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HERITAGE SCREENER

CTS Reference Number:	CTS21_216
SAHRA Case No.	TBA
Client:	Savannah
Date:	May 2022
Title:	Desktop Heritage Screening Assessment - Mutsho Solar PV Cluster

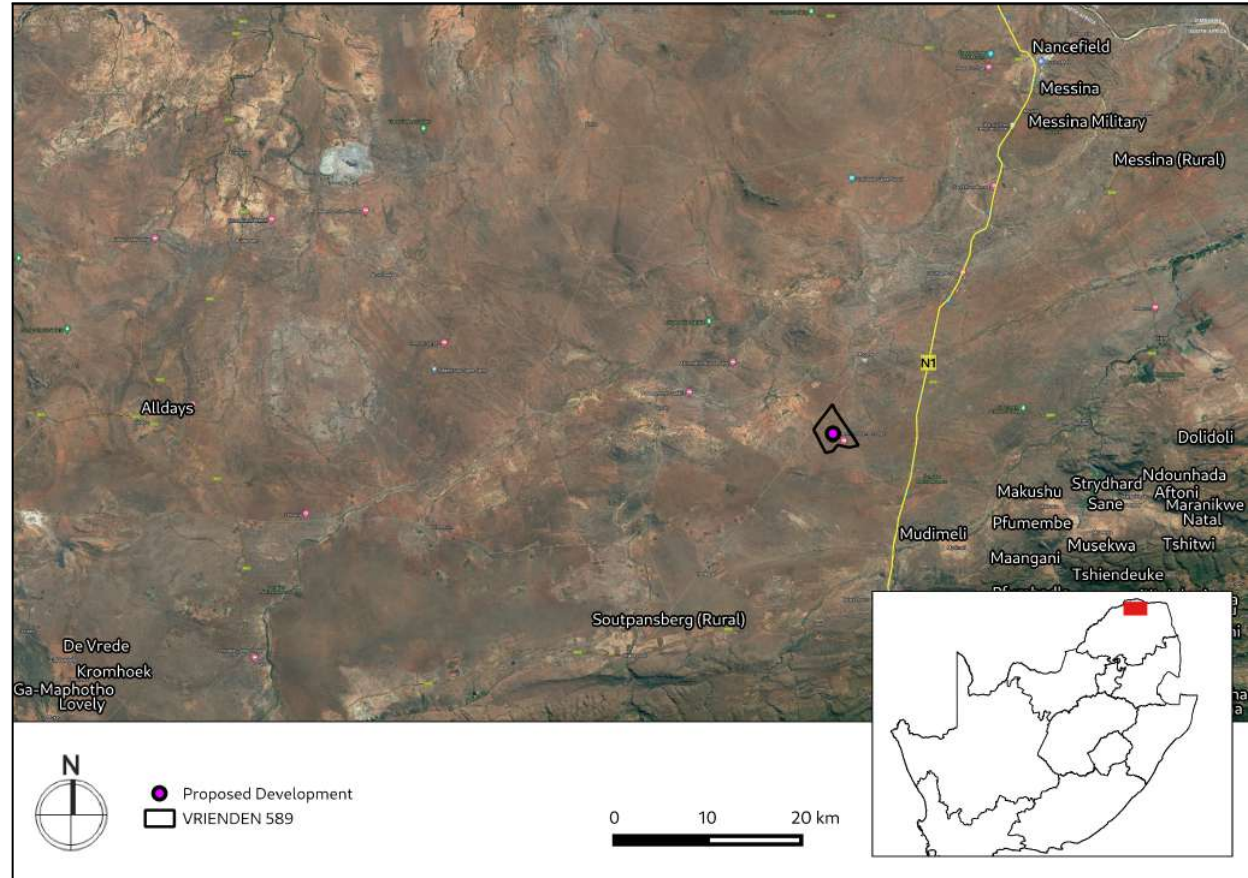


Figure 1a. Satellite map indicating the location of the proposed development in the Limpopo Province

Recommendation:	<p>RECOMMENDATION</p> <p>It is unlikely that the proposed development will impact on significant archaeological and palaeontological heritage. However, an HIA is required to assess impacts to these identified heritage resources and to provide appropriate mitigation measures to prevent negative impact.</p>
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1. Proposed Development Summary

TBA

2. Application References

Name of relevant heritage authority(s)	SAHRA and LPHRA
Name of decision making authority(s)	DFFE

3. Property Information

Latitude / Longitude	22°42'5.08"S 29°49'5.60"E
Erf number / Farm number	Farm Vrienden 589 MS
Local Municipality	Makhado
District Municipality	Vhembe
Province	Limpopo Province
Current Use	Agriculture
Current Zoning	Agriculture

4. Nature of the Proposed Development

Total Surface Area	651ha (for all four Solar PV Facilities)
Depth of excavation (m)	TBA
Height of development (m)	3m above ground level



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

- » Solar PV array comprising PV panels and mounting structures.
- » Inverters and transformers.
- » Cabling between the project components.
- » 33/132kV onsite facility (IPP Portion), including associated equipment and infrastructure – one onsite substation for all four (4) Solar PV Facilities.
- » Battery Energy Storage System (BESS) – one for all four (4) Solar PV Facilities.
- » Site offices, warehouses, and guardhouses.
- » Water storage tanks at admin block for human consumption.
- » Laydown areas.
- » Internal gravel distribution roads.



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

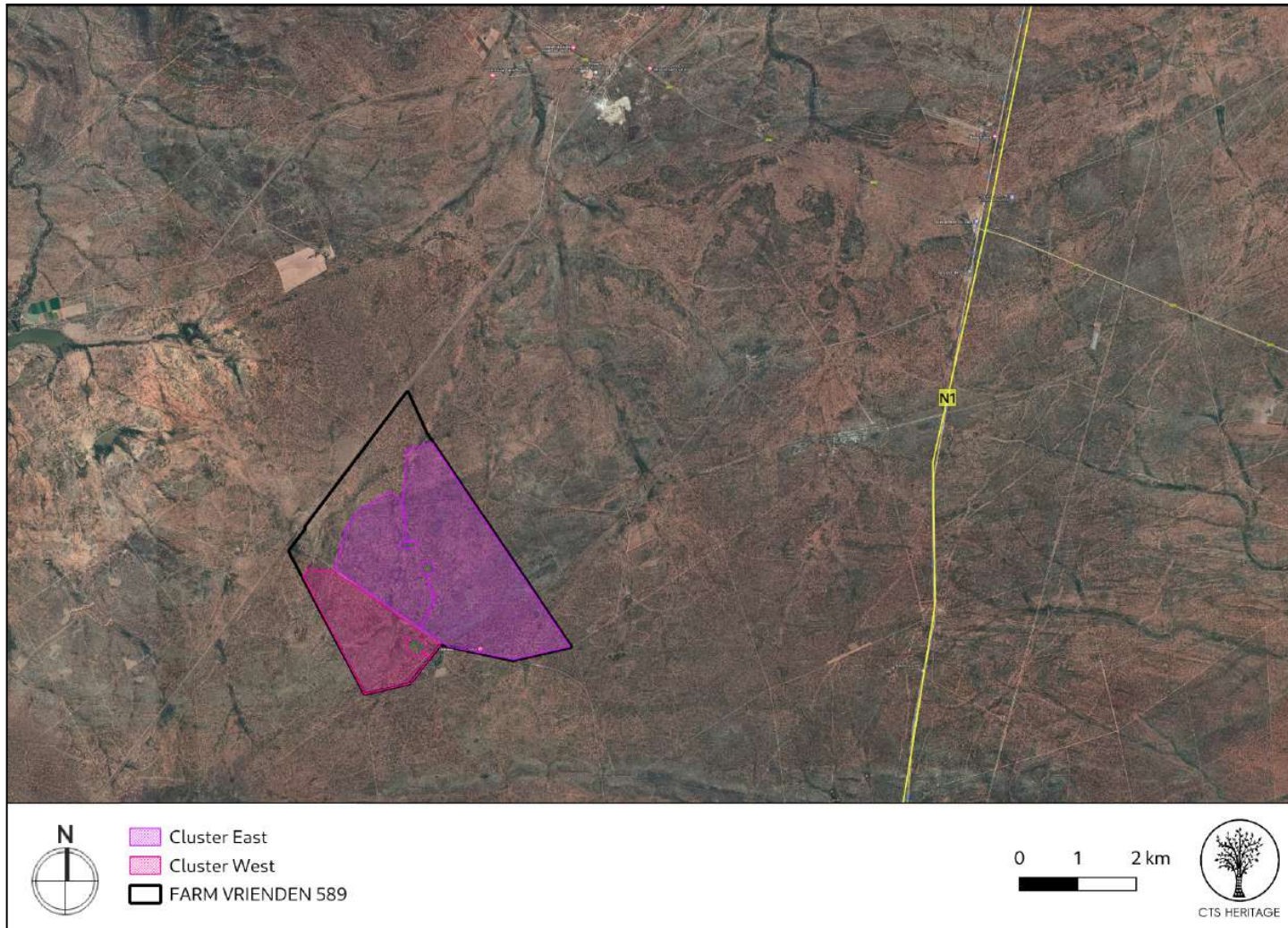


Figure 1b Overview Map. Satellite image (2019) indicating the proposed study area

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Figure 1c. Overview Map. Satellite image (2019) indicating the proposed study area at closer range.



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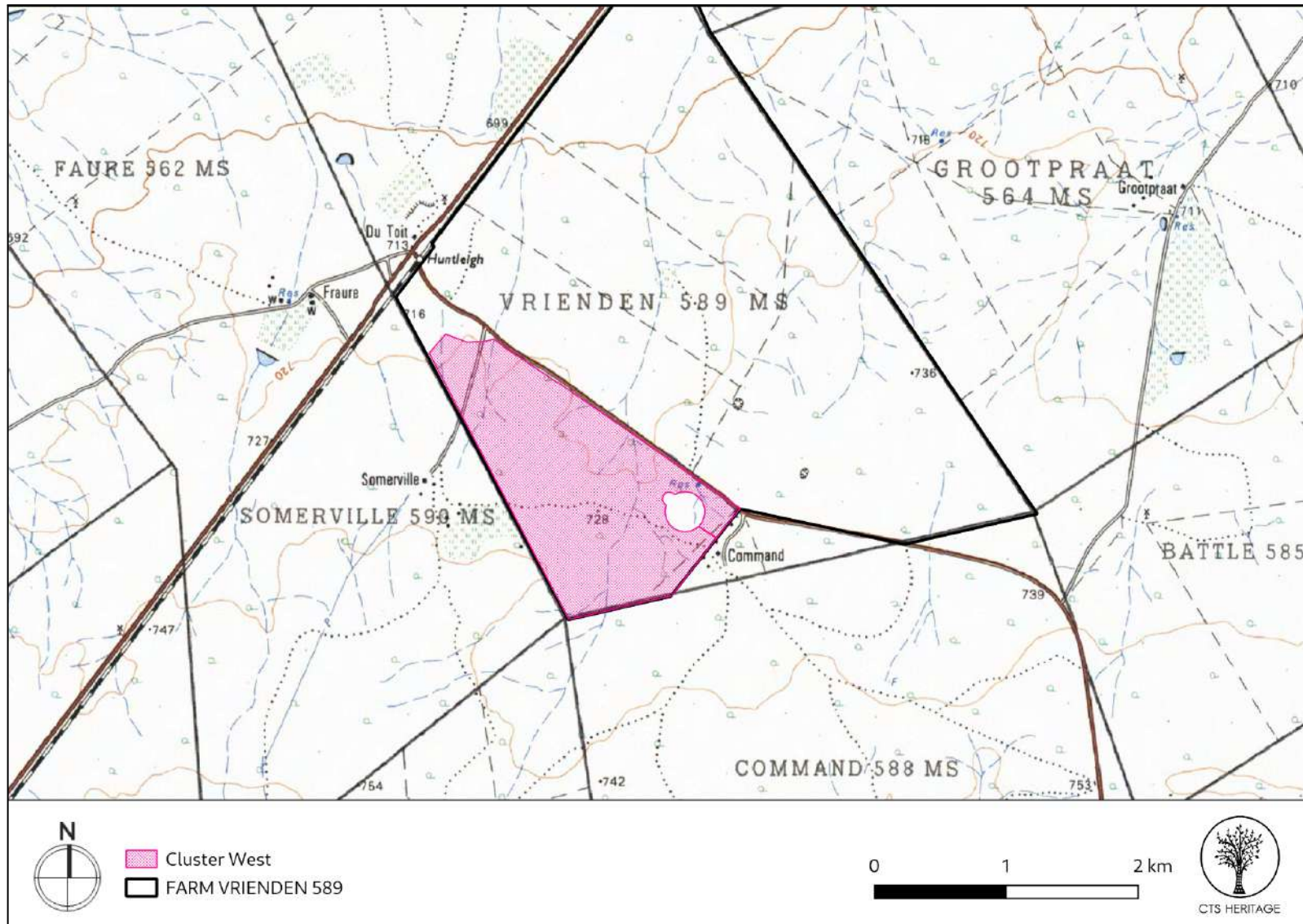


Figure 1d. Overview Map. 1:50 000 Topo Map indicating the proposed study area at closer range.

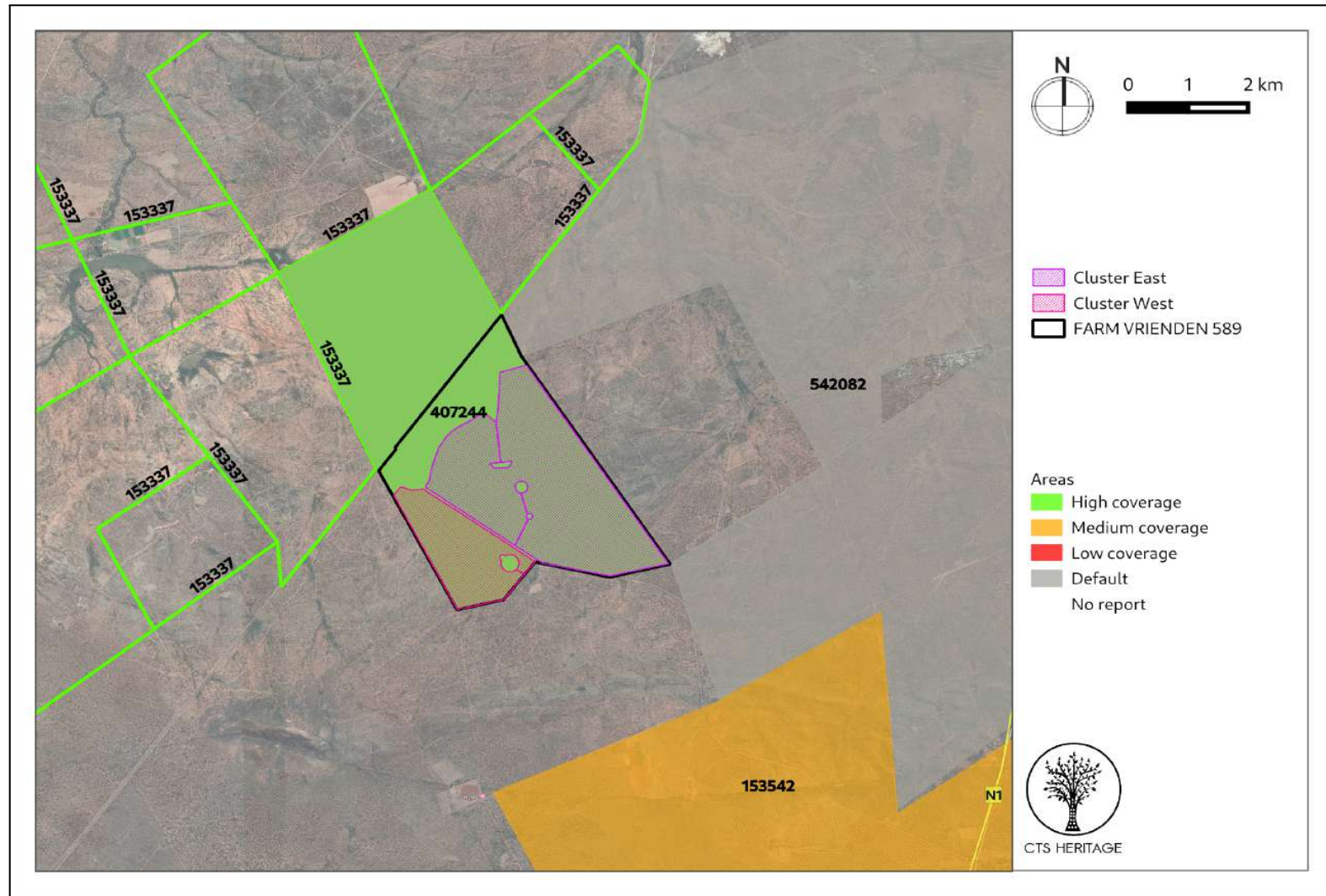


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed study area within 10km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.



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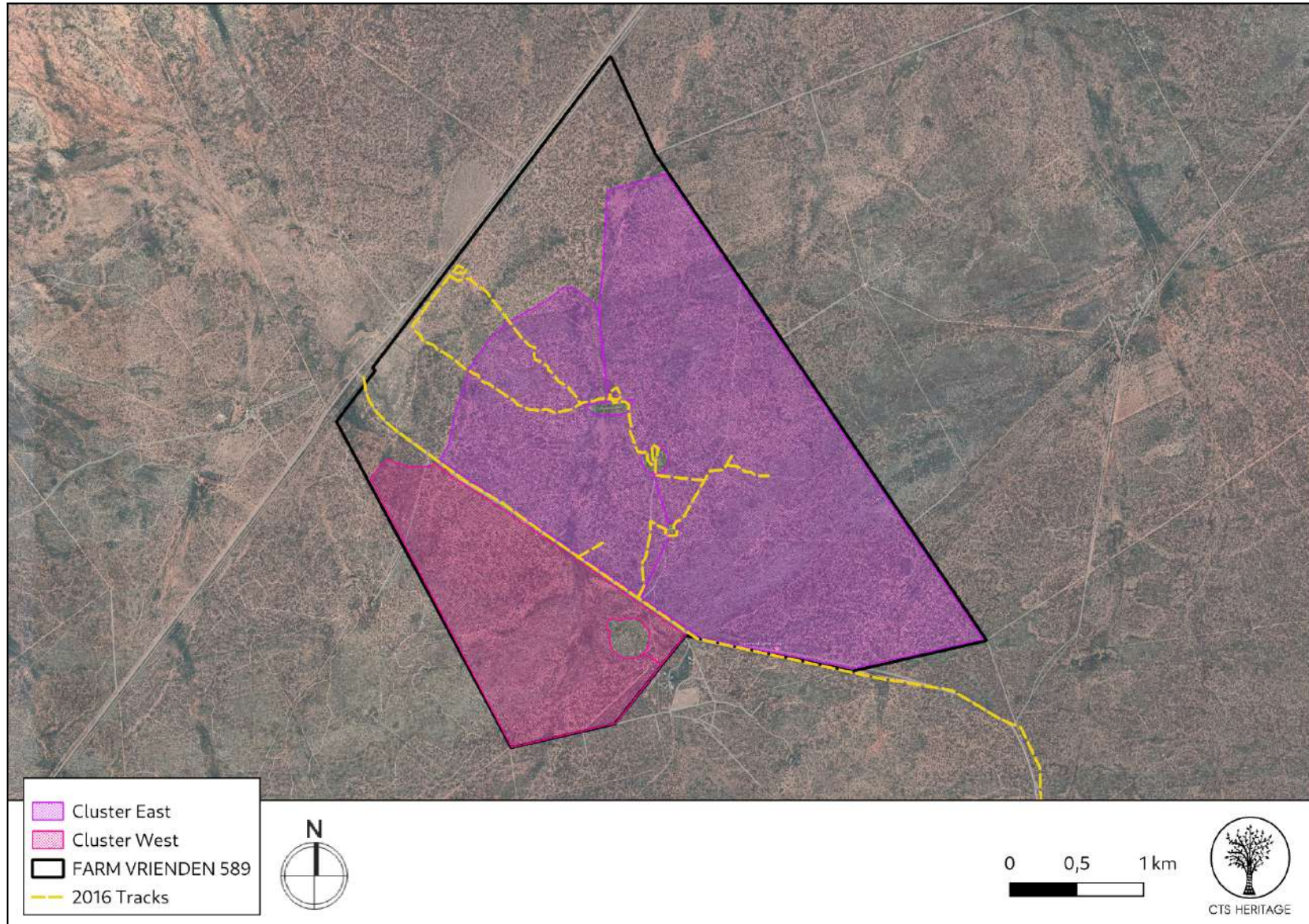


Figure 2a. Previous HIAs Map. Tracks walked as part of the 2016 Heritage Impact Assessment process for this property

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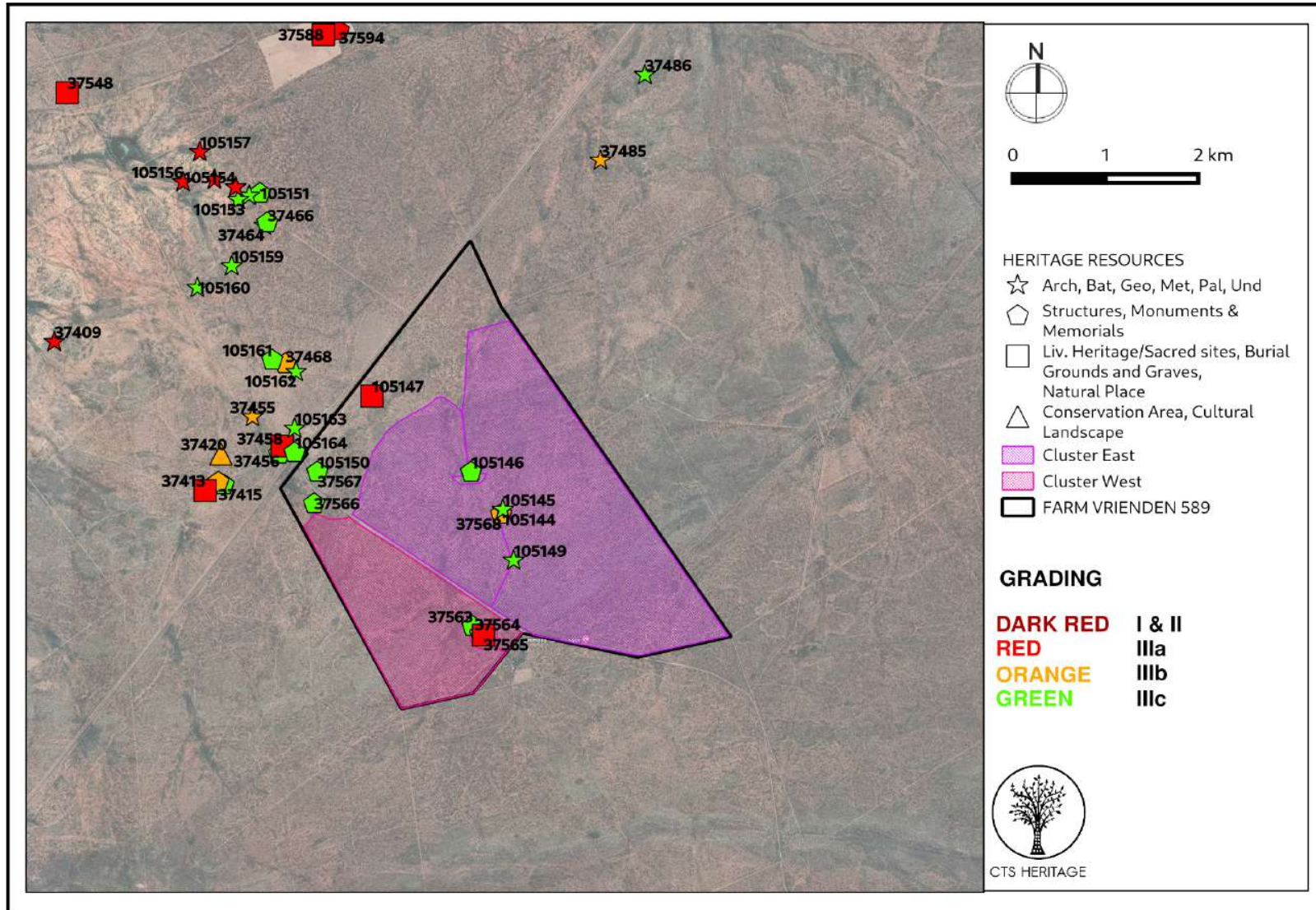


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for a full description of heritage resource types.



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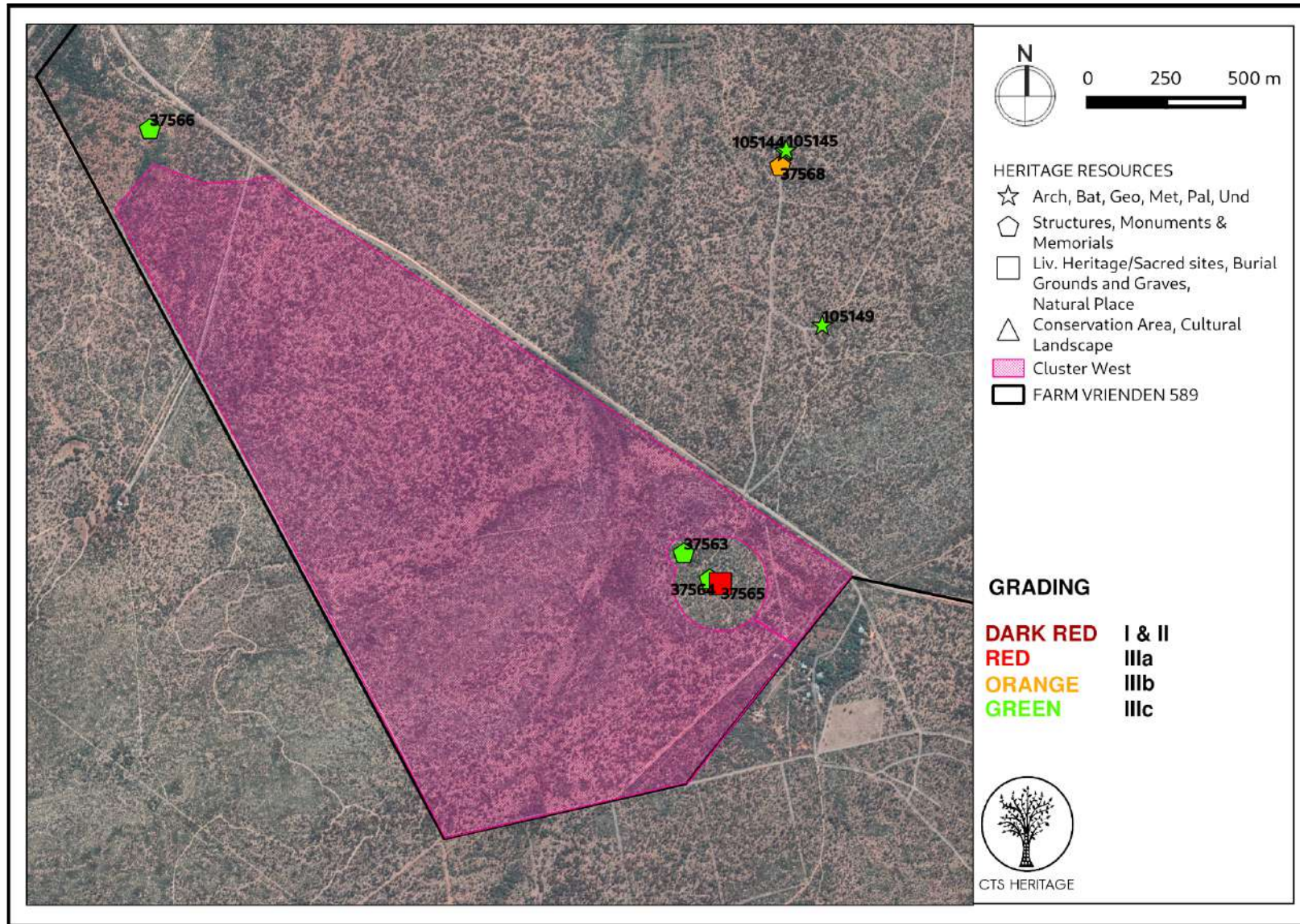


Figure 3a. Heritage Resources Map. Inset A

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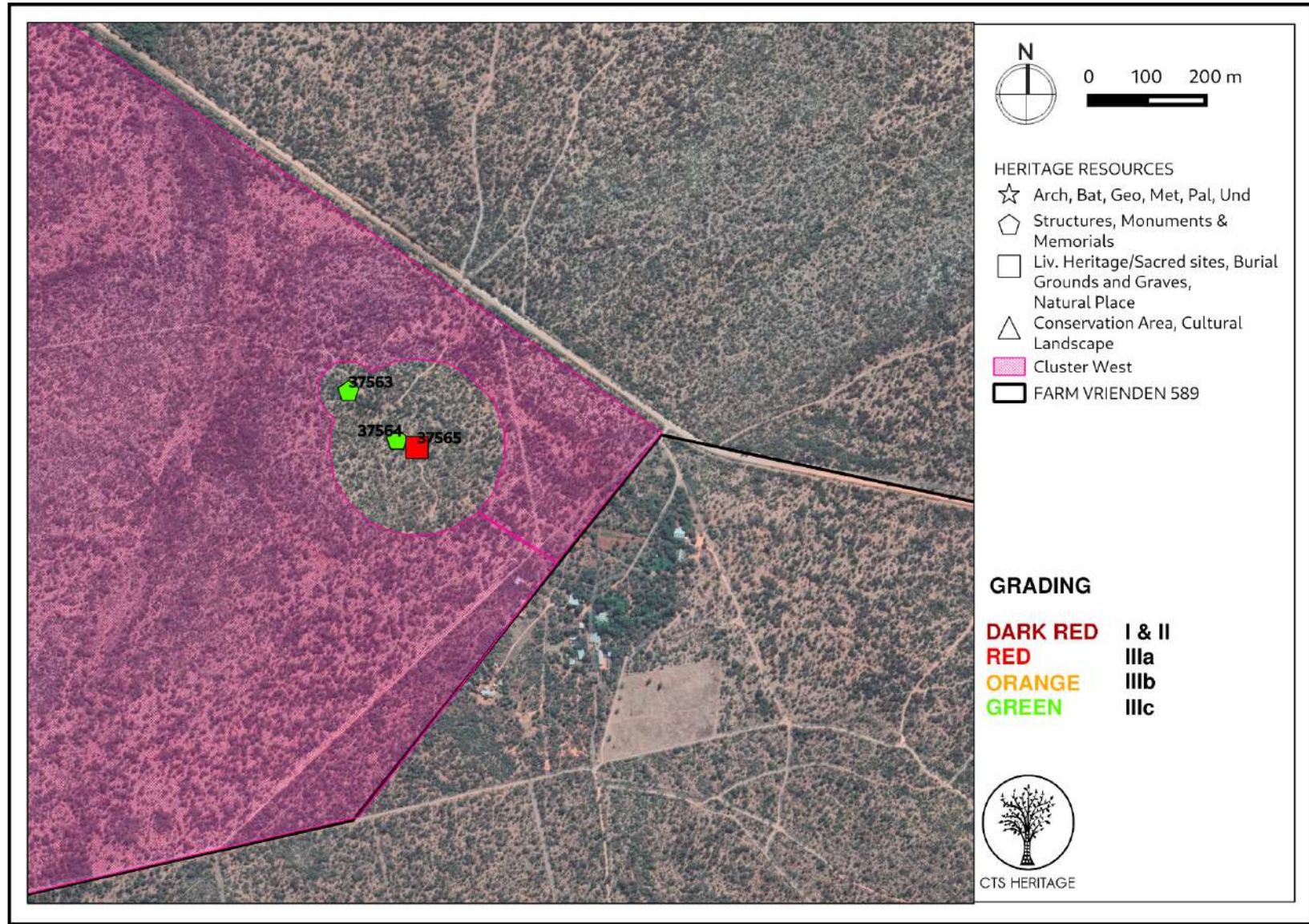


Figure 3b. Heritage Resources Map. Inset B

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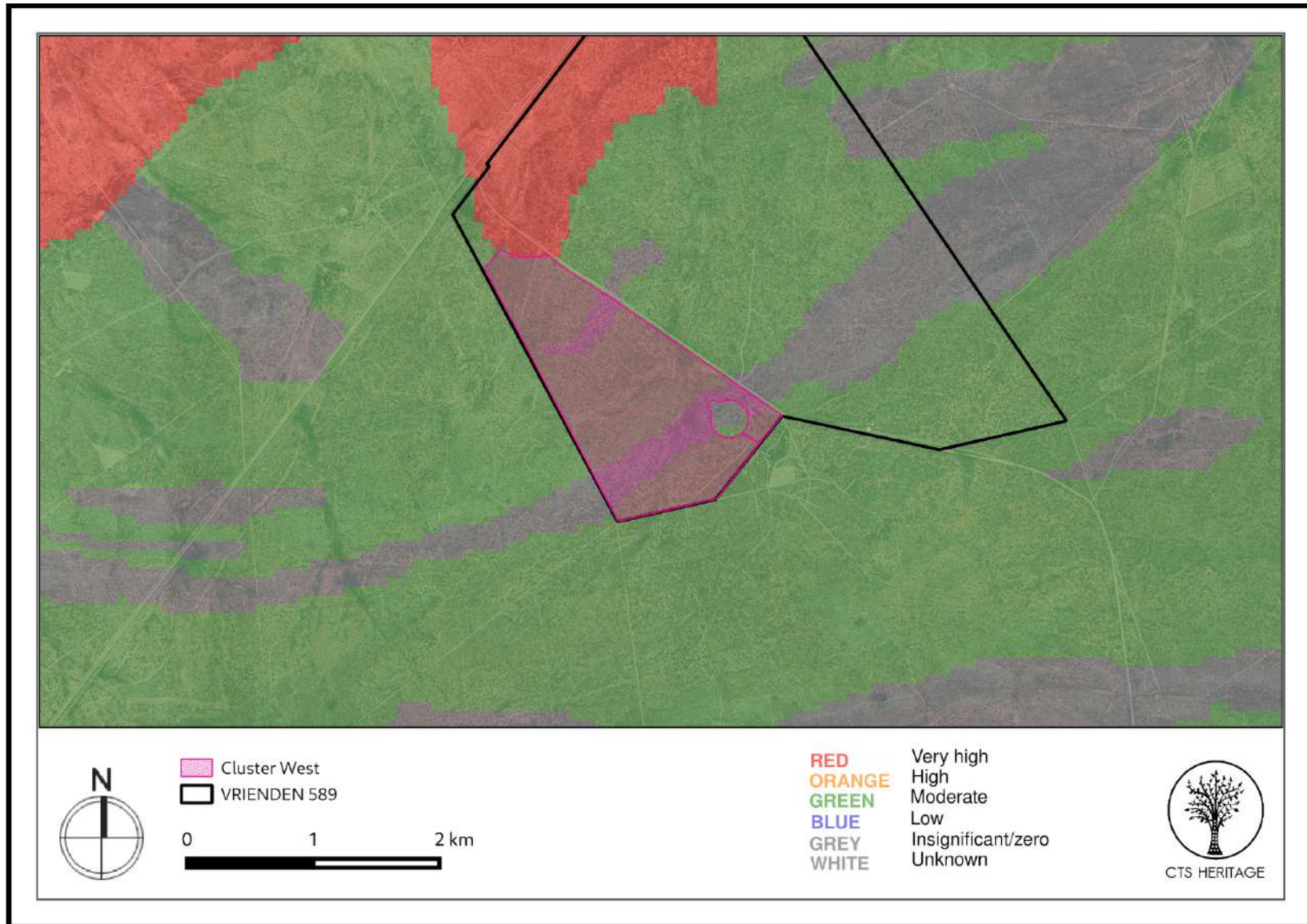


Figure 4a. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

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Figure 5. Contextual Image. Flat topography of the farm Vriendin 589 MS (Butler, 2016)

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8. Heritage statement and character of the area

Background

The area proposed for the new Cluster East PV Development was previously assessed by CTS Heritage as part of the Heritage Impact Assessment for the Mutsho Power Project. The HIA for that project describes the area proposed for development as predominantly rural in nature with a number of coal mines located in the vicinity. The proposed development areas are located in the Lowveld. The area consists of savannah drylands as well as high rainfall areas. The nearby Soutpansberg has forests where the fauna and flora are abundant, and where a wide variety of animal as well as bird species can be found. The farm displays evidence of agricultural activity and disturbance.

Cultural landscape and the Built Environment

According to Silidi and Pikirayi (2013), “The coming of the Voortrekkers in the area and the introduction of commercial farming in the 19th and early 20th centuries has a strong archaeological footprint in the Mopane Project Area. We noted a prevalence of house remains associated with pioneer commercial farmers and shifting semi-permanent dwellings of farm workers. Several graves both with inscriptions and “anonymous” mostly associated with pioneer farmers or their workers were also recorded.” No impacts to any historical farming infrastructure of houses are anticipated based on the information provided.

Broadly, the Project Area, which is approximately 70km from Mapungubwe, may be considered as part of the Greater Mapungubwe Cultural Landscape. Mapungubwe was once (between 900 and 1300 CE) the centre of gold and ivory trade with eastern African ports. It was South Africa’s first kingdom, and developed into the subcontinent’s largest realm, lasting for 400 years before it was abandoned in the 14th century. Its highly sophisticated people traded gold and ivory with China, India and Egypt. While the broader area of northern Limpopo can be considered to be part of the Greater Mapungubwe Cultural Landscape, the context of the area under assessment has been negatively impacted by the significant number of coal mines in the area. Furthermore, the proposed PV facilities are located sufficiently far from the N1 (8km) that no impact to the way that this area is experienced is expected.

Living Heritage

In the heritage impacts assessment completed on Farm Vrienden 589 in 2016, a unique example of living heritage was identified. The Baobab Room, Site V04, continues to be used today. The baobab, which has an entirely hollow trunk at ground level, has a number of windows that allow light into the shelter provided within the trunk. Pegs have been hammered into the external bark to facilitate access to inside the tree through one of these windows. There appears to be a deposit of unknown depth inside the trunk. For its unique value, this site has been graded IIIA (SAHRIS ID 105147). This site falls well outside of the area proposed for the PV facilities and no impact is anticipated.

Archaeology

South Africa has an extensive stone age archaeological record including the Earlier Stone Age (approximately 2.5mya to 200 kya), Middle Stone Age (200 kya to 40 kya) and Later Stone Age (40 kya to 2000 years ago) deposits. These sites tend to present as scatters of stone age artefacts. Rarely, archaeologists may find a stone tool manufacture site with evidence of stone flake tools as well as the flaked pieces of stone. Later Iron Age sites, such as Mapungubwe, tend to present the remnants of Iron Age settlements identified through distinct patterns of stone features that formed the foundations of iron age structures. Often, Early Iron Age sites are not visible on the surface, but are

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evidenced by material culture associated with the Early Iron Age such as pottery sherds, Iron slag and other material culture located beneath the land surface.

The area surrounding the farm proposed for this development is known for a variety of kinds of heritage resources including Stone Age and Iron Age archaeology, significant structures and living heritage sites such as significant baobab trees as well as burial grounds and graves. There are numerous informal burial grounds and graves located in this area, associated with farm workers or mine workers. Often these burial grounds are not fenced and have minimal surface markings denoting their presence. These informal burial grounds and graves have a significant role to play in terms of the cultural continuity of residents of the area and care must be taken to avoid any impact to sites such as this.

Previous surveys of this area (Silidi and Pikirayi, 2013 and CTS Heritage, 2016 and 2018) identified several heritage resources across this farm (Table 1), of these, three fall within the area proposed for development (highlighted in bold in the table below). As per Figure 3b, no impact to any of these heritage resources is anticipated from the layout provided for this assessment. Overall, the archaeological sensitivity of the farm Vrienden 589 is low based on the results of previous heritage field assessments conducted here (Silidi and Pikirayi, 2013 and CTS Heritage, 2016 and 2018). As such, based on the available information, it is unlikely that significant archaeological resources will be impacted by the proposed development.

Table 1: Sites previously identified within the proposed development areas (Figure 3)

Site ID	Site no	Full Site Name	Site Type	Description	Grading	Mitigation
37464	MOP035	Mopane 035	Deposit	Next to medium size Mopane trees, there are makeshift fire places for curing of Mopane worms. Ash deposit is evidence of seasonal use.	Grade IIIc	50m Buffer
37563	MOP110	Mopane 110	Structures, Deposit	An open flat area with mixed vegetation including Mopane and hooked thorn. Square house foundation of calcite stones. An ash midden to the north of the site. It was reported that the Ramufhi family (farm workers) stayed there. They had moved away from farm more than 12 years ago.	Grade IIIc	50m Buffer
37564	MOP111	Mopane 111	Structures	Open flat area with mixed vegetation. Remains of stone buildings with mound suggesting earth plaster. Possibly associated with farm workers.	Grade IIIc	50m Buffer
37566	MOP113	Mopane 113	Structures	Open flat area of mixed vegetation including Mopane. Extensive evidence of farm occupation. Circular stone cairn 1m high x 2.5m diameter, cement floor, concrete blocks and cement bricks and plaster remains.	Grade IIIc	50m Buffer
37567	MOP114	Mopane 114	Structures	On the crest of a ridge with a view of the surround country. Mixed scrub vegetation including Mopane. School building for whites only. Partially collapsed square building, stones and cement	Grade IIIa	100m no-go buffer

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				plaster used. 4 rooms and a veranda facing E. Several cairns around the building and square brick structure on stone foundation.		
37568	MOP115	Mopane 115	Structures	Modern gabled building situated in an open flat area. Baobab and garden trees/shrubs.	Grade IIIb	100m no-go buffer
37455	MOP031	Mopane 031	Artefacts	Open site is mixed vegetation.	Grade IIIb	50m Buffer
37456	MOP032	Mopane 032	Structures	Fallen windmill, water tank and derelict dip tank.	Grade IIIc	NA
37459	MOP034	Mopane 034	Building	An open site, flat, on the side of the road and railway line. The remains of a brick building of which some walls are standing. The informant and elder brother born there in 1914 and 1937 respectively. The settlement thus dates back to before 1914.	Grade IIIa	100m no-go buffer
37466	MOP036	Mopane 036	Structures	Foundation remains of a square building, open site, aloes.	Grade IIIc	50m Buffer
37468	MOP037	Mopane 037	Building	Flat area several building of which the main house is a gabled building of face brick with a closed veranda facing west. Garden trees, plants and fruit trees. Young baobab. May date to the 1960s	Grade IIIb	100m no-go buffer
37565	MOP112	Mopane 112	Burial Grounds & Graves	Open flat area with mixed vegetation. Rectangular stone settings, possibly 3 graves.	Grade IIIa	150m no-go buffer
37458	MOP033	Mopane 033	Burial Grounds & Graves	Open area with mixed vegetation. Two graves enclosed by mesh wire. 2 graves Michael van der Walt B. 24 Mar 1922, D. 27 Feb 1941; Louis van der Walt B. 15 Jan 1935, D. 22 Dec 1940. The homestead was abandoned in 1963. Dressed graves with polished headstones.	Grade IIIa	100m no-go buffer
105144	V01	Vrienden 1	Artefacts	Archaeological, 1 stone artefact	NCW	NA
105145	V02	Vrienden 2	Artefacts	Archaeological, 1 stone artefact	NCW	NA
105146	V03	Vrienden 3	Structures	Modern disused agricultural infrastructure	NCW	NA
105147	V04	Vrienden 4	Living Heritage	Living Heritage/Sacred sites, the "Baobab Room"	Grade IIIa	200m No Go Buffer
105149	V05	Vrienden 5	Artefacts	Archaeological, 1 stone artefact	NCW	NA
105150	V06	Vrienden 6	Structures	Ruin of agricultural infrastructure	NCW	NA

Palaeontology

The area proposed for development falls within the summer rainfall region of South Africa, and has a mild, subtropical climate. The study area lies within a region of variable geology that includes sediments of the:

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- Undifferentiated Karoo Basin; Tshipise and Tuli Sedimentary Basin and Solitude Formation; and
- the Malala drift Gneiss and Gumbu Group of the Beit Bridge Complex, Archaean Granite-Gneiss Basement.

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is located on sediments of moderate and zero palaeontological sensitivity. An area of very highly sensitive geology is identified to the north of the development area; however, no impact to these palaeontologically sensitive deposits is anticipated based on the layout provided.

Fossil heritage could be present in the Undifferentiated Karoo as well as the Solitude Formation which has a high to very high Palaeontological Sensitivity. The Archaean Granite-Gneiss Basement, Beit Bridge Complex and Malala Drift Suite, Gumbu Group are metamorphic rocks which are unfossiliferous and with a very low palaeontological sensitivity. The north eastern part of the farm Vrienden 589 falls in the potentially fossiliferous Undifferentiated Karoo and the unfossiliferous Archaean Granite-Gneiss Basement, Beit Bridge Complex and Malala Drift Suite, Gumbu Group. According to the Palaeontological Impact Assessment completed in 2016, (Butler), the high sensitivity deposits include sandstones, siltstones and mudstones of the Karoo Supergroup, and Bosbokpoort, Fripp, Solitude, Klopperfontein, Madzaringwe and Mikambeni Formations. These various deposits are mostly fluvial, and are known to contain a wide variety of fossils, including dinosaur remains, fossil plants and petrified wood. The low sensitivity deposits comprise gneisses, representing the Malala Drift Gneiss Suite, and metamorphic rocks of the Archaean Gumbu Group, which are unfossiliferous, as well as red sandstones of an indeterminate origin. The palaeontological field assessment completed by Butler (2016) identified no significant palaeontological resources within the development footprint. Butler (2016) goes on to conclude that “a **low palaeontological sensitivity** is allocated to the development footprint.”

Based on the results of Butler (2016) and the known palaeontological sensitivity of the underlying geology of the area, it is unlikely that the proposed development will negatively impact on significant palaeontological heritage.

RECOMMENDATION

It is unlikely that the proposed development will impact on significant archaeological and palaeontological heritage. However an HIA is required to assess impacts to these identified heritage resources and to provide appropriate mitigation measures to prevent negative impact.

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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, remnants of Iron Age settlements, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase is possible.
- 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 rural and mining to semi-industrial, however, due to the density of mining activities in 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 heritage resources through destruction during the development phase and disturbance during the operational phase.	Destruction of significant heritage resources	Local scale with broader impacts to scientific knowledge	See Table 1 above

Gaps in knowledge & recommendations for further study

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

Based on the available information, including the scale and nature of the proposed development, it is unlikely that the proposed development will impact on significant archaeological and palaeontological heritage. However an HIA is required to assess impacts to these identified heritage resources and to provide appropriate mitigation measures to prevent negative impact.



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

Site ID	Site no	Full Site Name	Site Type	Grading
37464	MOP035	Mopane 035	Deposit	Grade IIIc
37546	MOP095	Mopane 095	Stone walling	Grade IIIa
37547	MOP096	Mopane 096	Artefacts	Grade IIIc
37548	MOP097	Mopane 097	Burial Grounds & Graves, Artefacts	Grade IIIa
37549	MOP098	Mopane 098	Building	Grade IIIb
37563	MOP110	Mopane 110	Structures, Deposit	Grade IIIc
37564	MOP111	Mopane 111	Structures	Grade IIIc
37566	MOP113	Mopane 113	Structures	Grade IIIc
37567	MOP114	Mopane 114	Structures	Grade IIIa
37568	MOP115	Mopane 115	Building	Grade IIIb
37455	MOP031	Mopane 031	Artefacts	Grade IIIb
37456	MOP032	Mopane 032	Structures	Grade IIIc
37459	MOP034	Mopane 034	Building	Grade IIIa
37466	MOP036	Mopane 036	Structures	Grade IIIc
37468	MOP037	Mopane 037	Building	Grade IIIb

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37485	MOP048	Mopane 048	Archaeological	Grade IIIb
37486	MOP049	Mopane 049	Archaeological	Grade IIIc
37662	MOP141	Mopane 141	Archaeological	Grade IIIa
37663	MOP142	Mopane 142	Archaeological	Grade IIIa
37664	MOP143	Mopane 143	Artefacts	Grade IIIa
37665	MOP144	Mopane 144	Artefacts	Grade IIIc
37666	MOP145	Mopane 145	Archaeological	Grade IIIc
37667	MOP146	Mopane 146	Archaeological	Grade IIIc
37668	MOP147	Mopane 147	Archaeological, Artefacts	Grade IIIc
37669	MOP148	Mopane 148	Archaeological, Artefacts	Grade IIIc
37670	MOP149	Mopane 149	Archaeological, Artefacts	Grade IIIc
37679	MOP155	Mopane 155	Archaeological	Grade IIIc
37681	MOP156	Mopane 156	Archaeological	Grade IIIa
37409	MOP001	Mopane 001	Artefacts	Grade IIIa
37415	MOP003	Mopane 003	Building	Grade IIIc
37420	MOP004	Mopane 004	Cultural Landscape	Grade IIIb
37422	MOP005	Mopane 005	Cultural Landscape	Grade IIIb

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37424	MOP006	Mopane 006	Building	Grade IIIb
37545	MOP094	Mopane 094	Burial Grounds & Graves	Grade IIIa
37565	MOP112	Mopane 112	Burial Grounds & Graves	Grade IIIa
37458	MOP033	Mopane 033	Burial Grounds & Graves	Grade IIIa
37413	MOP002	Mopane 002	Burial Grounds & Graves	Grade IIIa
105144	V01	Vriendin 1	Archaeological, Artefacts	Grade IIIc
105145	V02	Vriendin 2	Archaeological, Artefacts	Grade IIIc
105146	V03	Vriendin 3	Structures	Grade IIIc
105147	V04	Vriendin 4	Living Heritage/Sacred sites	Grade IIIa
105149	V05	Vriendin 5	Artefacts, Archaeological	Grade IIIc
105150	V06	Vriendin 6	Structures	Grade IIIc
105151	D01	Du Toit 1	Structures	Grade IIIc
105152	D02	Du Toit 2	Archaeological, Artefacts	Grade IIIc
105153	D03	Du Toit 3	Artefacts, Archaeological	Grade IIIc
105154	D04	Du Toit 4	Archaeological, Artefacts	Grade IIIa
105155	D05	Du Toit 5	Artefacts, Archaeological	Grade IIIa
105156	D06	Du Toit 6	Artefacts, Archaeological	Grade IIIa

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105157	D07	Du Toit 7	Archaeological, Artefacts	Grade IIIa
105159	D08	Du Toit 8	Artefacts, Archaeological	Grade IIIc
105160	D09	Du Toit 9	Artefacts, Archaeological	Grade IIIc
105161	D10	Du Toit 10	Structures	Grade IIIc
105162	D11	Du Toit 11	Artefacts, Archaeological	Grade IIIc
105163	D12	Du Toit 12	Artefacts, Archaeological	Grade IIIc
105164	D13	Du Toit 13	Structures	Grade IIIc
26785	9/2/240/0005	Verdun Ruins, Verdun, Messina District	Stone walling	Grade II

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APPENDIX 2: Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
153542	Heritage Impact Assessment Specialist Reports	Matodzi Silidi, Innocent Pikirayi	10/12/2013	The report is a Heritage Impact Assessment (HIA) for the General Project area, Vhembe District, Limpopo Province
153337	Heritage Impact Assessment Specialist Reports	Matodzi Silidi, Innocent Pikirayi	04/10/2013	The attached report is a Heritage Impact Assessment (HIA) for the Mopane Project Area which describes potential adverse and positive effects of the proposed mining operations on heritage resources.
45126	HIA	Frans Roodt	01/10/2011	Eskom Power Line Paradise Substation to the Proposed Makhado Colliery
153337	HIA	Matodzi Silidi, Innocent Pikirayi	04/10/2013	Heritage Impact Assessment for the Proposed Greater Soutpansberg Mopane Project
153366	HIA	Matodzi Silidi, Innocent Pikirayi	18/11/2013	Heritage Impact Assessment for the Proposed Greater Soutpansberg Chapudi Project
291265	HIA	Frans Roodt	30/11/2015	Phase 1 Heritage Impact Assessment Report: the Duel 186 Mt Remaining Extent, Vhembe District Municipality, Limpopo

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APPENDIX 3 - Keys/Guides Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEFF	Department of Environment, Forest and Fisheries (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)
DEDETEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

RED:

VERY HIGH - field assessment and protocol for finds is required

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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:



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

This recommendation is made when:

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

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

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

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

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

Note:

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

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HERITAGE SCREENER

CTS Reference Number:	CTS21_216
SAHRA Case No.	TBA
Client:	Savannah
Date:	May 2022
Title:	Desktop Heritage Screening Assessment - Cluster East PVs
Recommendation:	RECOMMENDATION It is unlikely that the proposed development will impact on significant archaeological and palaeontological heritage. However an HIA is required to assess impacts to these identified heritage resources and to provide appropriate mitigation measures to prevent negative impact..

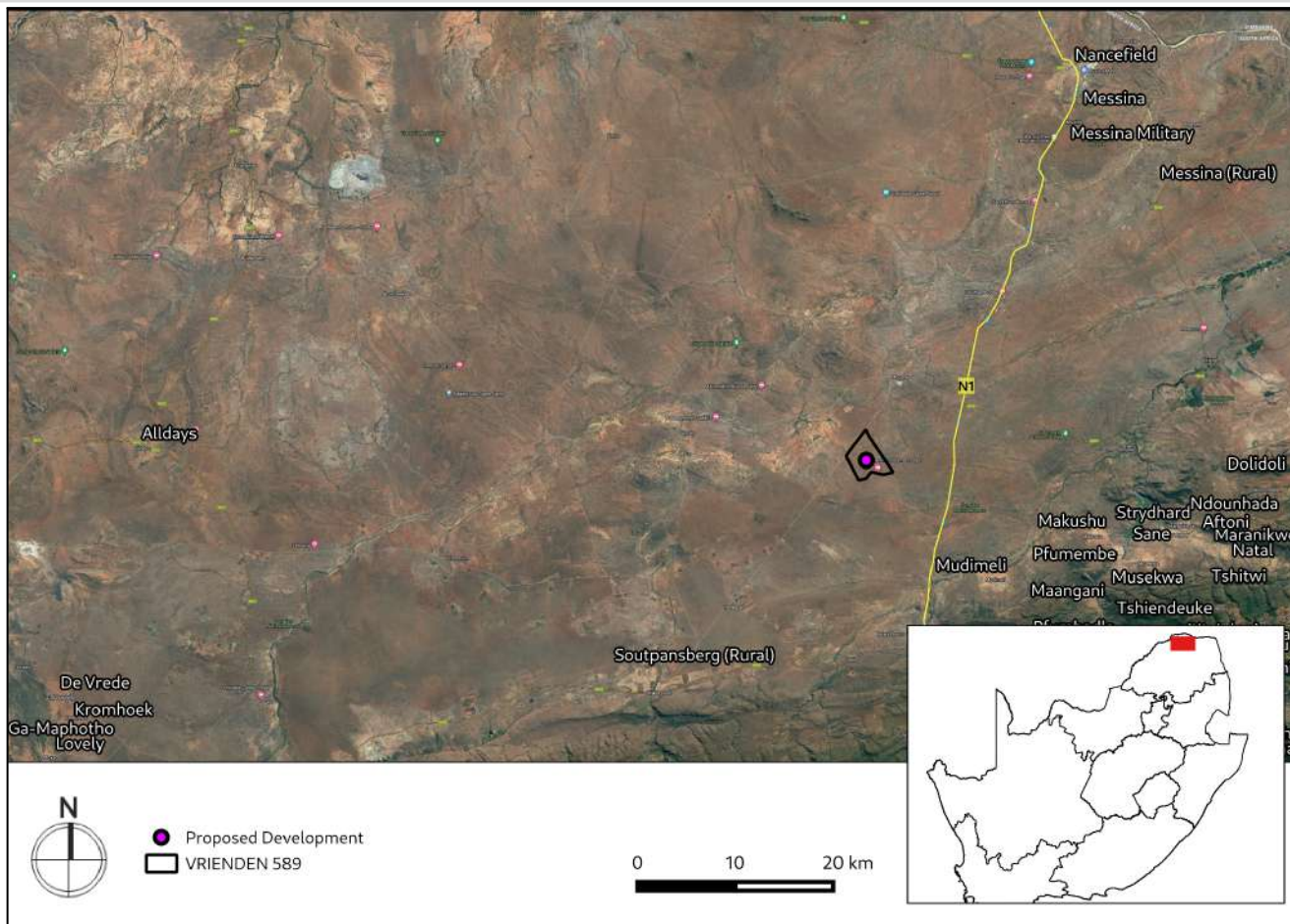


Figure 1a. Satellite map indicating the location of the proposed development in the Limpopo Province

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1. Proposed Development Summary

TBA

2. Application References

Name of relevant heritage authority(s)	SAHRA and LPHRA
Name of decision making authority(s)	DFFE

3. Property Information

Latitude / Longitude	22°41'38.84"S 29°49'54.85"E
Erf number / Farm number	Farm Vrienden 589 MS
Local Municipality	Makhado
District Municipality	Vhembe
Province	Limpopo Province
Current Use	Agriculture
Current Zoning	Agriculture

4. Nature of the Proposed Development

Total Surface Area	730.45ha
Depth of excavation (m)	TBA
Height of development (m)	TBA



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

- » Solar PV array comprising PV panels and mounting structures.
- » Inverters and transformers.
- » Cabling between the project components.
- » 33/132kV onsite facility (IPP Portion), including associated equipment and infrastructure – one onsite substation for all four (4) Solar PV Facilities.
- » Battery Energy Storage System (BESS) – one for all four (4) Solar PV Facilities.
- » Site offices, warehouses, and guardhouses.
- » Water storage tanks at admin block for human consumption.
- » Laydown areas.
- » Internal gravel distribution roads.

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

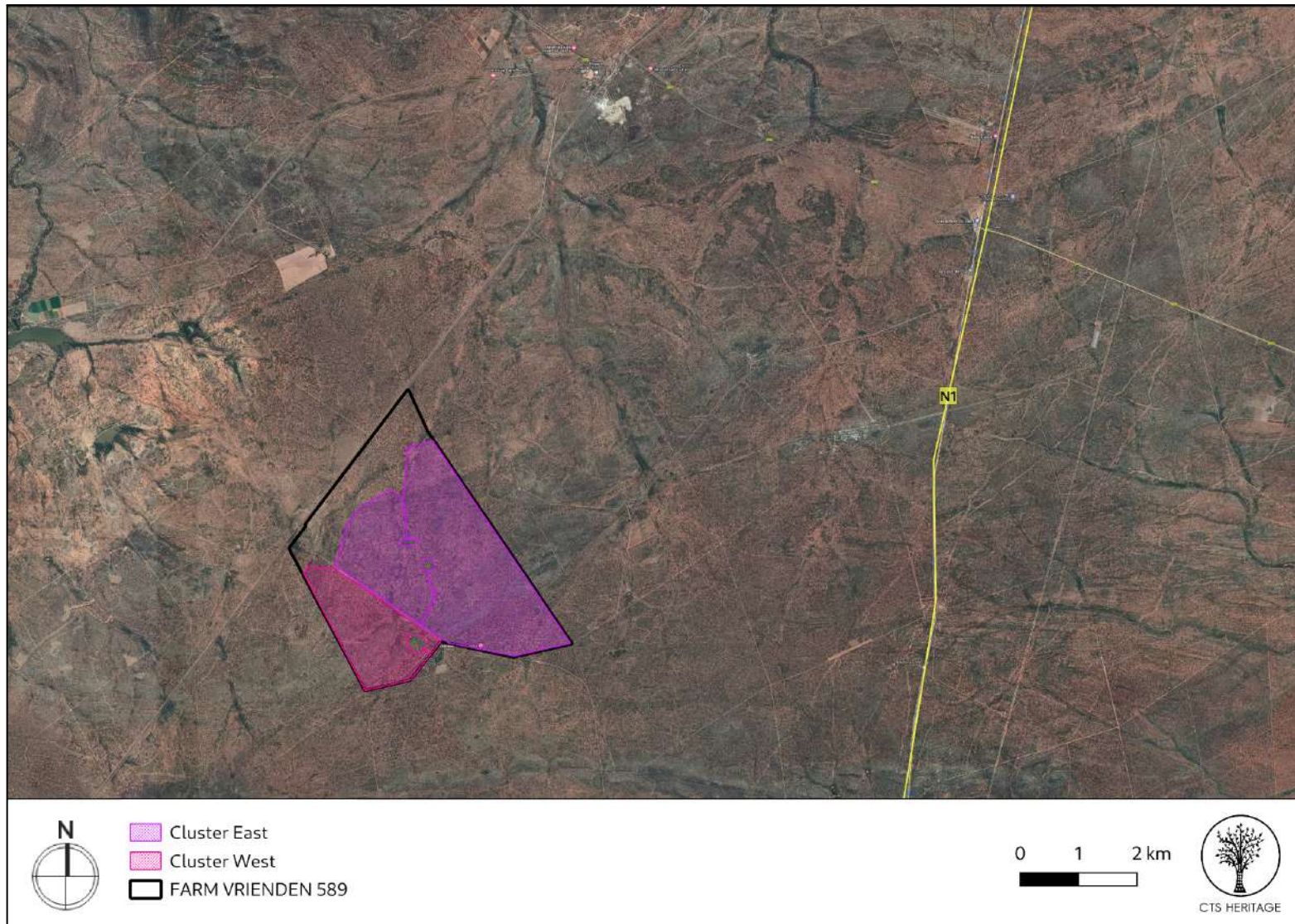


Figure 1b Overview Map. Satellite image (2019) indicating the proposed study area

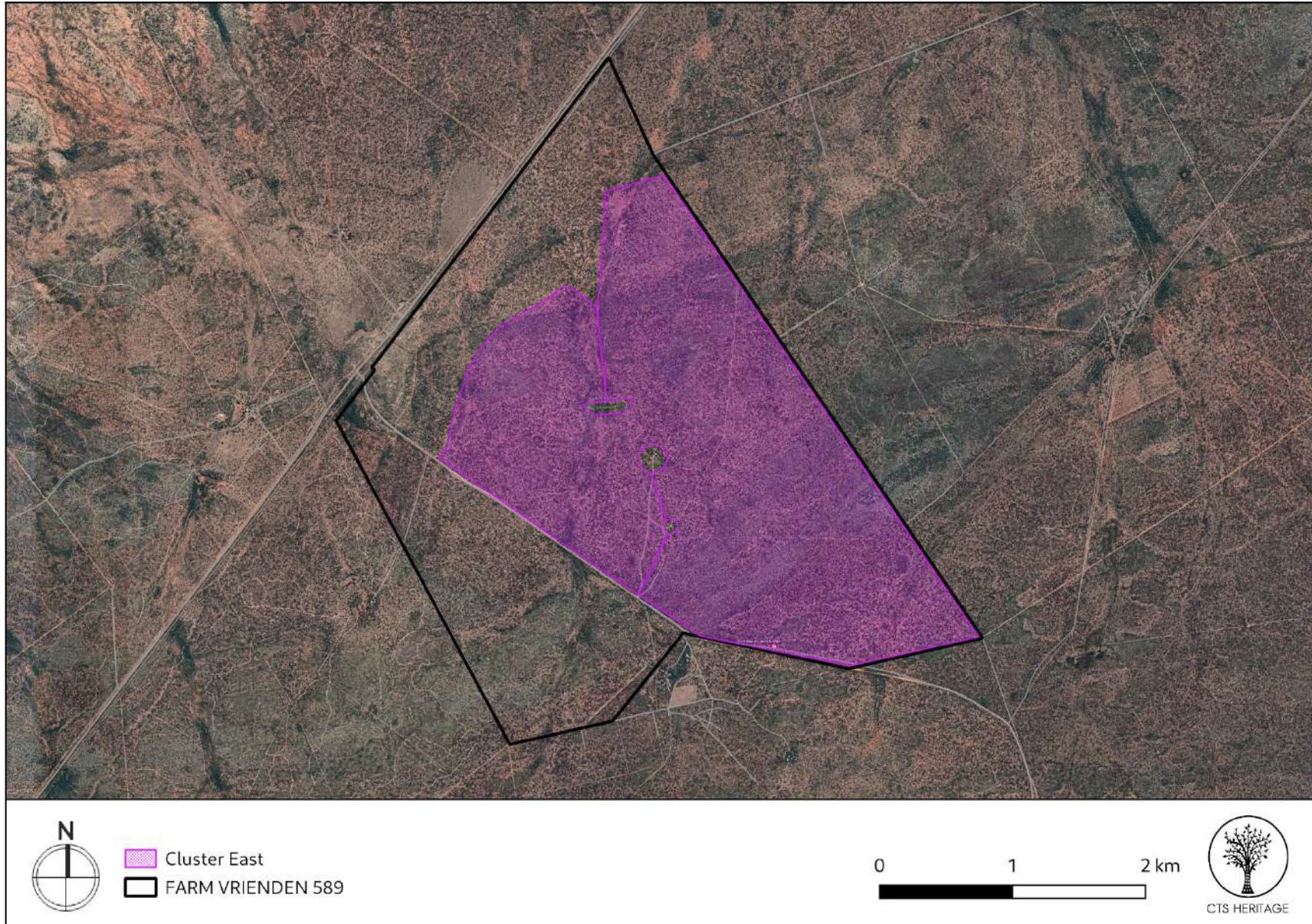


Figure 1c. Overview Map. Satellite image (2019) indicating the proposed study area at closer range.



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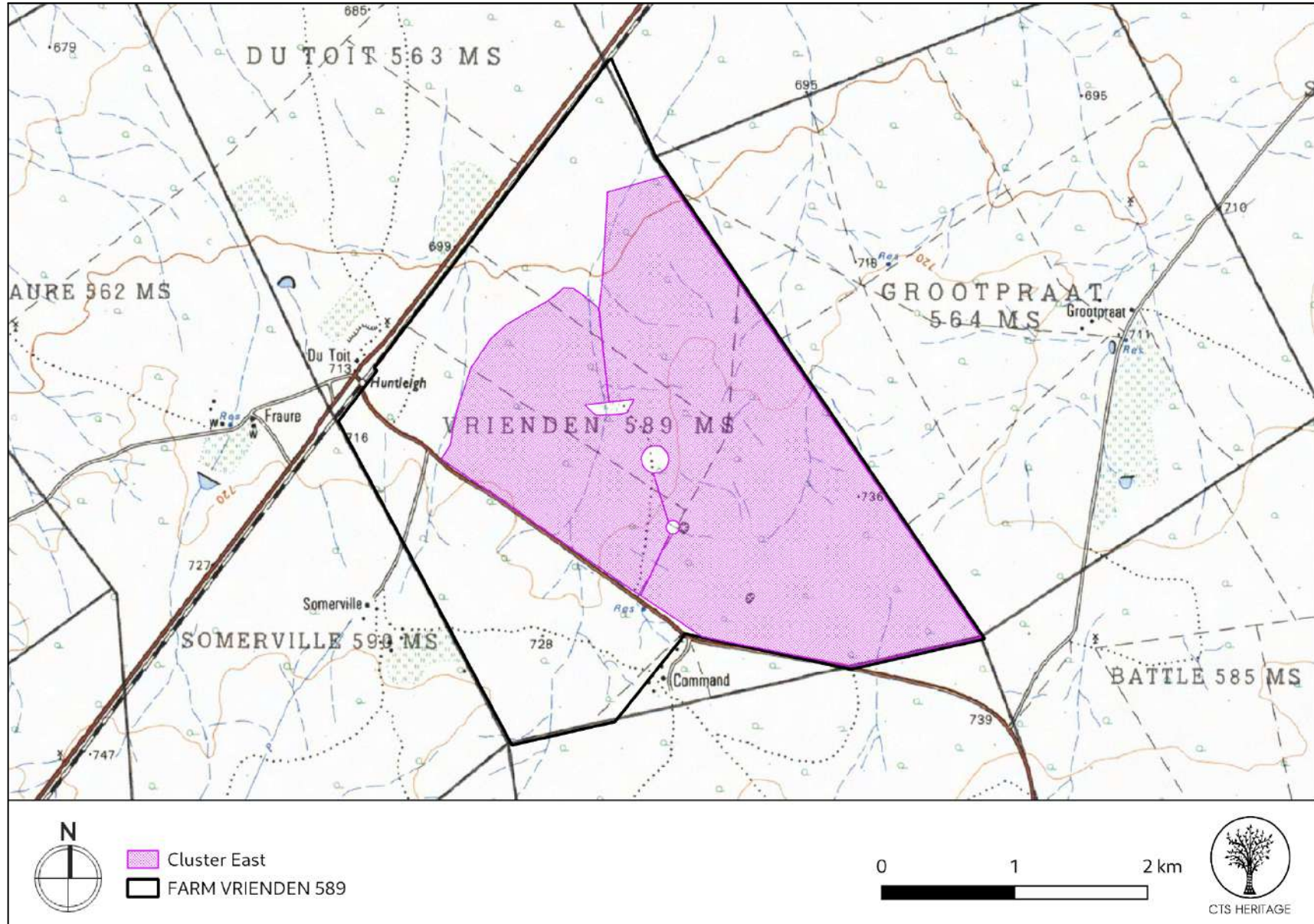


Figure 1d. Overview Map. 1:50 000 Topo Map indicating the proposed study area at closer range.

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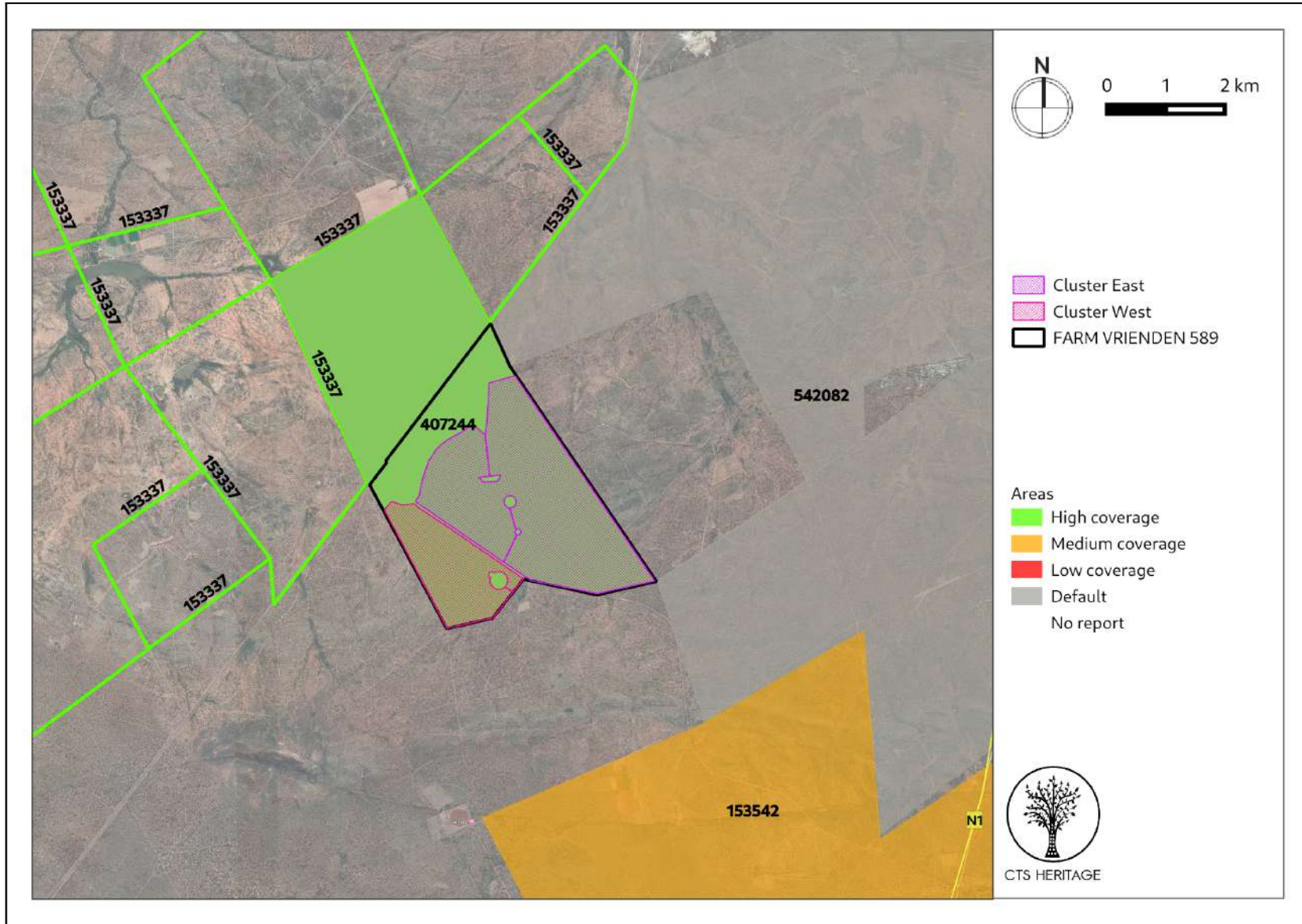


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed study area within 10km, with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

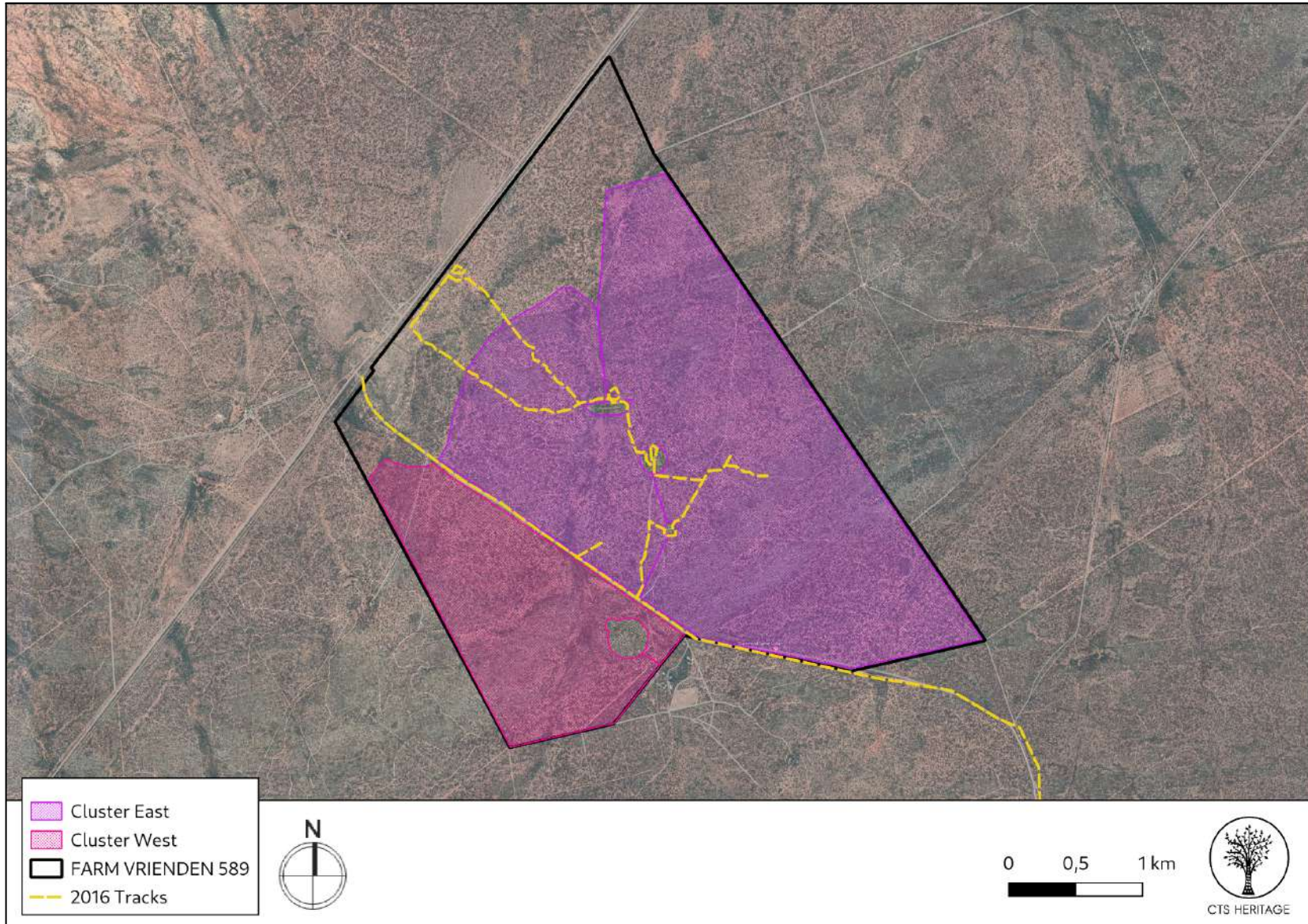


Figure 2a. Previous HIAs Map. Tracks walked as part of the 2016 Heritage Impact Assessment process for this property

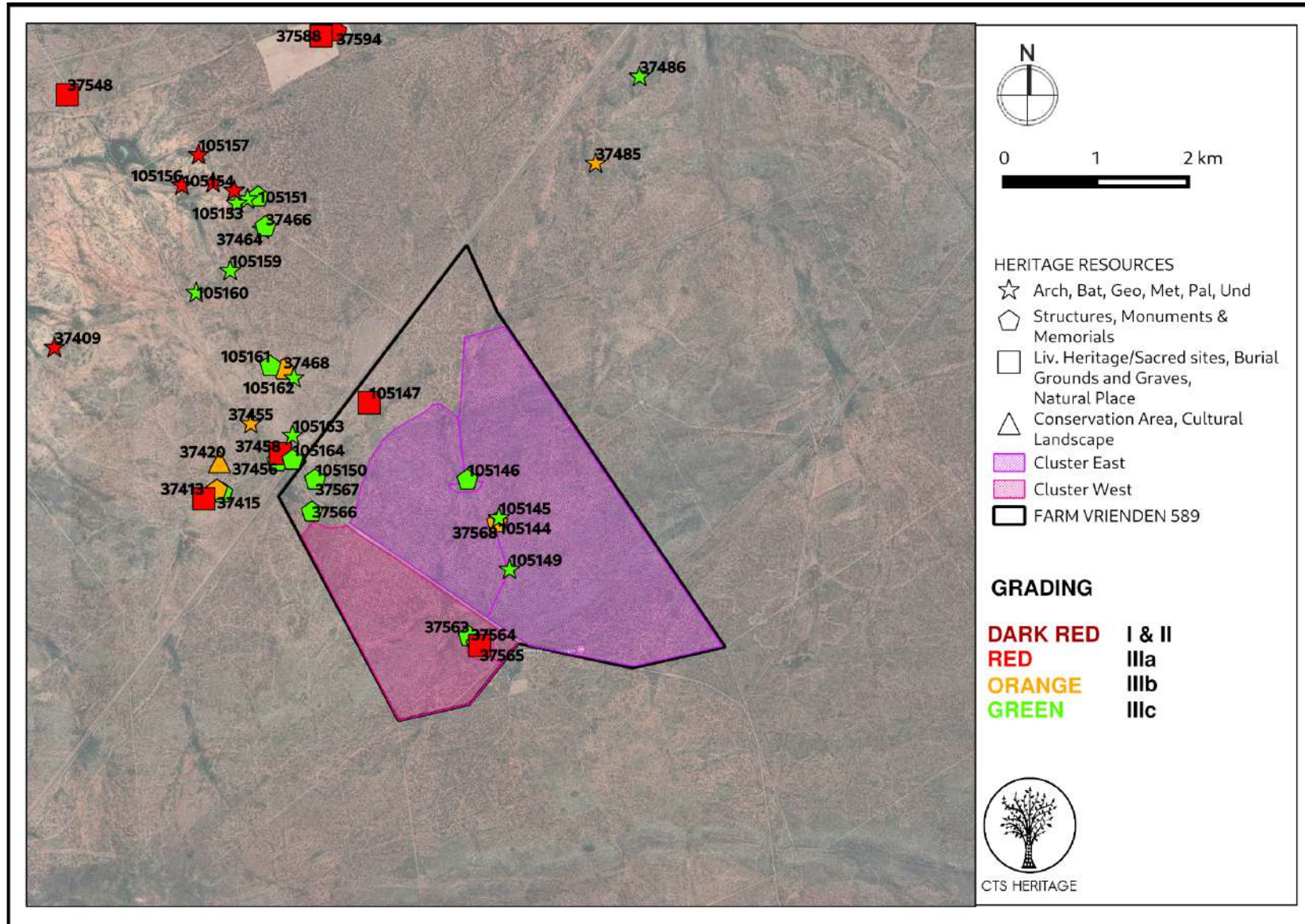


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for a full description of heritage resource types.



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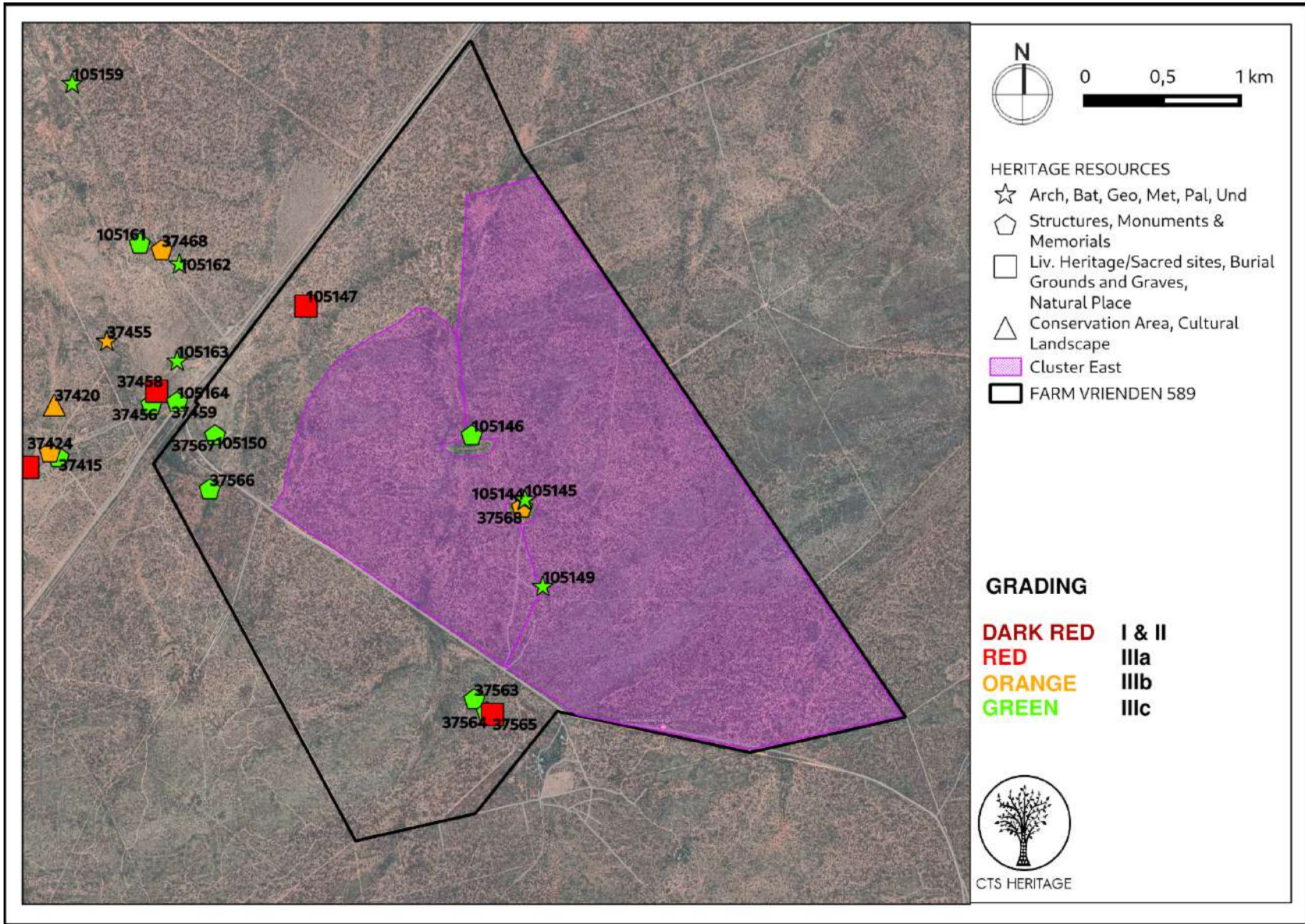


Figure 3a. Heritage Resources Map. Inset A

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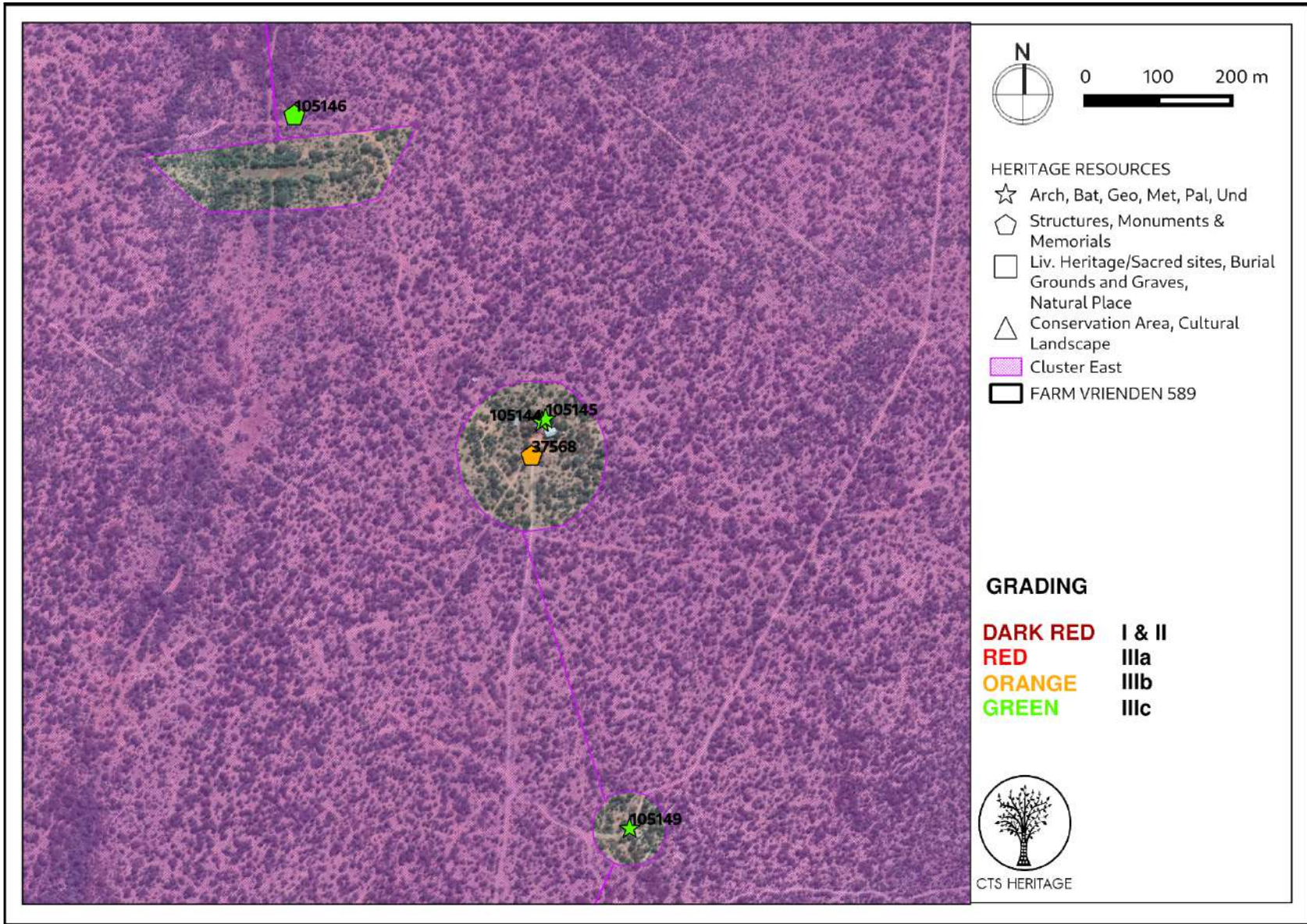


Figure 3b. Heritage Resources Map. Inset B

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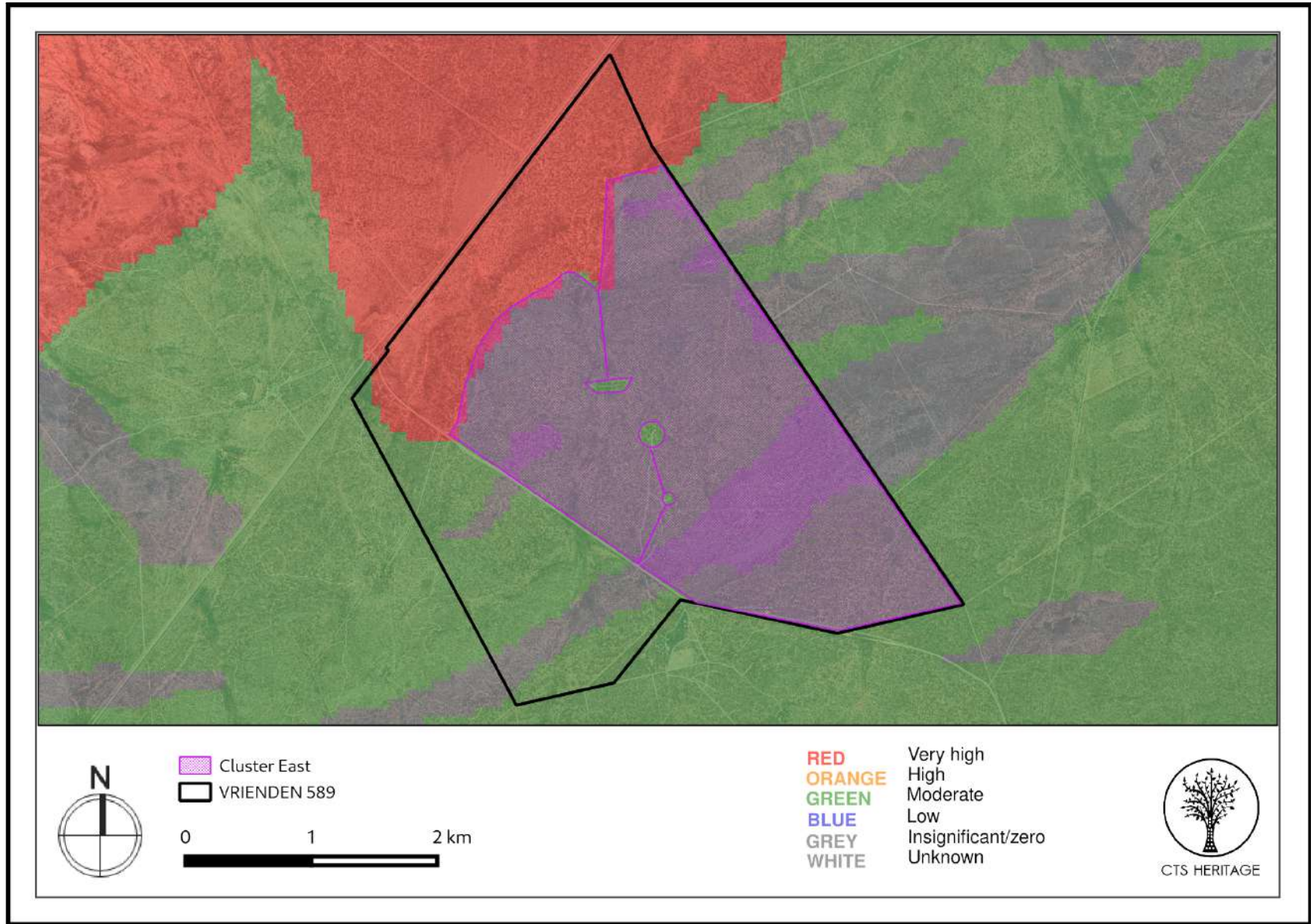


Figure 4. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.



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Figure 5. Contextual Image. Flat topography of the farm Vriendin 589 (Butler, 2016)

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8. Heritage statement and character of the area

Background

The area proposed for the new Cluster East PV Development was previously assessed by CTS Heritage as part of the Heritage Impact Assessment for the Mutsho Power Project. The HIA for that project describes the area proposed for development as predominantly rural in nature with a number of coal mines located in the vicinity. The proposed development areas are located in the Lowveld. The area consists of savannah drylands as well as high rainfall areas. The nearby Soutpansberg has forests where the fauna and flora are abundant, and where a wide variety of animal as well as bird species can be found. The farm displays evidence of agricultural activity and disturbance.

Cultural landscape and the Built Environment

According to Silidi and Pikirayi (2013), “The coming of the Voortrekkers in the area and the introduction of commercial farming in the 19th and early 20th centuries has a strong archaeological footprint in the Mopane Project Area. We noted a prevalence of house remains associated with pioneer commercial farmers and shifting semi-permanent dwellings of farm workers. Several graves both with inscriptions and “anonymous” mostly associated with pioneer farmers or their workers were also recorded.” No impacts to any historical farming infrastructure of houses are anticipated based on the information provided.

Broadly, the Project Area, which is approximately 70km from Mapungubwe, may be considered as part of the Greater Mapungubwe Cultural Landscape. Mapungubwe was once (between 900 and 1300 CE) the centre of gold and ivory trade with eastern African ports. It was South Africa’s first kingdom, and developed into the subcontinent’s largest realm, lasting for 400 years before it was abandoned in the 14th century. Its highly sophisticated people traded gold and ivory with China, India and Egypt. While the broader area of northern Limpopo can be considered to be part of the Greater Mapungubwe Cultural Landscape, the context of the area under assessment has been negatively impacted by the significant number of coal mines in the area. Furthermore, the proposed PV facilities are located sufficiently far from the N1 (8km) that no impact to the way that this area is experienced is expected.

Living Heritage

In the heritage impacts assessment completed on Farm Vrienden 589 in 2016, a unique example of living heritage was identified. The Baobab Room, Site V04, continues to be used today. The baobab, which has an entirely hollow trunk at ground level, has a number of windows that allow light into the shelter provided within the trunk. Pegs have been hammered into the external bark to facilitate access to inside the tree through one of these windows. There appears to be a deposit of unknown depth inside the trunk. For its unique value, this site has been graded IIIA (SAHRIS ID 105147). This site falls well outside of the area proposed for the PV facilities and no impact is anticipated.

Archaeology

South Africa has an extensive stone age archaeological record including the Earlier Stone Age (approximately 2.5mya to 200 kya), Middle Stone Age (200 kya to 40 kya) and Later Stone Age (40 kya to 2000 years ago) deposits. These sites tend to present as scatters of stone age artefacts. Rarely, archaeologists may find a stone tool manufacture site with evidence of stone flake tools as well as the flaked pieces of stone. Later Iron Age sites, such as Mapungubwe, tend to present as the remnants of Iron Age settlements identified through distinct patterns of stone features that formed the foundations of iron age structures. Often, Early Iron Age sites are not visible on the surface, but are evidenced by material culture associated with the Early Iron Age such as pottery sherds, Iron slag and other material culture located beneath the land surface.



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The area surrounding the farm proposed for this development is known for a variety of kinds of heritage resources including Stone Age and Iron Age archaeology, significant structures and living heritage sites such as significant baobab trees as well as burial grounds and graves. There are numerous informal burial grounds and graves located in this area, associated with farm workers or mine workers. Often these burial grounds are not fenced and have minimal surface markings denoting their presence. These informal burial grounds and graves have a significant role to play in terms of the cultural continuity of residents of the area and care must be taken to avoid any impact to sites such as this.

Previous surveys of this area (Silidi and Pikirayi, 2013 and CTS Heritage, 2016 and 2018) identified several heritage resources across this farm (Table 1), of these, five fall within the area proposed for development (highlighted in bold in the table below). As per Figure 3b, no impact to any of these heritage resources is anticipated from the layout provided for this assessment. Overall, the archaeological sensitivity of the farm Vrienden 589 is low based on the results of previous heritage field assessments conducted here (Silidi and Pikirayi, 2013 and CTS Heritage, 2016 and 2018). As such, based on the available information, it is unlikely that significant archaeological resources will be impacted by the proposed development.

Table 1: Sites previously identified within the proposed development areas (Figure 3)

Site ID	Site no	Full Site Name	Site Type	Description	Grading	Mitigation
37464	MOP035	Mopane 035	Deposit	Next to medium size Mopane trees, there are makeshift fire places for curing of Mopane worms. Ash deposit is evidence of seasonal use.	Grade IIIc	50m Buffer
37563	MOP110	Mopane 110	Structures, Deposit	An open flat area with mixed vegetation including Mopane and hooked thorn. Square house foundation of calcite stones. An ash midden to the north of the site. It was reported that the Ramufhi family (farm workers) stayed there. They had moved away from farm more than 12 years ago.	Grade IIIc	50m Buffer
37564	MOP111	Mopane 111	Structures	Open flat area with mixed vegetation. Remains of stone buildings with mound suggesting earth plaster. Possibly associated with farm workers.	Grade IIIc	50m Buffer
37566	MOP113	Mopane 113	Structures	Open flat area of mixed vegetation including Mopane. Extensive evidence of farm occupation. Circular stone cairn 1m high x 2.5m diameter, cement floor, concrete blocks and cement bricks and plaster remains.	Grade IIIc	50m Buffer
37567	MOP114	Mopane 114	Structures	On the crest of a ridge with a view of the surrounding country. Mixed scrub vegetation including Mopane. School building for whites only. Partially collapsed square building, stones and cement plaster used. 4 rooms and a veranda facing E. Several cairns around the building and square brick structure on stone foundation.	Grade IIIa	100m no-go buffer
37568	MOP115	Mopane 115	Structures	Modern gabled building situated in an open flat area. Baobab and garden trees/shrubs.	Grade IIIb	100m no-go buffer

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37455	MOP031	Mopane 031	Artefacts	Open site is mixed vegetation.	Grade IIIb	50m Buffer
37456	MOP032	Mopane 032	Structures	Fallen windmill, water tank and derelict dip tank.	Grade IIIc	NA
37459	MOP034	Mopane 034	Building	An open site, flat, on the side of the road and railway line. The remains of a brick building of which some walls are standing. The informant and elder brother born there in 1914 and 1937 respectively. The settlement thus dates back to before 1914.	Grade IIIa	100m no-go buffer
37466	MOP036	Mopane 036	Structures	Foundation remains of a square building, open site, aloes.	Grade IIIc	50m Buffer
37468	MOP037	Mopane 037	Building	Flat area several building of which the main house is a gabled building of face brick with a closed veranda facing west. Garden trees, plants and fruit trees. Young baobab. May date to the 1960s	Grade IIIb	100m no-go buffer
37565	MOP112	Mopane 112	Burial Grounds & Graves	Open flat area with mixed vegetation. Rectangular stone settings, possibly 3 graves.	Grade IIIa	100m no-go buffer
37458	MOP033	Mopane 033	Burial Grounds & Graves	Open area with mixed vegetation. Two graves enclosed by mesh wire. 2 graves Michael van der Walt B. 24 Mar 1922, D. 27 Feb 1941; Louis van der Walt B. 15 Jan 1935, D. 22 Dec 1940. The homestead was abandoned in 1963. Dressed graves with polished headstones.	Grade IIIa	100m no-go buffer
105144	V01	Vrienden 1	Artefacts	Archaeological, 1 stone artefact	NCW	NA
105145	V02	Vrienden 2	Artefacts	Archaeological, 1 stone artefact	NCW	NA
105146	V03	Vrienden 3	Structures	Modern disused agricultural infrastructure	NCW	NA
105147	V04	Vrienden 4	Living Heritage	Living Heritage/Sacred sites, the "Baobab Room"	Grade IIIa	200m No Go Buffer
105149	V05	Vrienden 5	Artefacts	Archaeological, 1 stone artefact	NCW	NA
105150	V06	Vrienden 6	Structures	Ruin of agricultural infrastructure	NCW	NA

Palaeontology

The area proposed for development falls within the summer rainfall region of South Africa, and has a mild, subtropical climate. The study area lies within a region of variable geology that includes sediments of the:

- Undifferentiated Karoo Basin; Tshipise and Tuli Sedimentary Basin and Solitude Formation; and
- the Malala drift Gneiss and Gumbu Group of the Beit Bridge Complex, Archaean Granite-Gneiss Basement.

According to the SAHRIS Palaeosensitivity Map (Figure 4), the area proposed for development is located on sediments of moderate and zero palaeontological sensitivity. An area of very highly sensitive geology is identified to the north of the development area, however no impact to these palaeontologically sensitive deposits is anticipated based on the layout provided.

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Fossil heritage could be present in the Undifferentiated Karoo as well as the Solitude Formation which has a high to very high Palaeontological Sensitivity. The Archaean Granite-Gneiss Basement, Beit Bridge Complex and Malala Drift Suite, Gumbu Group are metamorphic rocks which are unfossiliferous and with a very low palaeontological sensitivity. The north eastern part of the farm Vrienden 589 falls in the potentially fossiliferous Undifferentiated Karoo and the unfossiliferous Archaean Granite-Gneiss Basement, Beit Bridge Complex and Malala Drift Suite, Gumbu Group. According to the Palaeontological Impact Assessment completed in 2016, (Butler), the high sensitivity deposits include sandstones, siltstones and mudstones of the Karoo Supergroup, and Bosbokpoort, Fripp, Solitude, Klopperfontein, Madzaringwe and Mikambeni Formations. These various deposits are mostly fluvial, and are known to contain a wide variety of fossils including dinosaur remains, fossil plants and petrified wood. The low sensitivity deposits comprise gneisses, representing the Malala Drift Gneiss Suite, and metamorphic rocks of the Archean Gumbu Group, which are unfossiliferous, as well as red sandstones of an indeterminate origin. The palaeontological field assessment completed by Butler (2016) identified no significant palaeontological resources within the development footprint. Butler (2016) goes on to conclude that “a **low palaeontological sensitivity** is allocated to the development footprint.”

Based on the results of Butler (2016) and the known palaeontological sensitivity of the underlying geology of the area, it is unlikely that the proposed development will negatively impact on significant palaeontological heritage.

RECOMMENDATION

It is unlikely that the proposed development will impact on significant archaeological and palaeontological heritage. However, an HIA is required to assess impacts to these identified heritage resources and to provide appropriate mitigation measures to prevent negative impacts.

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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, remnants of Iron Age settlements, burial grounds and graves, historical artefacts, historical structures and rock art engravings through destruction during the development phase and disturbance during the operational phase is possible.
- 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 rural and mining to semi-industrial, however, due to the density of mining activities in 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 heritage resources through destruction during the development phase and disturbance during the operational phase.	Destruction of significant heritage resources	Local scale with broader impacts to scientific knowledge	See Table 1 above

Gaps in knowledge & recommendations for further study

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

Based on the available information, including the scale and nature of the proposed development, it is unlikely that the proposed development will impact on significant archaeological and palaeontological heritage. However, an HIA is required to assess impacts to these identified heritage resources and to provide appropriate mitigation measures to prevent negative impact.



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

Site ID	Site no	Full Site Name	Site Type	Grading
37464	MOP035	Mopane 035	Deposit	Grade IIIc
37546	MOP095	Mopane 095	Stone walling	Grade IIIa
37547	MOP096	Mopane 096	Artefacts	Grade IIIc
37548	MOP097	Mopane 097	Burial Grounds & Graves, Artefacts	Grade IIIa
37549	MOP098	Mopane 098	Building	Grade IIIb
37563	MOP110	Mopane 110	Structures, Deposit	Grade IIIc
37564	MOP111	Mopane 111	Structures	Grade IIIc
37566	MOP113	Mopane 113	Structures	Grade IIIc
37567	MOP114	Mopane 114	Structures	Grade IIIa
37568	MOP115	Mopane 115	Building	Grade IIIb
37455	MOP031	Mopane 031	Artefacts	Grade IIIb
37456	MOP032	Mopane 032	Structures	Grade IIIc
37459	MOP034	Mopane 034	Building	Grade IIIa
37466	MOP036	Mopane 036	Structures	Grade IIIc
37468	MOP037	Mopane 037	Building	Grade IIIb
37485	MOP048	Mopane 048	Archaeological	Grade IIIb
37486	MOP049	Mopane 049	Archaeological	Grade IIIc

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37662	MOP141	Mopane 141	Archaeological	Grade IIIa
37663	MOP142	Mopane 142	Archaeological	Grade IIIa
37664	MOP143	Mopane 143	Artefacts	Grade IIIa
37665	MOP144	Mopane 144	Artefacts	Grade IIIc
37666	MOP145	Mopane 145	Archaeological	Grade IIIc
37667	MOP146	Mopane 146	Archaeological	Grade IIIc
37668	MOP147	Mopane 147	Archaeological, Artefacts	Grade IIIc
37669	MOP148	Mopane 148	Archaeological, Artefacts	Grade IIIc
37670	MOP149	Mopane 149	Archaeological, Artefacts	Grade IIIc
37679	MOP155	Mopane 155	Archaeological	Grade IIIc
37681	MOP156	Mopane 156	Archaeological	Grade IIIa
37409	MOP001	Mopane 001	Artefacts	Grade IIIa
37415	MOP003	Mopane 003	Building	Grade IIIc
37420	MOP004	Mopane 004	Cultural Landscape	Grade IIIb
37422	MOP005	Mopane 005	Cultural Landscape	Grade IIIb
37424	MOP006	Mopane 006	Building	Grade IIIb
37545	MOP094	Mopane 094	Burial Grounds & Graves	Grade IIIa
37565	MOP112	Mopane 112	Burial Grounds & Graves	Grade IIIa
37458	MOP033	Mopane 033	Burial Grounds & Graves	Grade IIIa

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37413	MOP002	Mopane 002	Burial Grounds & Graves	Grade IIIa
105144	V01	Vriendin 1	Archaeological, Artefacts	Grade IIIc
105145	V02	Vriendin 2	Archaeological, Artefacts	Grade IIIc
105146	V03	Vriendin 3	Structures	Grade IIIc
105147	V04	Vriendin 4	Living Heritage/Sacred sites	Grade IIIa
105149	V05	Vriendin 5	Artefacts, Archaeological	Grade IIIc
105150	V06	Vriendin 6	Structures	Grade IIIc
105151	D01	Du Toit 1	Structures	Grade IIIc
105152	D02	Du Toit 2	Archaeological, Artefacts	Grade IIIc
105153	D03	Du Toit 3	Artefacts, Archaeological	Grade IIIc
105154	D04	Du Toit 4	Archaeological, Artefacts	Grade IIIa
105155	D05	Du Toit 5	Artefacts, Archaeological	Grade IIIa
105156	D06	Du Toit 6	Artefacts, Archaeological	Grade IIIa
105157	D07	Du Toit 7	Archaeological, Artefacts	Grade IIIa
105159	D08	Du Toit 8	Artefacts, Archaeological	Grade IIIc
105160	D09	Du Toit 9	Artefacts, Archaeological	Grade IIIc
105161	D10	Du Toit 10	Structures	Grade IIIc
105162	D11	Du Toit 11	Artefacts, Archaeological	Grade IIIc
105163	D12	Du Toit 12	Artefacts, Archaeological	Grade IIIc

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105164	D13	Du Toit 13	Structures	Grade IIIc
26785	9/2/240/0005	Verdun Ruins, Verdun, Messina District	Stone walling	Grade II

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APPENDIX 2: Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
153542	Heritage Impact Assessment Specialist Reports	Matodzi Silidi, Innocent Pikirayi	10/12/2013	The report is a Heritage Impact Assessment (HIA) for the General Project area, Vhembe District, Limpopo Province
153337	Heritage Impact Assessment Specialist Reports	Matodzi Silidi, Innocent Pikirayi	04/10/2013	The attached report is a Heritage Impact Assessment (HIA) for the Mopane Project Area which describes potential adverse and positive effects of the proposed mining operations on heritage resources.
45126	HIA	Frans Roodt	01/10/2011	Eskom Power Line Paradise Substation to the Proposed Makhado Colliery
153337	HIA	Matodzi Silidi, Innocent Pikirayi	04/10/2013	Heritage Impact Assessment for the Proposed Greater Soutpansberg Mopane Project
153366	HIA	Matodzi Silidi, Innocent Pikirayi	18/11/2013	Heritage Impact Assessment for the Proposed Greater Soutpansberg Chapudi Project
291265	HIA	Frans Roodt	30/11/2015	Phase 1 Heritage Impact Assessment Report: the Duel 186 Mt Remaining Extent, Vhembe District Municipality, Limpopo

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APPENDIX 3 - Keys/Guides Key/Guide to Acronyms

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

Full guide to Palaeosensitivity Map legend

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

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	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.

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.

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.