	Phase 1 Cultural and Archaeological Heritage Assessment Specialist Study: Proposed Two Eskom Power Lines and Construction of Mafube Substation at Springboklaagte Farm 416 JS Steve Tshwete Local Municipality, Mpumalanga Province
5245	AIA Phase 1	Johnny Van Schalkwyk	01/09/2007	Heritage Impact Scoping Report for the Planned Hendrina-Marathon Power Line, Mpumalanga Province
6278	AIA Phase 1	Anton van Vollenhoven	01/02/2012	Report on the Phase II heritage Investigation of a Farmstead on the farm Blijvooruitzicht 383 JT near Belfast in Mpumalanga Province
7524	AIA Phase 1	Wouter Fourie	22/07/2008	Archaeological Impact Assessment: Northern Coal Portion 15 and 16 of the Farm Weltevreden 381 JT, Belfast, Mpumalanga

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92508	AIA Phase 1	Christine Van Wyk Rowe	01/02/2012	Phase 1 Archaeological/Heritage Impact Assessment for proposed residential township: extension 7 of portion 5 (a portion of portion 2) of the farm Weltevreden 386 JS, Belfast
92514	AIA Phase 1	Christine Van Wyk Rowe	01/02/2012	Phase 1 Archaeological/Heritage Impact Assessment for proposed residential township: extension 5 of portion 13 of the farm Klipfontein 385JS, Belfast
92519	AIA Phase 1	Christine Van Wyk Rowe	01/02/2012	Phase 1 Archaeological/Heritage Impact Assessment for proposed residential township: extension 8(4) & 6 of portion 79 (a Portion of Portion 3) of the farm Tweefontein 357JT, Belfast.
92519	AIA Phase 1	Christine Van Wyk Rowe	01/02/2012	Phase 1 Archaeological/Heritage Impact Assessment for proposed residential township: extension 8(4) & 6 of portion 79 (a Portion of Portion 3) of the farm Tweefontein 357JT, Belfast.

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## APPENDIX 3 - Keys/Guides

### Key/Guide to Acronyms

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

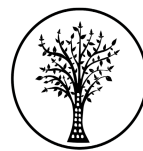
### Full guide to Palaeosensitivity Map legend

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

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## APPENDIX 4 - Methodology

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

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

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

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

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

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

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

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

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

### DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

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

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

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

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

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**Low coverage** will be used for:

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

**Medium coverage** will be used for

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

**High coverage** will be used for

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

## RECOMMENDATION GUIDE

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

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

This recommendation is made when:

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

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

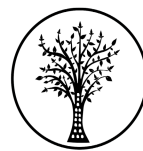
This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

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

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

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

**Note:**

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

## **APPENDIX 5 -Summary of Specialist Expertise**

**Jenna Lavin**, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management, heads up the heritage division of the organisation since 2016, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is on the Executive Committee of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 100 Heritage Impact Assessments and Screening Assessments throughout South Africa.

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