HERITAGE WALKDOWN REPORT

for the approved Castle Wind Energy Facility and associated infrastructure near De Aar in the Northern Cape

Prepared by

CTS HERITAGE

In Association with

Savannah

March 2022

EXECUTIVE SUMMARY

The Castle Wind Farm (Pty) Ltd received an environmental Authorisation on 8 May 2015 (EIA Ref No 14/12/16/3/3/2/278), for the construction of a 118MW commercial wind energy facility and its associated infrastructures on a site located near De Aar on Portion 12 of Farm 165 (Vendussie Kuil), Portion 13 of Farm 165 (Vendussie Kuil) and the Remaining Extent of Portion 0 of Farm 8 (Knapdaar). The authorised Wind Farm Facility is located ~28km north-east of De Aar and ~22km southwest of Philipstown within the Emthanjeni Local Municipality and Renosterberg Local municipality, in the Northern Cape Province.

In the Heritage Impact Assessment (HIA) completed for the Castle WEF, Van der Walt (2014) recommended that "Although all the power line servitudes are acceptable from a heritage point of view it is clear that Stone Age manifestations and engravings can be expected in the proposed power line options and it is therefore, recommended that when the final alignment is determined that the power lines and specifically the pylon positions are subjected to a heritage walk through. If any sites occur they can be preserved through micro adjustments to pylon positions." This requirement was reiterated by SAHRA in their correspondence dated 14 July 2015, 6 August 2019 and 16 October 2019.

Furthermore, in terms of the Environmental Authorisation (EA) for the project, "The holder of this authorisation must appoint qualified **heritage** specialists to ground-truth every infrastructure footprint and their recommendation must inform the final layout of the facility and the EMPr to be submitted to the department for approval." This report fulfils this requirement.

Based on the outcomes of the required walkdown, it is not anticipated that the proposed development of turbines, cables, powerlines and associated infrastructure including roads associated with the proposed WEF will negatively impact on significant archaeological heritage on condition that the recommendations outlined below are implemented. The identified built environment and graves do not fall within the development footprint and will not be directly impacted. This report therefore satisfies the heritage requirements included in Van der Walt (2014) as well as the requirements in the EA granted for the Castle WEF. No further heritage work is recommended for the development of the Castle WEF and associated infrastructure.

Recommendations

There is no objection to the proposed final layout of the Castle WEF as provided and mapped in this report from a heritage perspective on condition that:

- A **no-go buffer of 50m** is implemented around the site with SAHRIS ID 45367 (Grade IIIB).
- A **no-go buffer of 25m** is implemented around site 41 (Grade IIIC) and a **no-go buffer of 50m** is implemented around site 42 (Grade IIIC).
- Sites 74, 83 and 95 (all Grade IIIC) are located along the proposed Utility Connection Line. These recordings mark the location of scatters of archaeological artefacts and impact to these scatters must be avoided.
- The attached Chance Fossil Finds Procedure (Appendix 2) is implemented for the duration of construction activities for this project.

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1. INTRODUCTION

1.1 Background Information on Project

The Castle Wind Farm (Pty) Ltd received an environmental Environmental Authorisation on 8 May 2015 (EIA Ref No 14/12/16/3/3/2/278), for the construction of a 118MW commercial wind energy facility and its associated infrastructures on a site located near De Aar on Portion 12 of Farm 165 (Vendussie Kuil Portion 13 of Farm 165 (Vendussie Kuil) and the Remaining Extent of Portion 0 of Farm 8 (Knapdaar). The authorised Wind Farm Facility is located ~28km north-east of De Aar and ~22km southwest of Philipstown within the Emthanjeni Local Municipality and Renosterberg Local municipality, in the Northern Cape Province.

SAHRA Comments

The application for the Castle Wind Energy Facility was first submitted to SAHRA on 9 December 2013 (SAHRIS Case ID 4377). In their Final Comment, dated 14 July 2015, made in response to the specialist studies submitted, SAHRA recommended that they have no objection to the proposed development on condition that:

- The power line options should be subject to a walk-through by an archaeologist and a palaeontologist once these have been decided.
- According to the AIA report the majority of the heritage resources identified apart from Sites 6 & 9 will not be impacted. SAHRA recommends that these two sites should be safeguarded and not be impacted. If it is not possible to move the turbines SAHRA should be notified as soon as possible.
- The recommendations of the palaeontologist is fully supported, however, it is further recommended that the developer should engage a palaeontologist to investigate excavation areas for the turbine locations. The schedule for the inspections should be negotiated with the palaeontologist.
- If archaeological/palaeontological or any other types of heritage resources are found during construction activities SAHRA (Phillip Hine/Colette Scheermyer, tel. 021 462 4502), and an archaeologist/palaeontologist depending on the nature of the find must be alerted immediately. If the newly discovered heritage resource is considered significant mitigation may be required. The specialist will require a permit before mitigation can proceed.

In a subsequent comment dated 6 August 2019, SAHRA noted the proposed amendments and noted that:

As the proposed amendments will not result in a change of layout or additional infrastructure, the SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit has no objection to the proposed amendment to the authorised development. The following conditions contained within the Final Comment issued on the 14 July 2015 (https://sahris.sahra.org.za/node/314997) are still outstanding and must be completed prior to construction:

- *The power line options should be subject to a walk-through by an archaeologist and a palaeontologist once these have been decided;*
- *According to the AIA report the majority of the heritage resources identified apart from Sites 6 & 9 will not be impacted. SAHRA recommends that these two sites should be safeguarded and not be impacted. If it is not possible to move the turbines SAHRA should be notified as soon as possible;*

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- *The recommendations of the palaeontologist is fully supported, however, it is further recommended that the developer should engage a palaeontologist to investigate excavation areas for the turbine locations. The schedule for the inspections should be negotiated with the palaeontologist.*

The above conditions apply to the proposed amended development (with further details for clarity provided below) and the following additional conditions must be complied with:

- The Final Amendment Report and EMPr must be uploaded to the SAHRIS application for record purposes;
- The walk-through referred to in the Final Comment must be accompanied by a report on the results of the walk-through that must be submitted to SAHRA for comment;
- The condition provided in the Final Comment referring to the safeguarding of site 6 and 9 is hereby amended to provide for a 30 m no-go buffer-zone around the sites to allow for the safeguarding of the sites;
- The condition provided in the Final Comment that refers to the engagement with a palaeontologist regarding excavation areas for the turbine locations must be accompanied by a report on the results of the engagement that must be submitted to SAHRA for comment;
- If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 35(3) and 36(6) of the NHRA. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; and
- The decision regarding the Amended EA Application must be communicated to SAHRA and uploaded to the SAHRIS Case application.

SAHRA's last comment on the Castle WEF dated 16 October 2019 reiterate the above conditions and recommendations

Environmental Authorisations (EA)

Initial EA was granted for the Castle WEF on 8 May 2015. With regard to heritage management, the following EA conditions are of relevance:

Condition 12. A copy of the final site layout plan must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout plan. The site layout plan must indicate the following:

- The location of heritage sites (among other things)

Condition 19. The holder of this authorisation must appoint qualified vegetation, fauna, **heritage** and avifauna specialists to ground-truth every infrastructure footprint and their recommendation must inform the final layout of the facility and the EMPr to be submitted to the department for approval.

Condition 89. Should any graves be found, all construction activities must be suspended and an archaeologist be

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contacted immediately. The discovered graves must be cordoned off.

A subsequent amendment decision was issued on 26 February 2020 in response to an amendment application. No amendments to any of the heritage management conditions articulated above were included in this subsequent EA and as such, the above conditions stand.

1.2 Description of Property and Affected Environment

As per Van der Walt (2014) "The proposed project is located in the Northern Cape, 28 km north-east of De Aar and 22 km south-west of Philipstown (Figure 2). The wind energy facility is proposed to be located on the following farm portions:

- Portion 12 & 13 of Farm 165 (Vendussie Kuil)
- The Remaining Extent (Portion 0) of Farm 8 (Knapdaar)

The OHL is proposed to be located on the following properties:

- Remaining Extent (P0) of the Farm Slingers Hoek 2
- Portion 2 of the Farm Slingers Hoek 2
- Portion 3 of the Farm Maatjes Fountain 1
- Remaining Extent (P0) of the Farm Carolus Poort 3
- Portion 8 of the Farm Carolus Poort 3
- Portion 9 of the Farm Carolus Poort 3
- Remaining Extent of the Farm Vetlaagte 4
- Remaining Extent (P0) of the Farm Wag N Bietjie 137 Annex C
- Portion 1 of the Farm Wag N Bietjie 137 Annex C
- Portion 13 of the Farm Vandussie Kuil 165
- Portion 12 of the Farm Vandussie Kuil 165
- Portion 3 of the Farm Wagt En Bittje 5
- Portion 1 of the Farm Wagt En Bittje 5
- Portion 0 of the Farm Wagt En Bittje 5

The proposed project is situated on the plateau of the mountain ranges to the east of De Aar. The area is rugged and falls within the bioregion described by Mucina et al (2006) as the Upper Karoo Bioregion with the vegetation described as Northern Upper Karoo. Land use in the general area is characterised by agriculture and dominated by sheep farming and some cattle. The specific segment of land investigated for this study comprises an undulating landscape with shallow soil veneers with calcrete and dolerite substrates with dolerite outcrops throughout the study area." The study area can be split into two areas - the southwestern powerline routes leading out of the Hydra substation run across predominantly open veld on level ground besides the area which crosses the Brakrivier at Caroluspoort; and the northeastern half which holds the locations of the various turbines and connecting routes of the powerline and road infrastructure. This area is mainly on a plateau roughly 300m higher than the powerlines placed running into this zone from the southwest.

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The farms are currently used for grazing by sheep and a few farm windmills were observed. The vegetation is typical of the Karoo and the grassland was dense enough over much of the site to hamper visibility of archaeological material lying on the surface to some degree. Some small scale crop agricultural production is placed at the Vetlaagte farmhouse complex which lies on the banks of a floodplain running north - south past the eastern end of the study area. A few (currently dry) farm dams were evident that appear to be in a state of disuse within the floodplain.

Recent good rains have fallen in the area which has resulted in standing water and visible erosion in many locations across the study area. Dolerite boulders were found in certain locations but did not hold engravings where the powerlines or turbines have been placed.

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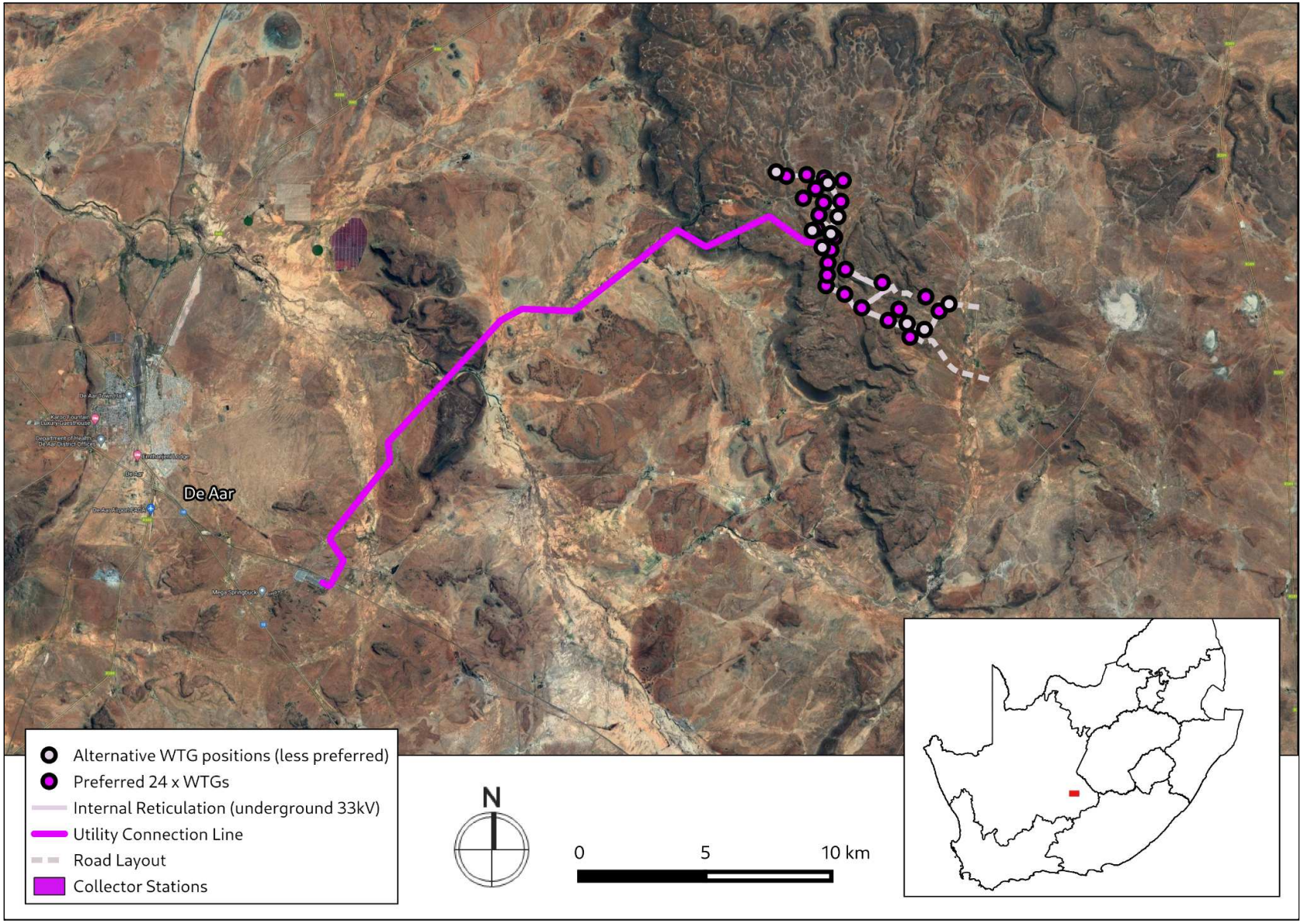

Figure 1.1: Close up satellite image indicating proposed location of the Castle WEF development

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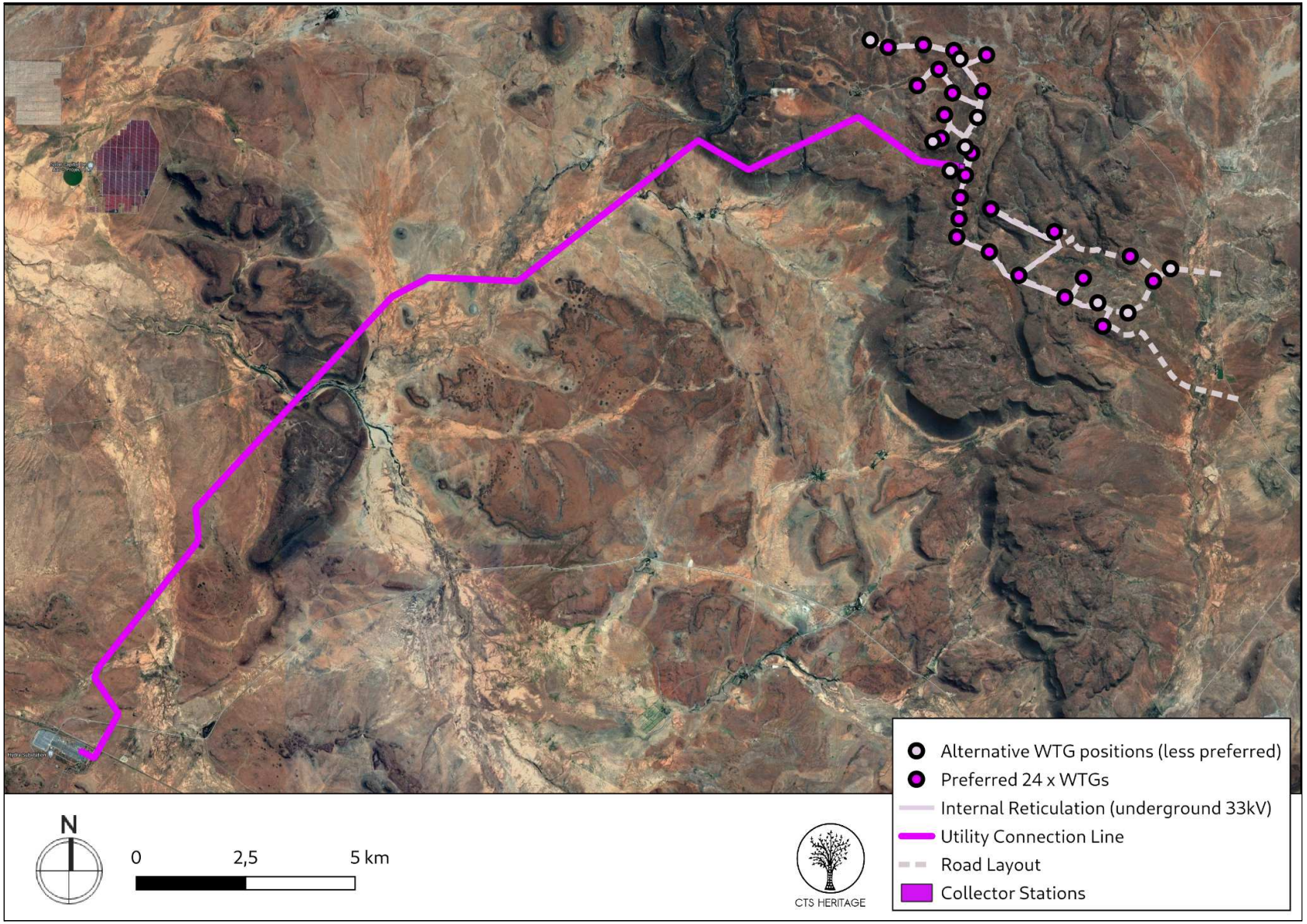

Figure 1.2: Final proposed layout for the Castle WEF development

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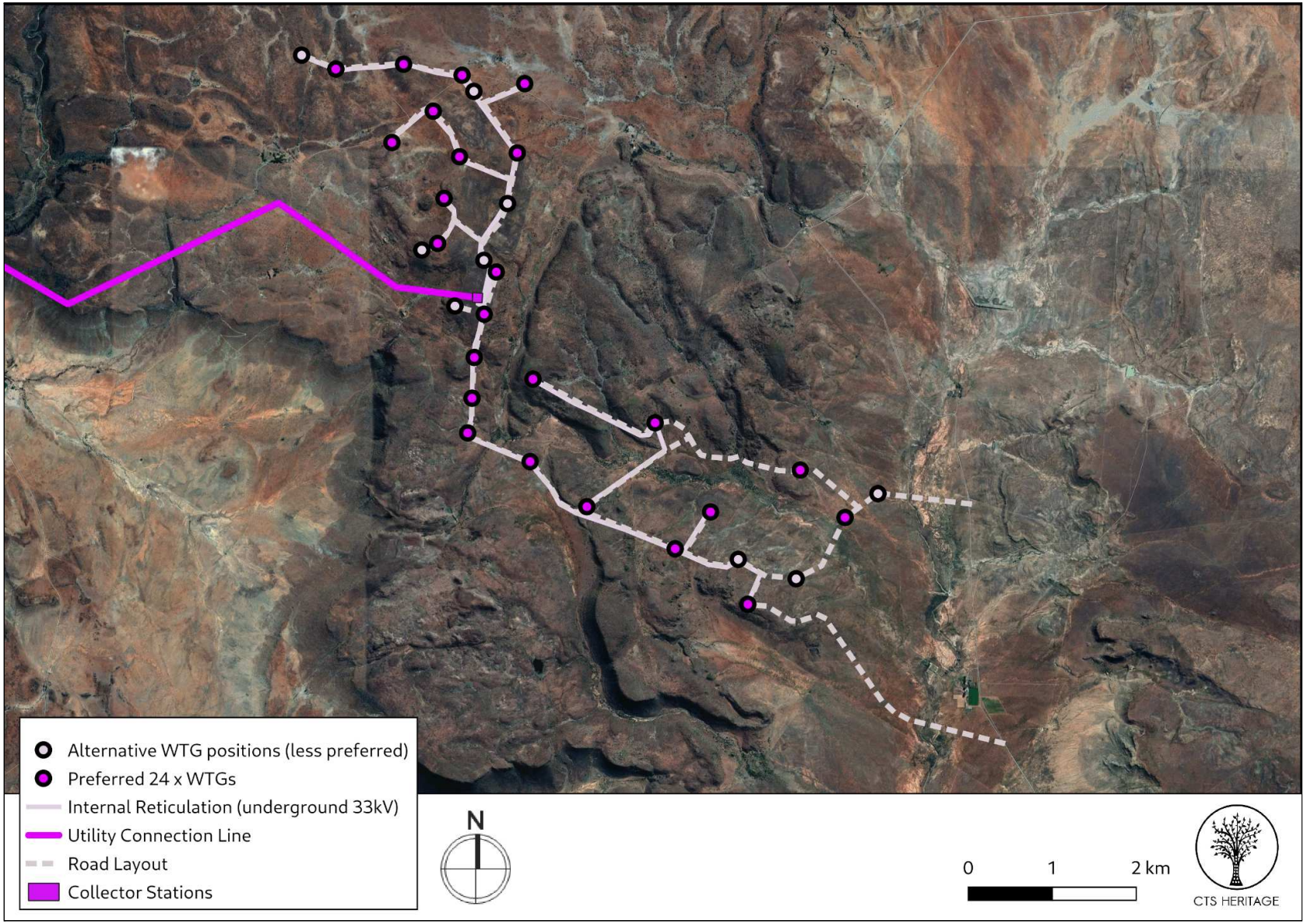

Figure 1.3: Final proposed layout for the Castle WEF development

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2. METHODOLOGY

2.1 Purpose of Walkdown

In the HIA completed for the Castle WEF, Van der Walt (2014) recommended that "Although all the powerline servitudes are acceptable from a heritage point of view it is clear that Stone Age manifestations and engravings can be expected in the proposed powerline options and it is therefore, recommended that when the final alignment is determined that the power lines and specifically the pylon positions are subjected to a heritage walk through. If any sites occur, they can be preserved through micro adjustments to pylon positions." This requirement was reiterated by SAHRA in their correspondence dated 14 July 2015, 6 August 2019 and 16 October 2019.

Furthermore, in terms of the EA for the project, "The holder of this authorisation must appoint qualified **heritage** specialists to ground-truth every infrastructure footprint and their recommendation must inform the final layout of the facility and the EMPr to be submitted to the department for approval." This report fulfils this requirement.

2.2 Summary of steps followed

- An archaeologist conducted a full detailed walkdown and micro-siting of the Final development footprint for the Castle WEF and grid connection development footprint between 7 and 11 February 2022 (5 days) to determine what archaeological resources are likely to be impacted by the proposed development.
- The area proposed for development was assessed on foot, mountain bike and by 4x4 vehicle, photographs of the context and finds were taken, and tracks were recorded (at 20m intervals) using a GPS.
- The identified resources were assessed to evaluate their heritage significance in terms of the grading system outlined in section 3 of the NHRA (Act 25 of 1999).

2.3 Constraints & Limitations

The vegetation did not pose any significant challenges to the archaeological survey but much of the ground was covered in recent fresh grass that had grown due to the good rainfall in the last month. Enough of the area held exposed sandy deflation bays and artefacts exposed on eroding banks of the pans and outcrops to provide a detailed account of the archaeological sensitivity of the area. It was also easier to gain good coverage of the development area as the layouts have been finalised and interconnecting jeep tracks on the upper plateau are available to provide various starting and end points to access the turbine, road and powerline positions. The walkthrough has provided a thorough assessment of the archaeological sensitivity of the proposed development area.

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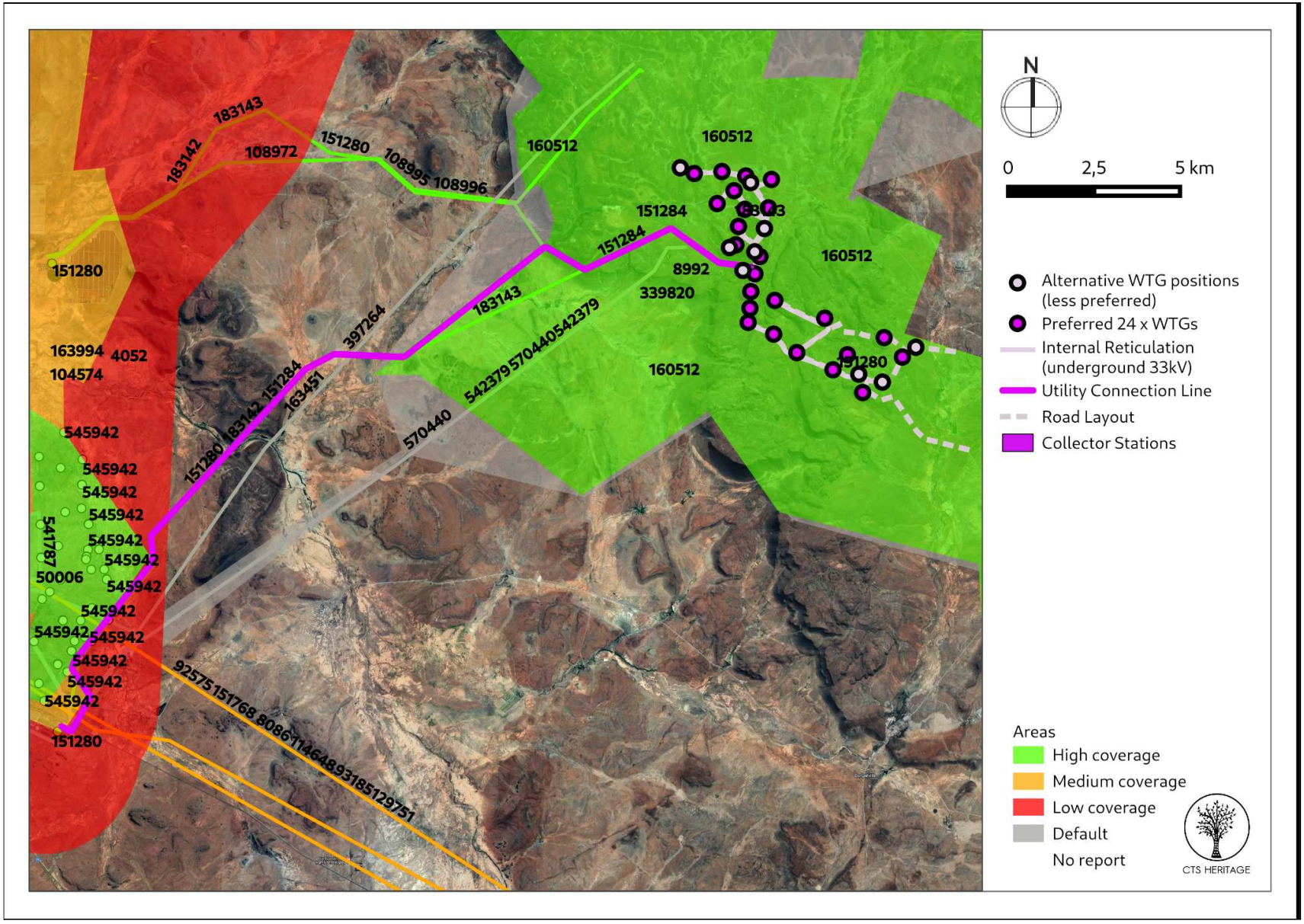

Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted

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3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

The area proposed for the Castle WEF was previously assessed by Van der Walt (2014) as part of the original authorisation process. The Castle WEF is also located in close proximity to an approved PV Facility, Vetlaagte PV, and a proposed PV Facility (Wag n Bietjie PV Facility), all located in close proximity to the town of De Aar.

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

The area proposed for development has been previously approved for the establishment of the Castle Wind Energy Facility in 2015 (SAHRIS Case ID 4377). As such, the development area has been subject to a previous heritage impact assessment process (Van der Walt, 2014, SAHRIS ID 183142) and a palaeontology assessment (Milsteed, 2014, SAHRIS ID 183143). Both of these reports, and others completed in the area, are referred to extensively below.

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

Archaeology

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

Kruger (2012) also documented historical period remains, “specifically the old Vetlaagte homestead with restored farmhouse, outbuildings, midden and labourers quarters, as well as a dilapidated dam wall constructed in the drainage

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line east of the farmstead are present on the property. The date of construction of the farm house is denoted by a year count ("1930") on the front gable of the structure. The entire farmstead is situated in an area excluded from the solar farm development. A small family graveyard, associated with the farmstead at Vetlaagte, also occurs in the exclusion zone about 100m north of the farm house."

Palaeontology

The area proposed for development is underlain by sediments of varying palaeontological sensitivity according to the SAHRIS Palaeo sensitivity Map. According to the extract from the Council for GeoSciences Map 3024 for Colesburg, the development area is underlain by Jurassic Dolerite, the Tierberg Formation of the Ecca Group and the Adelaide Subgroup of the Beaufort Group.

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

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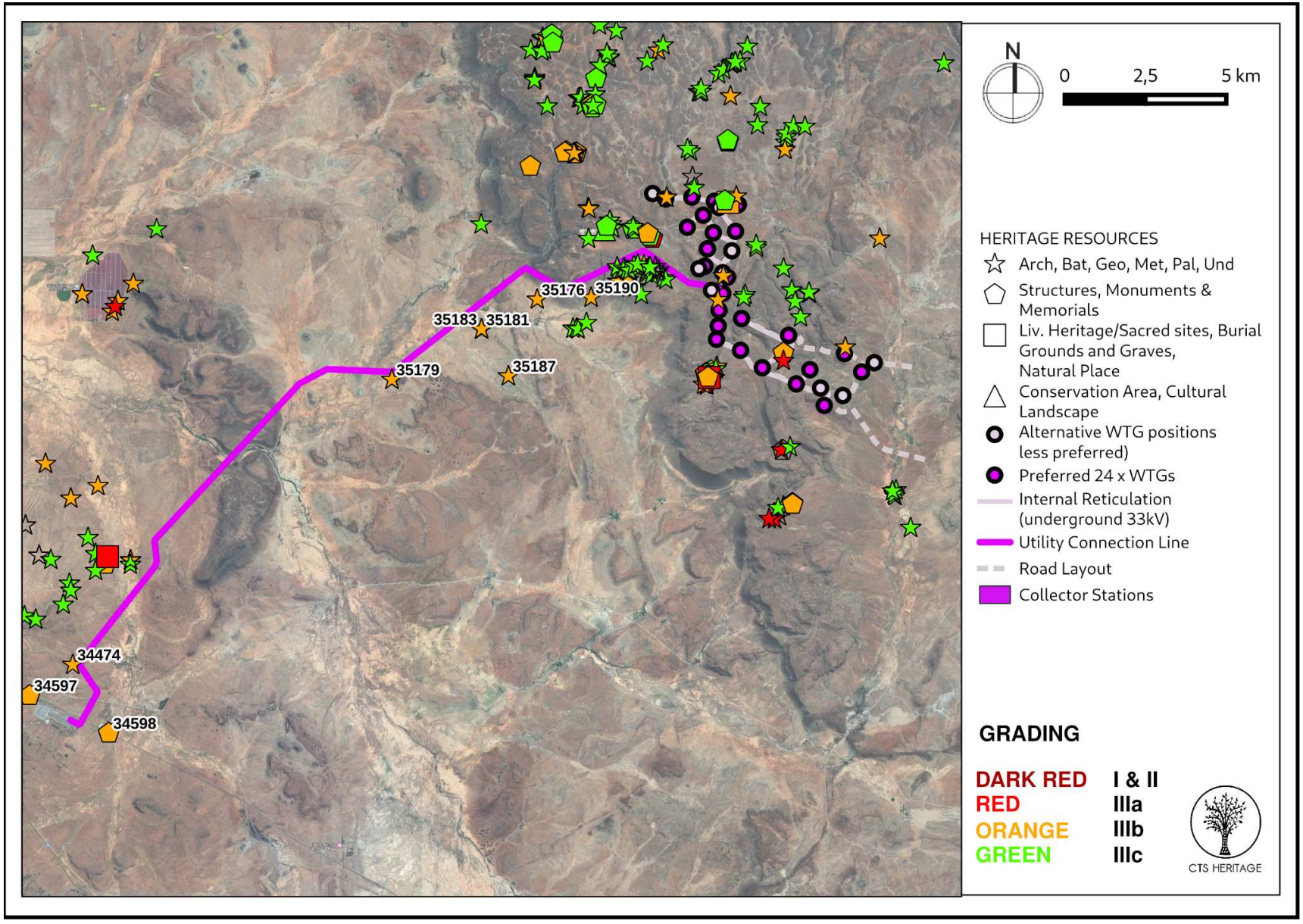

Figure 3.1. Heritage Resources Map. Heritage Resources previously identified in and near the study area from SAHRIS

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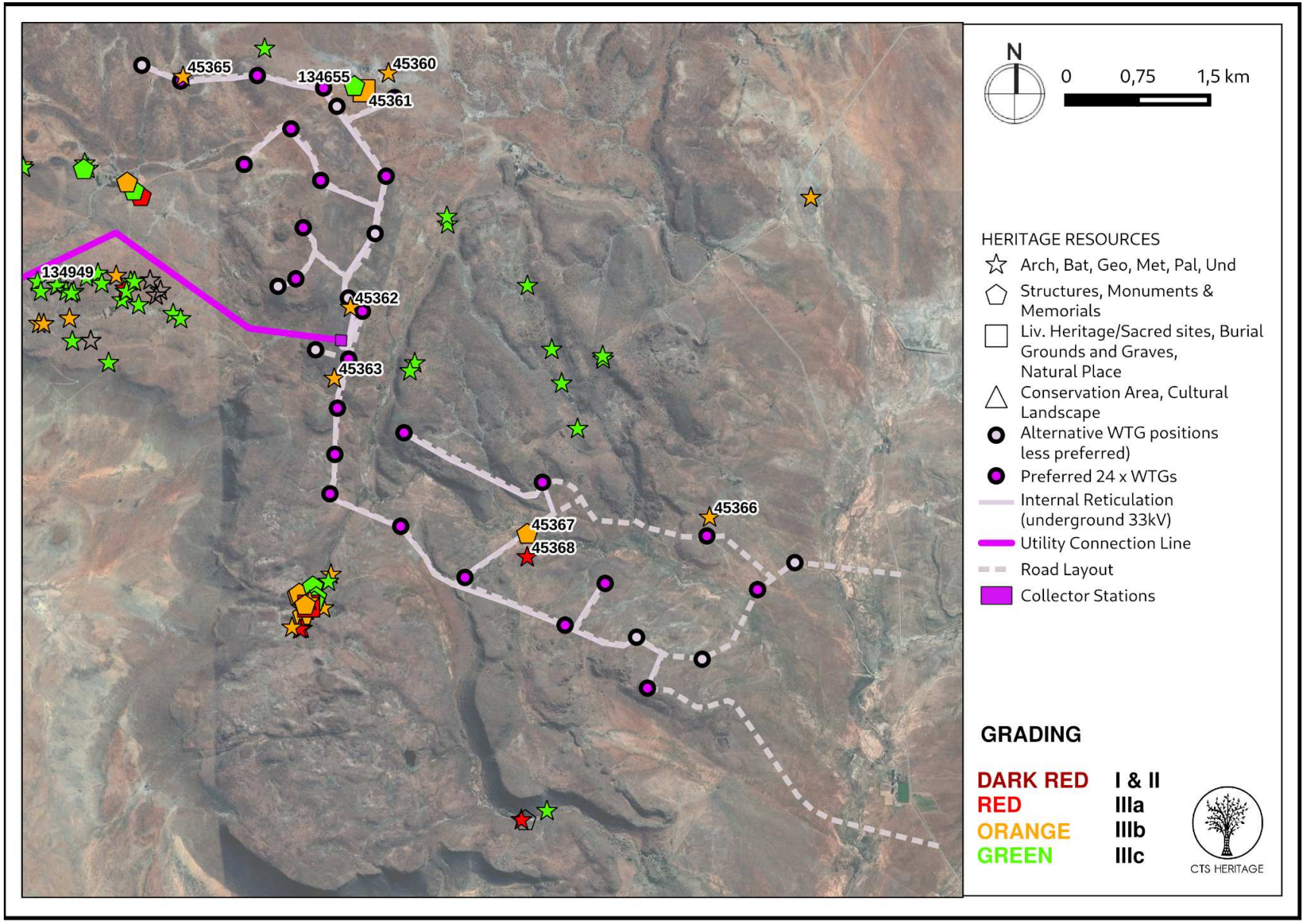

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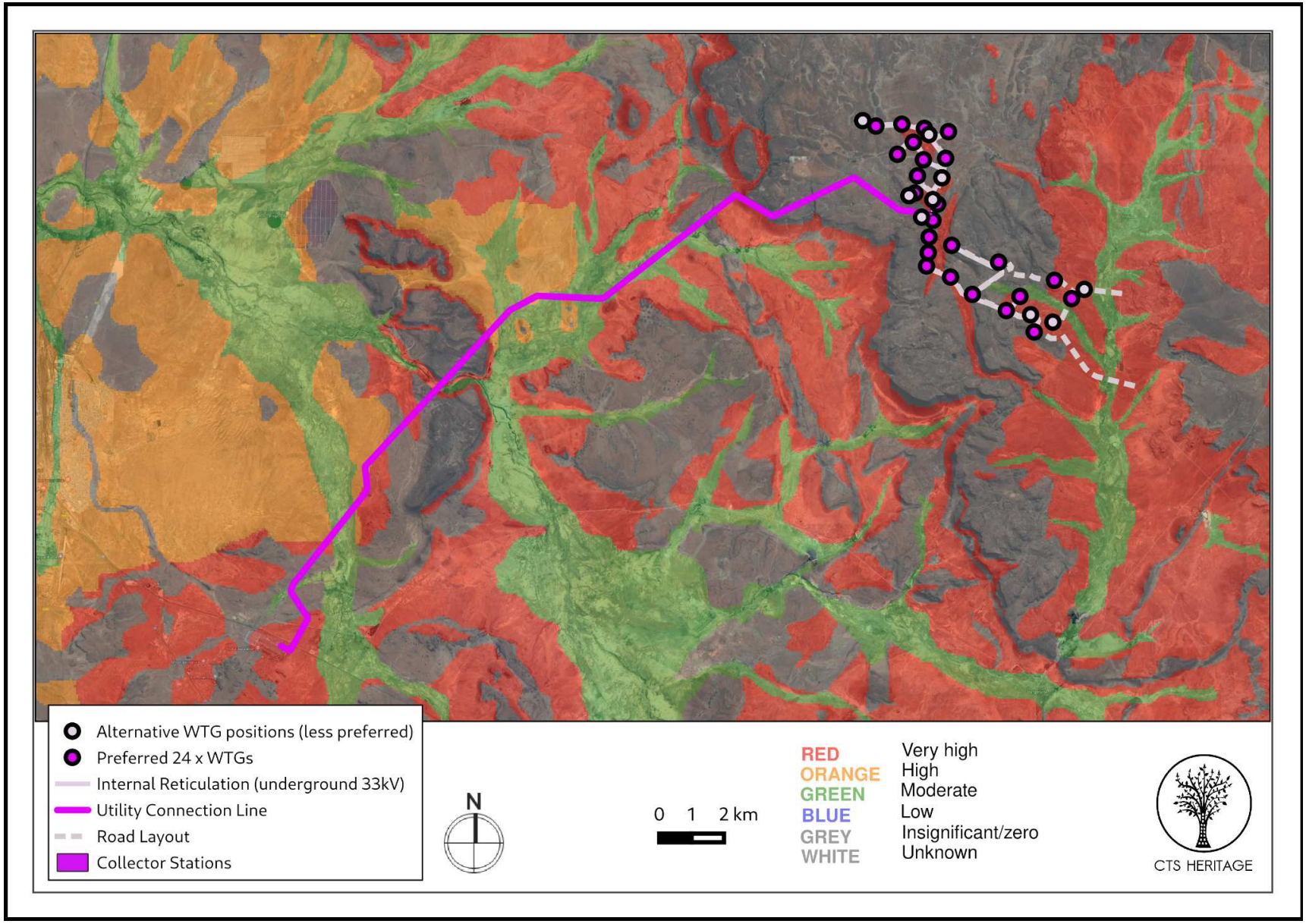

Figure 4.1. Palaeo Sensitivity map of the area from SAHRIS

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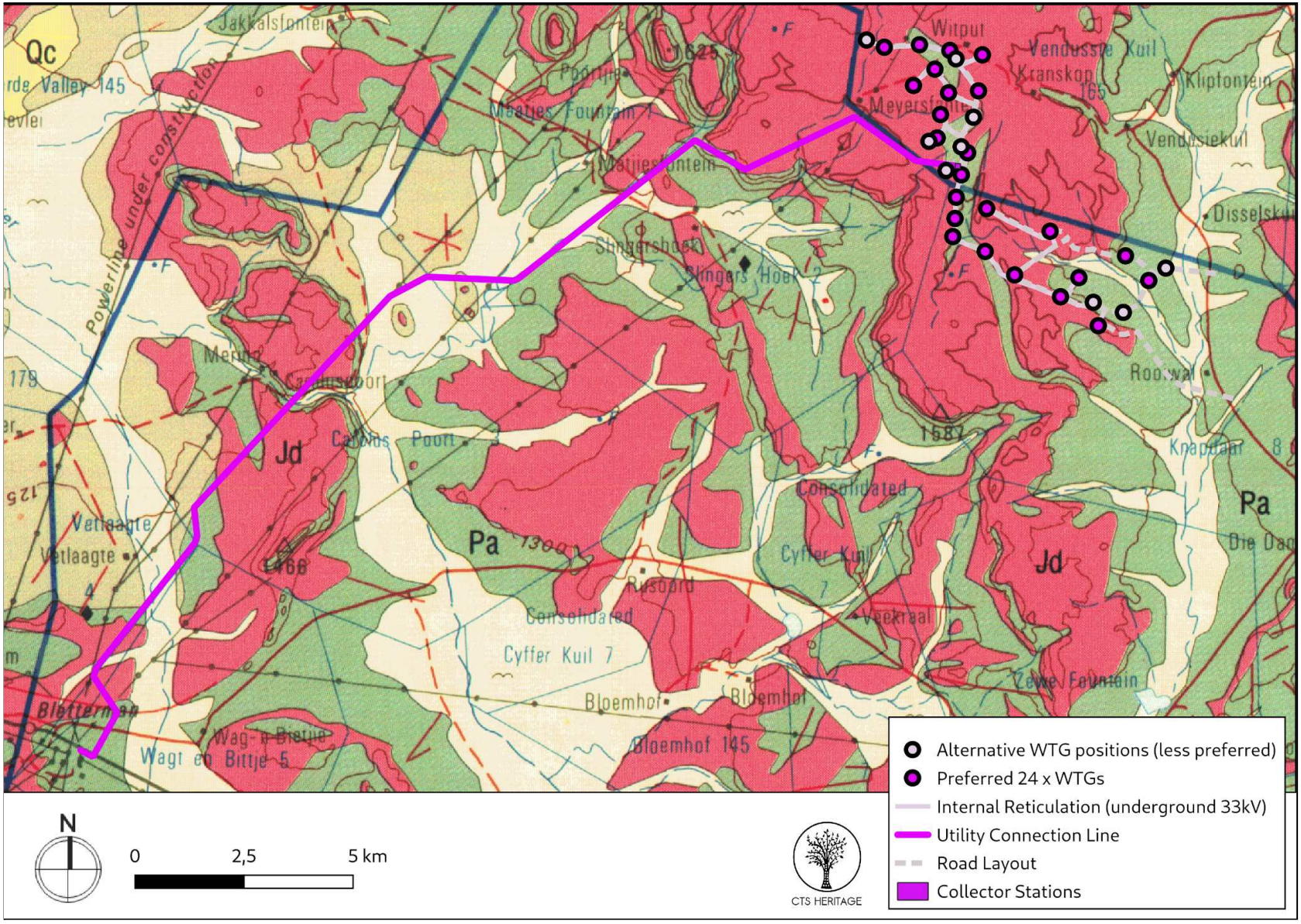

Figure 4.2: Geology Map. Extracted from the Council for GeoSciences Map 3024 for Colesburg indicating that the development area is underlain by Jd: Jurassic Dolerite, Pt (lighter green): Tierberg Formation of the Ecca Group and Pa (darker green): Adelaide Subgroup of the Beaufort Group

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4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Findings of previous assessments

Archaeology

Van der Walt (SAHRIS NID 183142) conducted a field assessment of the area proposed for development in 2014. Van der Walt (2014) found that:

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

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

All of the observations and sites identified by Van der Walt (2014) have been mapped relative to the proposed development in Figures 3.1 and 3.2 and are listed in Appendix 1.

Van der walt (2014) concludes his report by noting that:

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

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

The proposed tower positions was surveyed for sites of archaeological, cultural and historical significance and nine sites of heritage significance were identified during the survey as well as some Stone Age find spots…"

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Palaeontology

Millsteed (2014, SAHRIS ID) completed his palaeontology assessment for the original environmental authorisation. Millsteed (2014) found that:

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

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

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

Figure 5.1: Contextual Image of development area - existing turbines from an adjacent project

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Figure 5.2: Contextual Image of development area indicating an existing powerline

Figure 5.3: Contextual Image of development area indicating the low topography

Figure 5.4: Contextual Images of Development Area indicating the low topography

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Figure 5.5: Contextual Images of Development Area

Figure 5.6: Contextual Images of Development Area

Figure 5.7: Contextual Images of Landscape

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Figure 5.8: Contextual Images of Development Area

Figure 5.9: Contextual Images of Development Area

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Figure 5.10: Contextual Images of Development Area

Figure 5.11: Contextual Images of Development Area

Figure 5.12: Contextual Images of Development Area

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Figure 5.13: Contextual Images of Development Area

Figure 5.14: Contextual Images of Development Area

Figure 5.15: Contextual Images of Development Area

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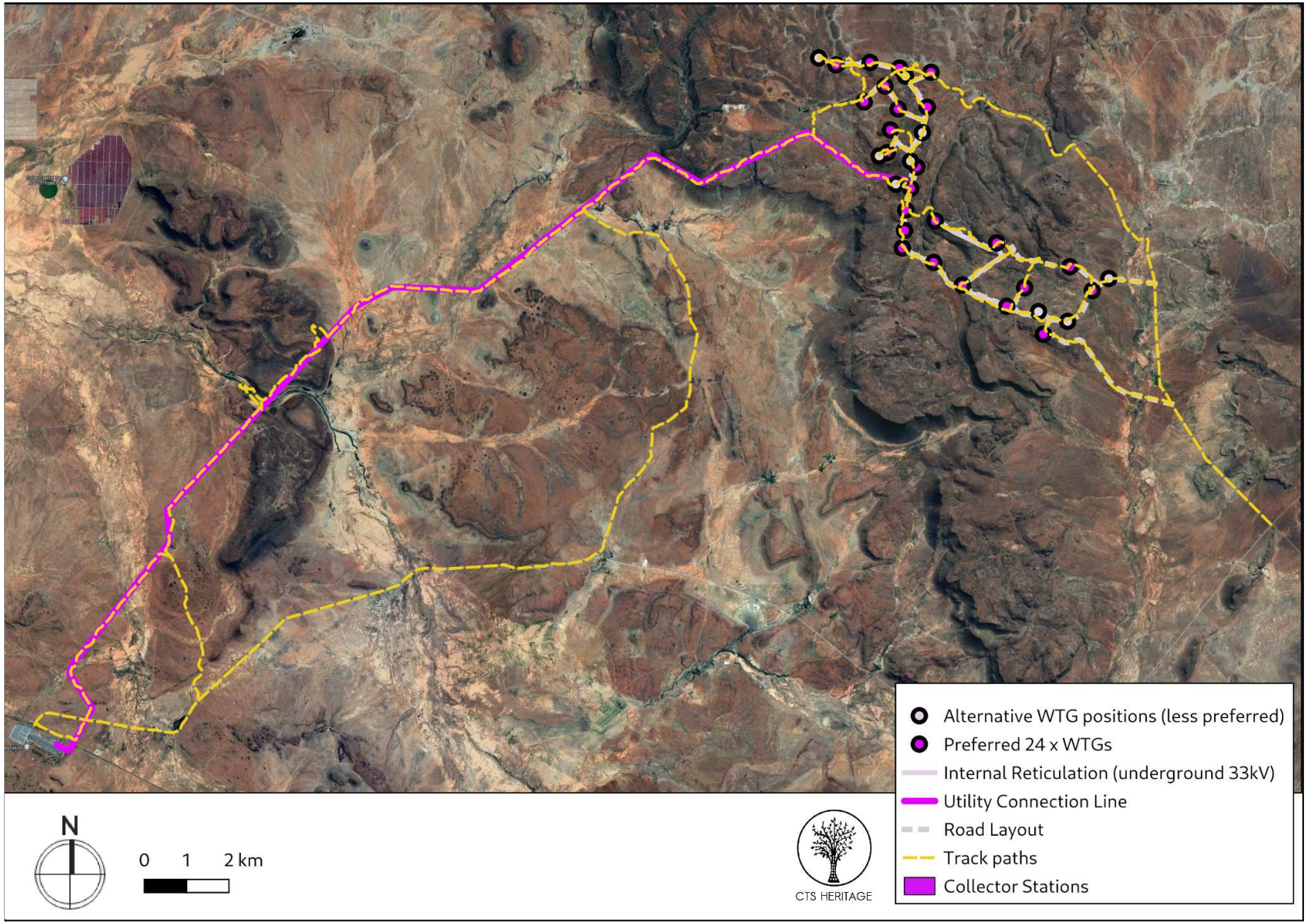

Figure 6.1: Overall track paths of foot survey

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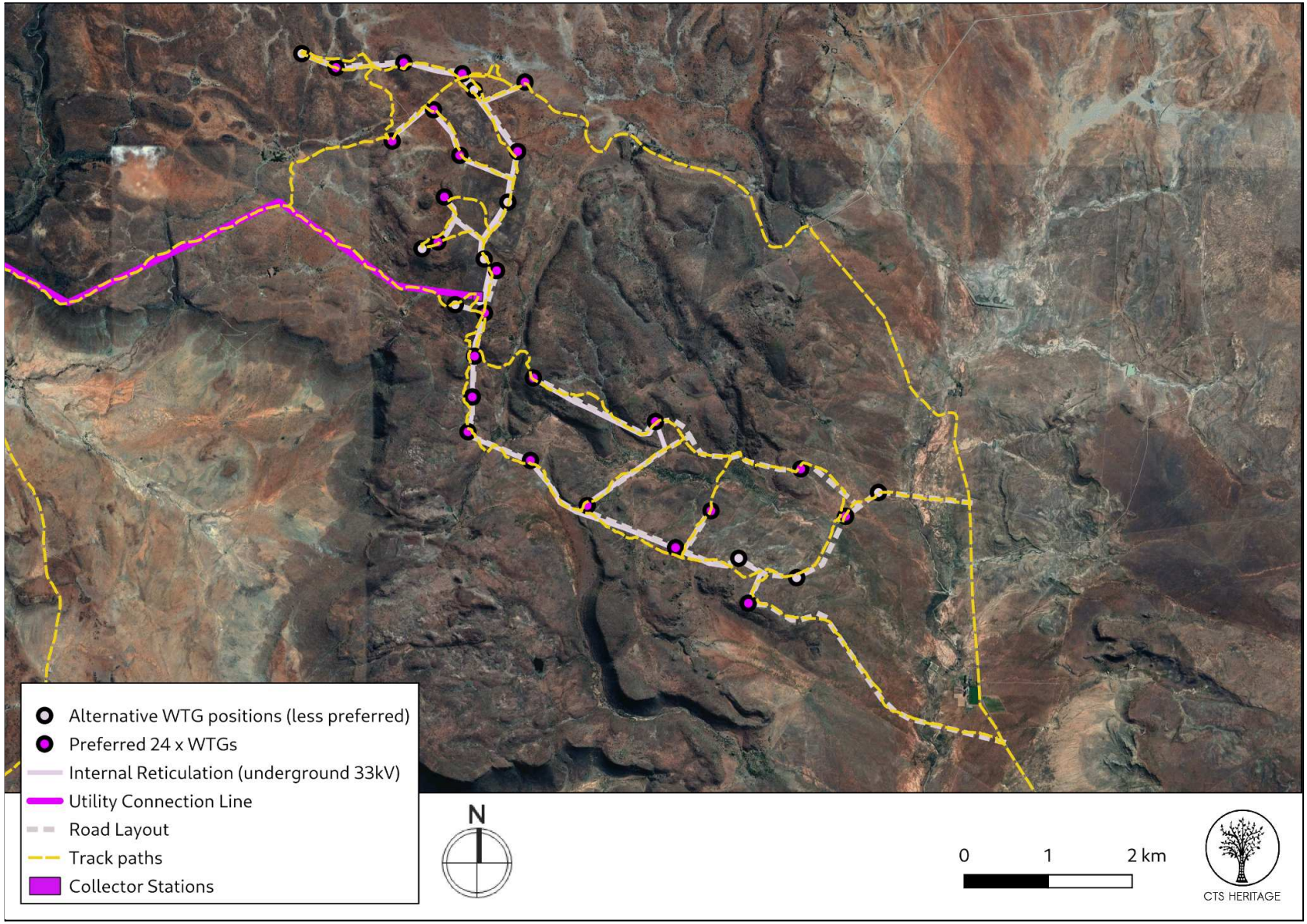

Figure 6.2: Overall track paths of foot survey

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4.2 Heritage Resources identified in the Walkdown

Over 100 archaeological observations were made during the walkdown, the majority of which are determined to be Not Conservation-Worthy as they have insufficient scientific or other cultural value to warrant protection. These were primarily of Middle Stone Age flakes, debitage, cores, points and blades and nearly all were made from locally sourced hornfels which is abundant in the study area. Small contributions of Later Stone Age observations were also made and these tended to contain a finer grained hornfels which was perhaps sourced differently to the MSA material.

Unfortunately, despite spending quite a lot of time exploring the dolerite outcrops in this proposal, no sites with engravings were found. High degrees of patination and weathering has occurred as many of the open sites lie on or in various shallow pans that have changed over time.

A few historic ruins were recorded that have been avoided in the layout of the turbines up on the plateau beyond the Kranskop farmhouse complex. The location of the sites worth grading IIIC or above fortunately will not be impacted by the WEF, roads or powerlines.

Table 1: Archaeological, palaeontological and built environment observations noted during both walk downs for the WEF and associated infrastructure

Obs #	Description	Type	Period	Density	Co-ordinates		Grading
001	Rusted metal sheet, MSA flake and fine grained hornfels flake, LSA	Artefacts	MSA, LSA, historic	0 to 5	-30.572739	24.307637	NCW
002	3 doored workers house, corrugated iron roof	Structure	Modern	n/a	-30.57148343	24.30364488	NCW
003	**Stone walled kraal and Victorian house, corrugated iron hipped roof, poor condition**	**Structure**	**Historic**	**n/a**	**-30.57053304**	**24.30276236**	**IIIB**
004	Hornfels flake, repatinated	Artefacts	MSA	0 to 5	-30.57763	24.28976	NCW
005	Hornfels flakes, cores patinated	Artefacts	MSA	0 to 5	-30.569	24.28684	NCW
006	Hornfels cores	Artefacts	MSA	0 to 5	-30.57051	24.28819	NCW
007	Hornfels core and flakes, LSA point	Artefacts	LSA	0 to 5	-30.57009	24.29305	NCW
008	Hornfels cores	Artefacts	LSA	0 to 5	-30.57152	24.29875	NCW
009	Hornfels core	Artefacts	MSA	0 to 5	-30.57479	24.30209	NCW
010	Adze flake and hornfels core	Artefacts	LSA	0 to 5	-30.58149	24.30614	NCW
011	Early MSA flake and core hornfels	Artefacts	MSA	0 to 5	-30.58502	24.305	NCW
012	Hornfels core and flake	Artefacts	MSA	0 to 5	-30.58832	24.30266	NCW
013	Retouched hornfels flakes and cores	Artefacts	MSA	0 to 5	-30.59093	24.30228	NCW
014	Hornfels cores, points	Artefacts	MSA	5 to 10	-30.59447	24.30259	NCW
015	Hornfels core and flakes	Artefacts	MSA	0 to 5	-30.59678	24.30191	NCW
016	Hornfels core and flakes	Artefacts	MSA	5 to 10	-30.59876	24.30092	NCW
017	Fine grained hornfels flakes	Artefacts	MSA	0 to 5	-30.60027	24.30015	NCW
018	Fine grained hornfels flakes and cores	Artefacts	MSA	0 to 5	-30.60222	24.30024	NCW
019	Patinated hornfels flake point	Artefacts	MSA	0 to 5	-30.60693	24.30023	NCW
020	Hornfels core	Artefacts	MSA	0 to 5	-30.61011	24.3011	NCW
021	Windmill	Structure	Modern	n/a	-30.61056	24.30323	NCW

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022	Patinated hornfels flake	Artefacts	MSA	0 to 5	-30.61136	24.30415	NCW
023	Hornfels core	Artefacts	MSA	0 to 5	-30.61251	24.30597	NCW
024	Hornfels flake	Artefacts	MSA	0 to 5	-30.61418	24.30949	NCW
025	Hornfels bladelet	Artefacts	MSA	0 to 5	-30.61817	24.31492	NCW
026	Siltstone flake worth prominent bulb of percussion. Generally, more artefacts in amongst these boulders	Artefacts	MSA	0 to 5	-30.6188	24.31597	NCW
027	Two patinated hornfels blades	Artefacts	MSA	0 to 5	-30.62073	24.32087	NCW
028	Patinated hornfels flake	Artefacts	MSA	0 to 5	-30.62285	24.32629	NCW
029	Early MSA hornfels flake	Artefacts	MSA	0 to 5	-30.62321	24.32856	NCW
030	Patinated hornfels flakes and blades	Artefacts	MSA	5 to 10	-30.62314	24.33095	NCW
031	Fine grained hornfels flake core	Artefacts	MSA	0 to 5	-30.62437	24.33802	NCW
032	Jojo tank and kraal	Structure	Modern	n/a	-30.6237	24.34302	NCW
033	Windmill and dam	Structure	Modern	n/a	-30.61903	24.34643	NCW
034	Hornfels flakes	Artefacts	MSA	0 to 5	-30.61583	24.34675	NCW
035	Hornfels flakes	Artefacts	MSA	0 to 5	-30.61636	24.35	NCW
036	Hornfels flakes	Artefacts	MSA	0 to 5	-30.6164	24.35556	NCW
037	Hornfels core and chunk	Artefacts	LSA	0 to 5	-30.61679	24.35878	NCW
038	Hornfels core and bladelet flakes	Artefacts	MSA	0 to 5	-30.61319	24.34314	NCW
039	Hornfels flakes, cores	Artefacts	MSA	0 to 5	-30.61336	24.33937	NCW
040	Patinated early MSA flakes	Artefacts	MSA	0 to 5	-30.61302	24.33578	NCW
041	**Stone walled kraal, circular (small) and larger rectangular kraal. Route misses these**	**Structure**	**Historic**	**n/a**	**-30.61293**	**24.33565**	**IIIC**
042	**Various retouched hornfels flakes near stream**	**Artefacts**	**MSA**	**30+**	**-30.61183**	**24.33288**	**IIIC**
043	Patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.61056	24.32702	NCW
044	Patinated hornfels flakes and core	Artefacts	MSA	0 to 5	-30.60838	24.32344	NCW
045	Fine grained hornfels flake	Artefacts	MSA	0 to 5	-30.60971	24.32173	NCW
046	Hornfels flake with edge retouch	Artefacts	MSA	0 to 5	-30.60908	24.32006	NCW
047	Hornfels microliths	Artefacts	LSA	0 to 5	-30.60544	24.31244	NCW
048	Hornfels patinated flake	Artefacts	MSA	0 to 5	-30.58689	24.29798	NCW
049	Patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.57833271	24.29840877	NCW
050	Patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.62872513	24.33859693	NCW
051	Patinated hornfels flake	Artefacts	MSA	0 to 5	-30.63252671	24.34702902	NCW
052	Hornfels flake, edge retouch exposed fine grained hornfels beneath weathered cortex	Artefacts	MSA	0 to 5	-30.63987263	24.35451785	NCW
053	Two very weathered hornfels flakes	Artefacts	MSA	0 to 5	-30.59411071	24.29209185	NCW
054	Fine grained hornfels flakes with step flaking	Artefacts	LSA	0 to 5	-30.58799388	24.28148743	NCW
055	Longer hornfels core with flake scars	Artefacts	MSA	0 to 5	-30.58707921	24.2712546	NCW
056	Various hornfels cores and flakes	Artefacts	MSA	5 to 10	-30.5920813	24.25947827	NCW
057	Siltstone flake, hornfels debitage	Artefacts	LSA, MSA	0 to 5	-30.59436796	24.25364727	NCW
058	Thin Siltstone flake	Artefacts	MSA	0 to 5	-30.59102371	24.23615427	NCW
059	Kraal outpost complex	Structure	Modern	n/a	-30.58001198	24.27642461	IIIC
060	**Kranskop farmhouse, Cape Revival gables, intact fabric remains at barn and**	**Structure**	**Historic**	**n/a**	**-30.57892582**	**24.3206859**	**IIIB**

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061	**Kranskop cemetery**	**Graves/BurialGrounds**	**Historic**	**n/a**	**-30.57962968**	**24.32193642**	**IIIA**
062	**Disselskuil farmhouse complex**	**Structure**	**Historic**	**n/a**	**-30.60532253**	**24.36107772**	**IIIB**
063	Rooiwal farmhouse complex	Structure	Modern	n/a	-30.63589955	24.36234968	NCW
064	.22 bullet casing	Artefacts	Modern	0 to 5	-30.67288	24.11863	NCW
065	Hornfels bladelet and point	Artefacts	LSA	0 to 5	-30.67103	24.1189	NCW
066	Hornfels flake with sharp point	Artefacts	MSA	0 to 5	-30.66744	24.12011	NCW
067	Hornfels blade	Artefacts	MSA	0 to 5	-30.66541	24.11896	NCW
068	Patinated hornfels flake	Artefacts	MSA	0 to 5	-30.66191	24.1217	NCW
069	Hornfels flakes, blade and very patinated	Artefacts	MSA	0 to 5	-30.66037	24.1233	NCW
070	Hornfels debitage and flakes	Artefacts	MSA	0 to 5	-30.65704	24.12693	NCW
071	Hornfels point and blade flake	Artefacts	MSA	0 to 5	-30.65414	24.13015	NCW
072	Isolated hornfels point on low dune cordon	Artefacts	LSA	0 to 5	-30.65021	24.13423	NCW
073	Isolated hornfels flake retouched on top of hill	Artefacts	LSA	0 to 5	-30.64473	24.13996	NCW
074	**Open site dominated by fine grained hornfels flakes, blades, cores on eroded wash in front of dolerite boulder strewn slope**	**Artefacts**	**LSA, MSA**	**30+**	**-30.64385**	**24.14091**	**IIIC**
075	Patinated hornfels flakes on top of ridge	Artefacts	MSA	0 to 5	-30.63885	24.14501	NCW
076	Hornfels flake	Artefacts	MSA	0 to 5	-30.63661	24.14839	NCW
077	Patinated hornfels flake	Artefacts	MSA	0 to 5	-30.63231	24.15373	NCW
078	Hornfels point with dorsal scars	Artefacts	MSA	0 to 5	-30.63119	24.15597	NCW
079	Long hornfels blade, prob still bay age	Artefacts	MSA	0 to 5	-30.62784	24.15865	NCW
080	Hornfels core and patinated flake	Artefacts	MSA	0 to 5	-30.62638	24.16023	NCW
081	Hornfels flakes on floodplain	Artefacts	MSA	5 to 10	-30.6242	24.1626	NCW
082	Fine grained hornfels flakes	Artefacts	MSA	0 to 5	-30.62282	24.16458	NCW
083	**Hornfels flakes and cores in deflation bay**	**Artefacts**	**LSA, MSA**	**30+**	**-30.62193**	**24.16487**	**IIIC**
084	Hornfels flakes, prominent bulbs of percussion	Artefacts	MSA	10 to 30	-30.62045	24.16724	NCW
085	Hornfels blades and flakes	Artefacts	MSA	5 to 10	-30.61785	24.17756	NCW
086	Patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.61808	24.18155	NCW
087	Finely made hornfels point	Artefacts	MSA	0 to 5	-30.61826	24.18655	NCW
088	Hornfels core and thin flake	Artefacts	MSA	0 to 5	-30.61851	24.1958	NCW
089	Hornfels flakes	Artefacts	LSA, MSA	0 to 5	-30.61711	24.19778	NCW
090	Hornfels blade flakes	Artefacts	MSA	0 to 5	-30.61621	24.19912	NCW
091	Patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.61394	24.20291	NCW
092	Hornfels core, flakes	Artefacts	MSA	0 to 5	-30.61228	24.20574	NCW
093	Hornfels core, microliths	Artefacts	LSA, MSA	5 to 10	-30.60928	24.20927	NCW
094	Siltstone blade, hornfels flakes	Artefacts	MSA	10 to 30	-30.60643	24.21357	NCW
095	**Hornfels flakes, various grades. One large flake with full edge retouched**	**Artefacts**	**MSA**	**10 to 30**	**-30.60476**	**24.21605**	**IIIC**
096	Large hornfels flake eroding out of bank	Artefacts	MSA	0 to 5	-30.60135	24.22176	NCW
097	Very patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.59820797	24.22571242	NCW

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098	Hornfels flakes in deflation	Artefacts	MSA	0 to 5	-30.59318696	24.23345209	NCW
099	Hornfels flake, weathered	Artefacts	MSA	0 to 5	-30.67875466	24.11323708	NCW
100	Hornfels flakes, blade	Artefacts	MSA	0 to 5	-30.68470398	24.10725902	NCW
101	Fine grained hornfels flake; pointed with dorsal cortex	Artefacts	MSA	0 to 5	-30.69370097	24.09969015	NCW
102	Patinated hornfels flakes	Artefacts	MSA	0 to 5	-30.69794871	24.09579851	NCW
103	Repatinated hornfels core with lateral scar	Artefacts	MSA	0 to 5	-30.7007581	24.09496941	NCW
104	Hornfels flakes	Artefacts	MSA	0 to 5	-30.70567553	24.09872954	NCW
105	Fine grained hornfels flakes with sharp edges but little retouch	Artefacts	MSA	0 to 5	-30.71020517	24.09814042	NCW
106	Small hornfels flake repatinated	Artefacts	MSA	0 to 5	-30.71405895	24.09569032	NCW

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4.3 Selected photographic record

(a full photographic record is available upon request)

Figure 7.1: Observation 003

Figure 7.2: Observation 041

Figure 7.3: Observation 042

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Figure 7.4: Observation 060

Figure 7.5 Observation 061

Figure 7.6 Observation 062

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Figure 7.7 Observation 074

Figure 7.8 Observation 083

Figure 7.9 Observation 095

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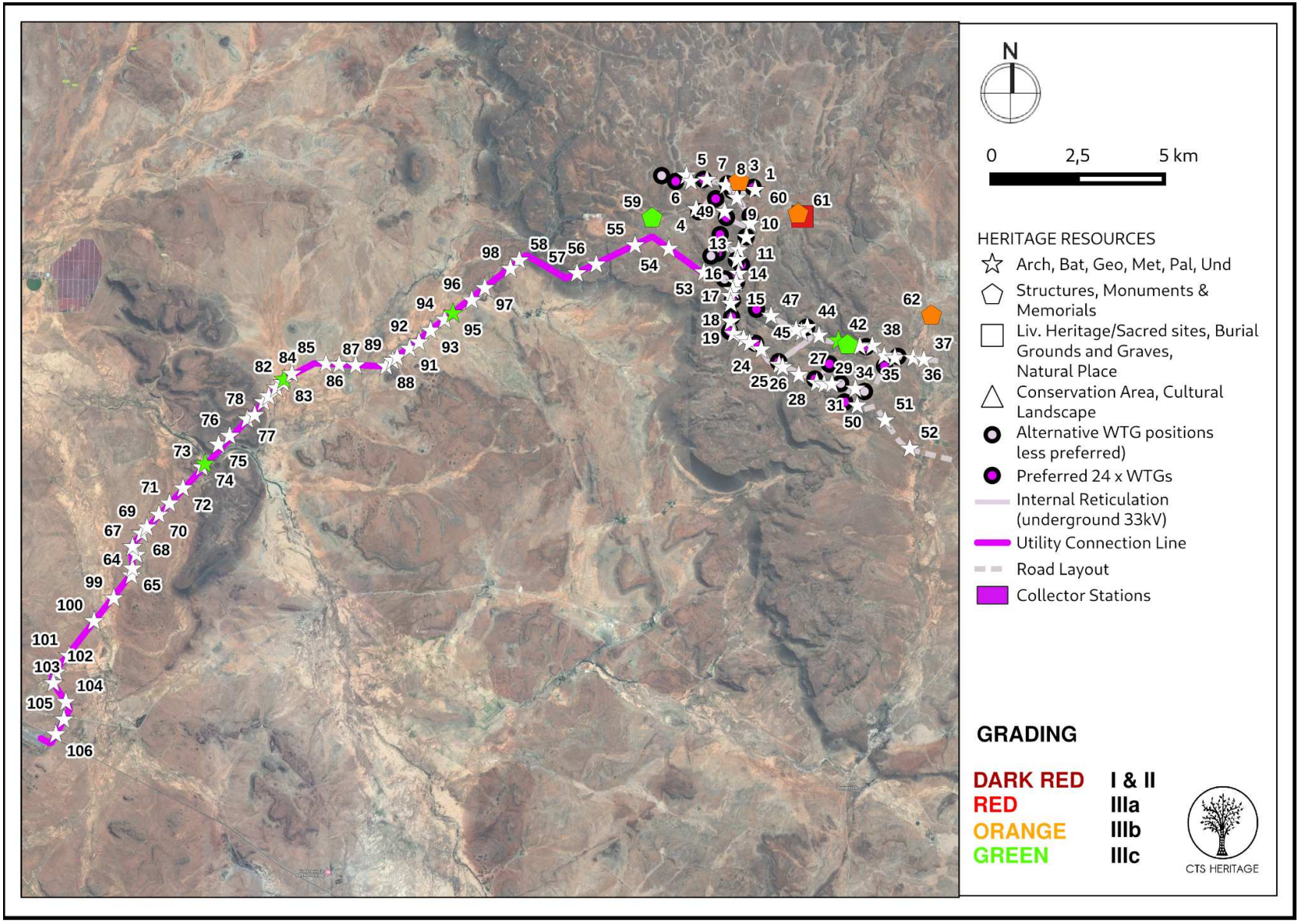

Figure 8.1: Map of heritage resources identified during the field assessment (2022) relative to the final proposed development footprint

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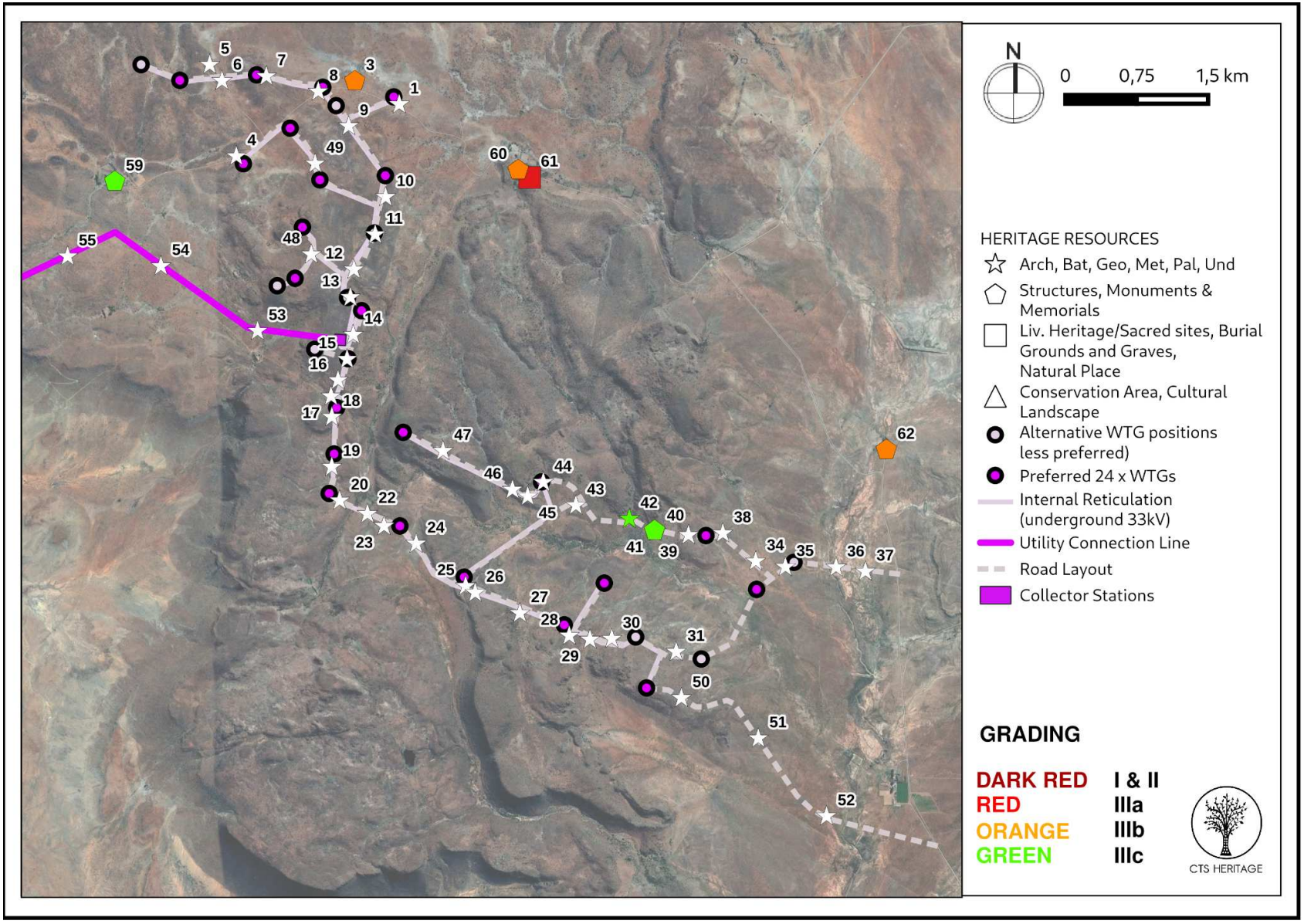

Figure 8.2: Map of heritage resources identified during the field assessment (2022) relative to the final proposed development footprint

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5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Archaeological Resources

Given the paucity of significant heritage resources, the WEF and associated infrastructure will have a negligible impact on archaeological heritage resources and based on the walkdown assessment completed, the area proposed for development has an overall low archaeological sensitivity. The identified built environment resources and graves do not fall within the development footprint and will not be directly impacted.

The sites and observations located in closest proximity to the proposed development in the layout provided are described in more detail below:

- Sites with SAHRIS ID 34474, 35179, 35181, 35183, 35176 and 35190 (all Grade IIIB) are located more than 200m from the proposed Utility Connection Line and are unlikely to be impacted.
- A scatter of archaeological observations have been recorded south of the proposed Utility Connection Line, however the nearest observation (SAHRIS ID 134949, Grade IIIC) is located more than 100m away and therefore impact is unlikely.
- Sites with SAHRIS ID 45362 and 45363 (all Grade IIIB) are located more than 50m from the proposed Internal Reticulation (underground 33kV line) and as such, impact is unlikely.
- A site with SAHRIS ID 45365 (Grade IIIB) is located more than 50m from the nearest proposed turbine and associated infrastructure and as such, impact is unlikely.
- Sites 74, 83 and 95 (all Grade IIIC) are located along the proposed Utility Connection Line. These recordings mark the location of scatters of archaeological artefacts and impact to these scatters must be avoided.
- Farm complex mapped by Site 3 and sites with SAHRIS ID 134655, 45361 and 45360 is located more than 200m from the nearest proposed turbine and and associated infrastructure and as such, impact is unlikely.
- A Site with SAHRIS ID 45367 (Grade IIIB) is described on SAHRIS as consisting of “at least two large dry stone walled kraals measuring approximately 9 by 18 metres. Several isolated MSA artefact are found scattered over the site” covering an area of 50m x 50m. This site is located in very close proximity to the proposed road and Internal Reticulation (underground 33kV line). As such, to ensure that no impact takes place, it is recommended that a **no-go buffer of 50m** is implemented around this site (Figure 9.5).
- Sites 41 and 42 (Grade IIIC) are located in very close proximity to a proposed new road. As such, to ensure that no impact takes place, it is recommended that a **no-go buffer of 25m** is implemented around site 41 and a **no-go buffer of 50m** is implemented around site 42 (Figure 9.5).

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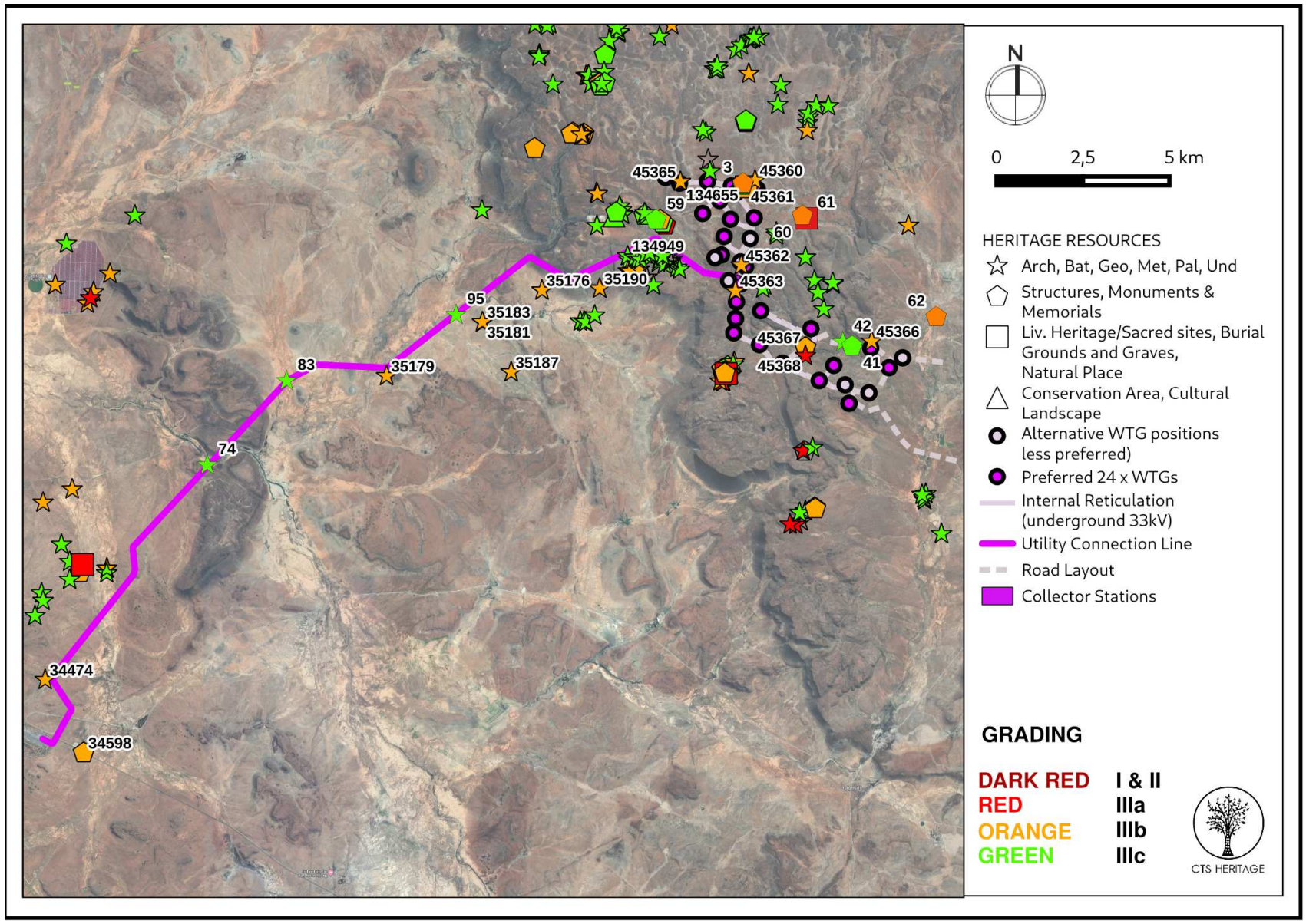

Figure 9.1: Map of all known significant heritage resources relative to the final proposed development footprint

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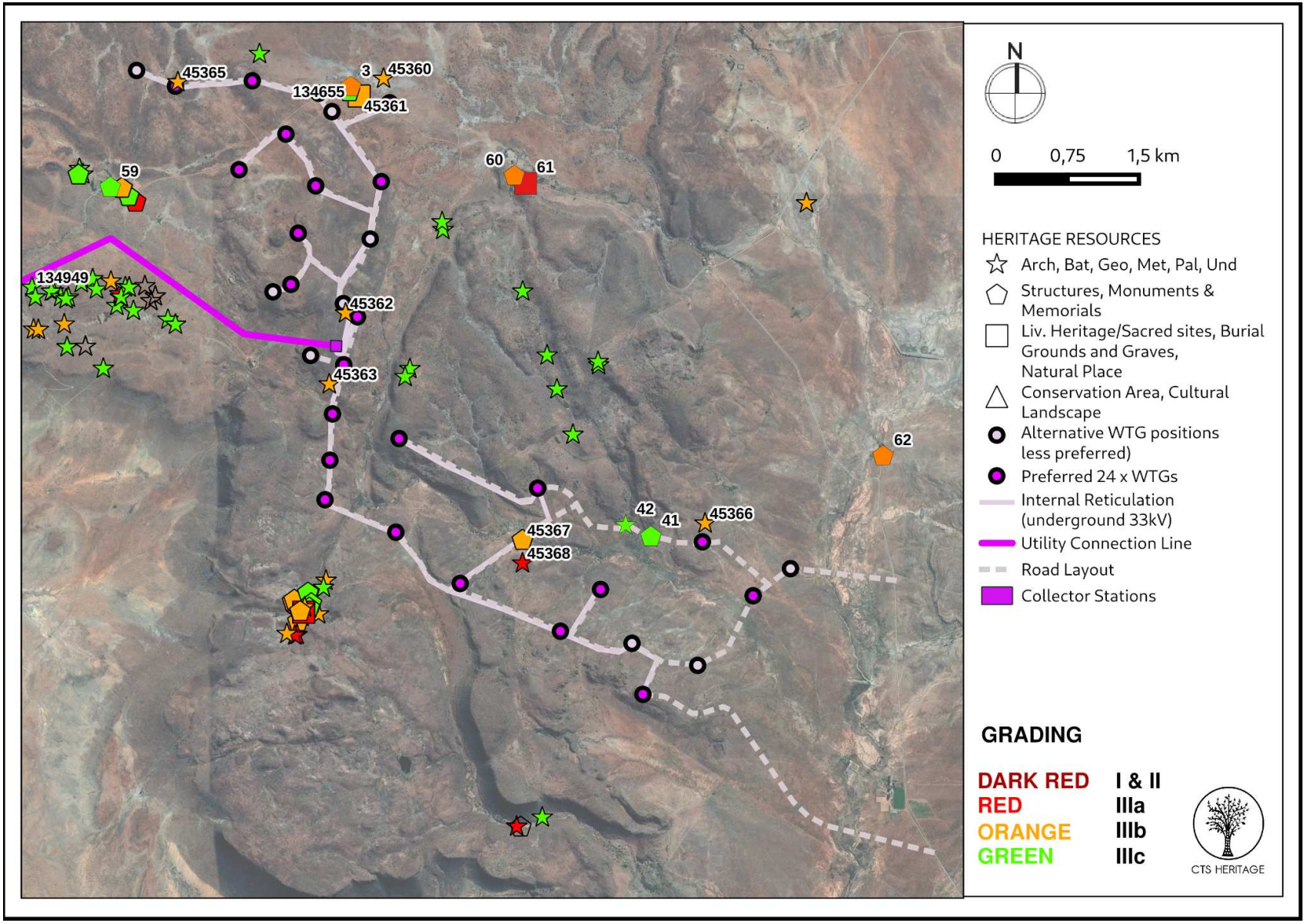

Figure 9.2: Map of all known significant heritage resources relative to the final proposed development footprint

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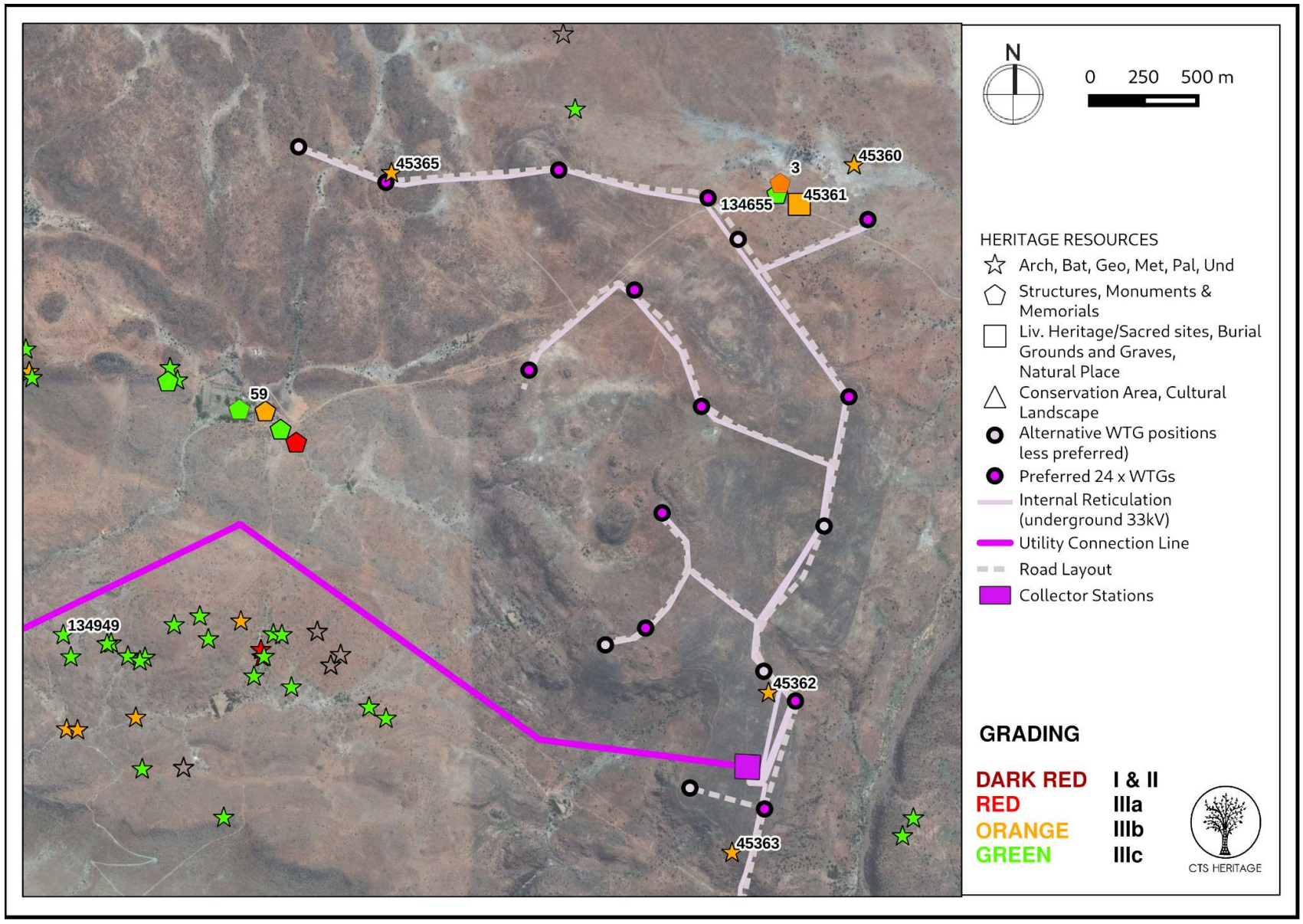

Figure 9.3: Map of all known significant heritage resources relative to the final proposed development footprint

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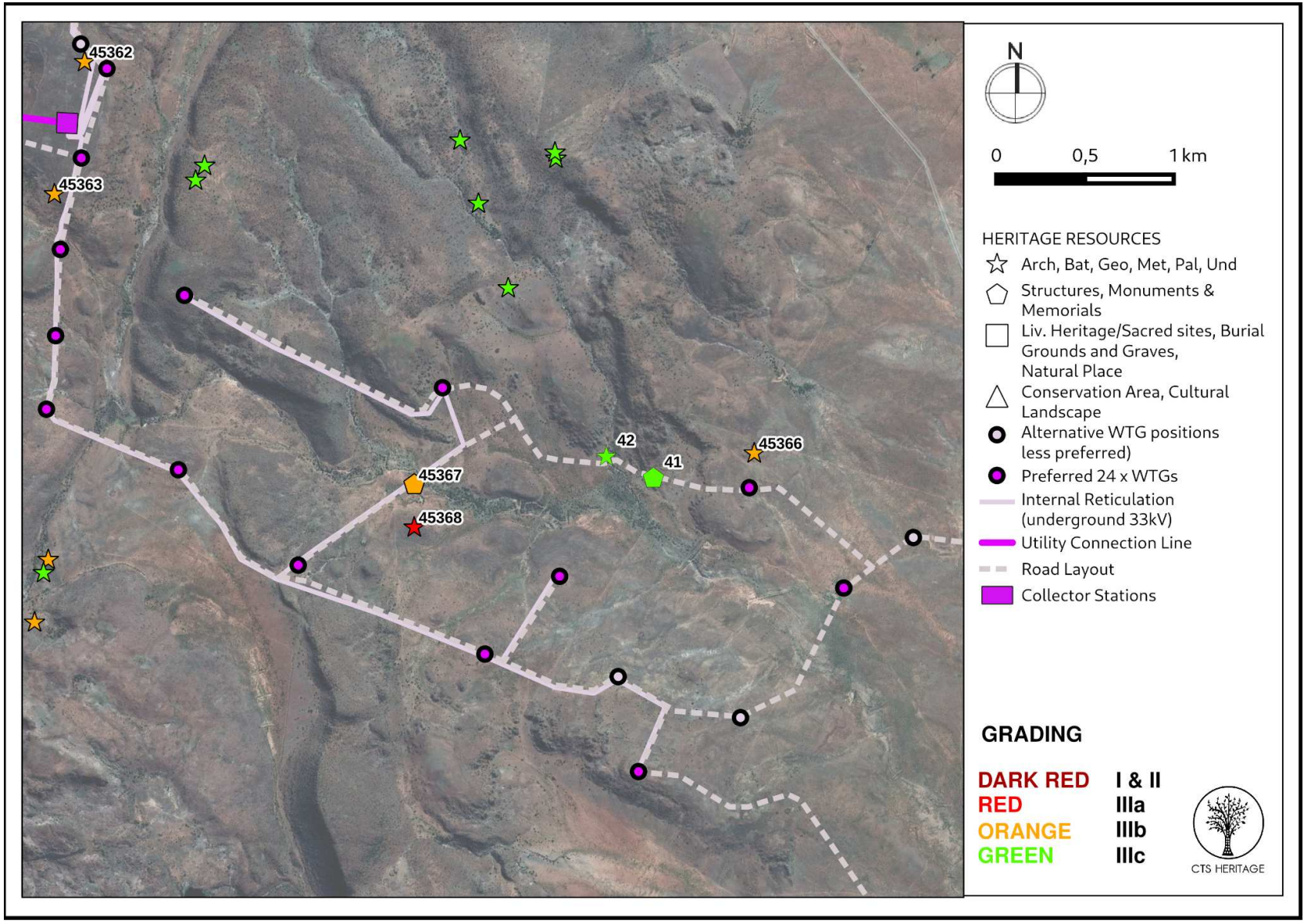

Figure 9.4: Map of all known significant heritage resources relative to the final proposed development footprint

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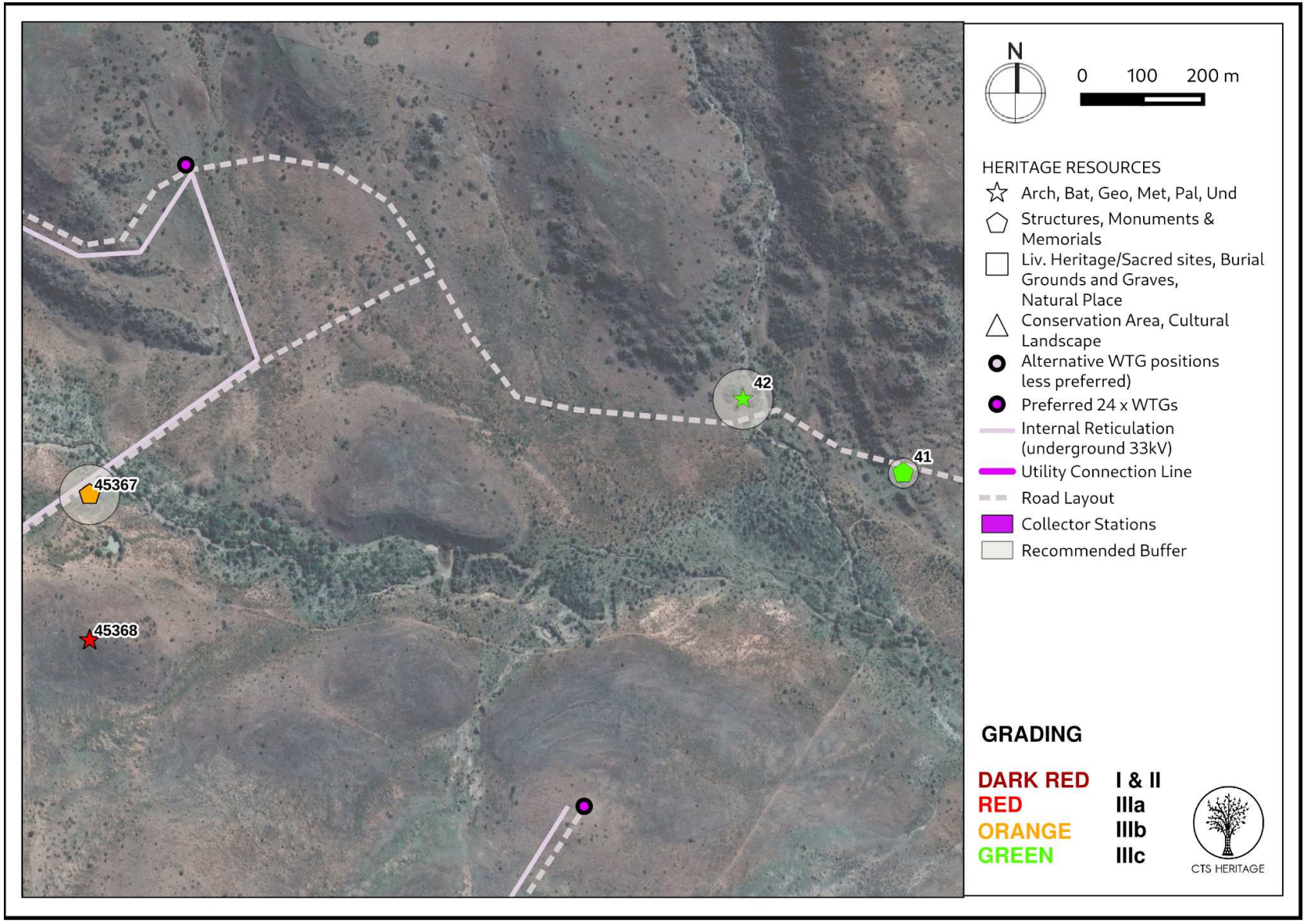

Figure 9.5: Map of all known significant heritage resources relative to the final proposed development footprint with recommended buffers

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6. CONCLUSION AND RECOMMENDATIONS

Based on the outcomes of the required walkdown, it is not anticipated that the proposed development of turbines, cables, powerlines and associated infrastructure including roads associated with the proposed WEF will negatively impact on significant archaeological heritage on condition that the recommendations outlined below are implemented. The identified built environment and graves do not fall within the development footprint and will not be directly impacted.

This report therefore satisfies the heritage requirements included in Van der Walt (2014) as well as the requirements in the EA granted for the Castle WEF. No further heritage work is recommended for the development of the Castle WEF and associated infrastructure.

Recommendations

There is no objection to the proposed final layout of the Castle WEF as provided and mapped in this report from a heritage perspective on condition that:

- A **no-go buffer of 50m** is implemented around the site with SAHRIS ID 45367 (Grade IIIB).
- A **no-go buffer of 25m** is implemented around site 41 (Grade IIIC) and a **no-go buffer of 50m** is implemented around site 42 (Grade IIIC).
- Sites 74, 83 and 95 (all Grade IIIC) are located along the proposed Utility Connection Line. These recordings mark the location of scatters of archaeological artefacts and impact to these scatters must be avoided.
- The attached Chance Fossil Finds Procedure (Appendix 2) is implemented for the duration of construction activities for this project.

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7. REFERENCES

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
104574	Heritage Scoping	Wouter Fourie	10/10/2012	Heritage Scoping Report for the Proposed Wind Farm Facility for Renosterberg Wind Energy Company (RWEC) near Petrusville, Northern Cape Province
104576	Heritage Scoping	Wouter Fourie	10/10/2012	Heritage Scoping Report for the Proposed Solar PV Facility for Renosterberg Wind Energy Company (RWEC) near Petrusville, Northern Cape Province
104804	PIA Desktop	John E Almond	01/09/2012	Palaeontological specialist assessment: desktop study PROPOSED RENOSTERBERG SOLAR PV AND WIND ENERGY FACILITIES NEAR DE AAR, NORTHERN CAPE PROVINCE
104804	PIA Desktop	John E Almond	01/09/2012	Palaeontological specialist assessment: desktop study PROPOSED RENOSTERBERG SOLAR PV AND WIND ENERGY FACILITIES NEAR DE AAR, NORTHERN CAPE PROVINCE
133138	HIA Phase 1	Jayson Orton, Lita Webley	09/07/2013	HERITAGE IMPACT ASSESSMENT FOR MULTIPLE PROPOSED SOLAR ENERGY FACILITIES
133536	Palaeontological Specialist Reports	John E Almond	01/07/2013	PALAEONTOLOGICAL SPECIALIST STUDY
151280	Archaeological Specialist Reports	Jaco van der Walt	26/08/2013	Archeological Scoping Report for the Proposed Castle WEF near De Aar, Northern Cape Province
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163982	Palaeontological Specialist Reports		31/08/2013	Palaeontological specialist assessment: combined desktop and field study: Proposed development PV Solar Facility near De Aar, Northern CApe Province
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256408	Palaeontological Specialist Reports	John E Almond	16/07/2013	Palaeontological Specialist Study: Combined Desktop and Field-based Assessments - Proposed Photovoltaic (Solar) Energy Facilities on Badenhorst Dam Farm near De Aar, Northern Cape
256413	Heritage Impact Assessment Specialist Reports	Jayson Orton	09/07/2013	Heritage Impact Assessment for Multiple Proposed Solar Energy Facilities on De Aar 180/1 (Badenhorst Dam Farm), De Aar, Northern Cape

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339820	Heritage Impact Assessment Specialist Reports	Lita Webley, Jayson Orton	01/12/2011	Proposed De Aar Wind Energy Facility on the North and South Plateau, Northern Cape Province
339824	Heritage Impact Assessment Specialist Reports	Lita Webley, David Halkett	01/06/2015	Addendum: Proposed Wind Energy Facility situated on the Eastern plateau (South) near De Aar, Northern Cape Province.
4052	HIA Phase 1	Albert van Jaarsveld	01/03/2006	Hydra-Perseus and Beta-Perseus 765 kV Transmission Power Lines Environmental Impact Assessment. Impact on Cultural Heritage Resources
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APPENDIX 1:

Known heritage resources within and near the Great Karoo WEF Development Area (Figure 3.1)

SAHRIS ID	Site No	Site Name	Description (Detailed descriptions on SAHRIS)	Co-ordinates		Grading
45361	CAS002	Castle WEF 002	Stone walling, Artefacts, Ruin>100 years, Building, Burial Grounds & Graves	-30,571389	24,303694	Grade IIIb
45365	CAS006	Castle WEF 006	Rock Art	-30,570083	24,283833	Grade IIIb
45367	CAS008	Castle WEF 008	Structures, Stone walling, Artefacts, Rock Art	-30,61325	24,321583	Grade IIIb
45360	CAS001	Castle WEF 001	Artefacts	-30,56975	24,306361	Grade IIIb
45362	CAS003	Castle WEF 003	Artefacts	-30,591861	24,302194	Grade IIIb
45363	CAS004	Castle WEF 004	Artefacts	-30,598556	24,300417	Grade IIIb
45366	CAS007	Castle WEF 007	Stone walling, Artefacts	-30,611667	24,341583	Grade IIIb
45368	CAS009	Castle WEF 009	Artefacts	-30,615417	24,321583	Grade IIIa
134949	DWEF080	De Aar WEF	Artefacts	-30,589433	24,26785	Grade IIIc
134655	DWEF002	De Aar WEF	Building, Ruin>100 years	-30,570983	24,302617	Grade IIIc
35176	EMJ-1	Emthanjeni 1	Palaeontological	-30,598385	24,24202	Grade IIIb
35181	EMJ-3	Emthanjeni 3	Palaeontological	-30,606775	24,224081	Grade IIIb
35183	EMJ-4	Emthanjeni 4	Palaeontological	-30,606648	24,224038	Grade IIIb
35187	EMJ-5	Emthanjeni 5	Palaeontological	-30,619686	24,232707	Grade IIIb
35190	EMJ-6	Emthanjeni 6	Palaeontological	-30,59791	24,259443	Grade IIIb
34597	TBS003	Taaiboschfontein 003	Archaeological, Transport infrastructure	-30,708269	24,078008	Grade IIIb
34598	TBS002	Taaiboschfontein 002	Structures	-30,718702	24,103575	Grade IIIb
34474	VLG004	VETLAAGTE 4	Artefacts	-30,699747	24,091936	Grade IIIb
35179	EMJ-2	Emthanjeni 1	Palaeontological	-30,620662	24,19507	Grade IIIb

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APPENDIX 2:

Chance Fossil Finds Procedure

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