

HERITAGE WALKDOWN REPORT

**for the approved Brandvalley WEF near Matjiesfontein in the Western and
Northern Cape**

Prepared by



CTS HERITAGE

In Association with

WSP

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EXECUTIVE SUMMARY

Brandvalley Wind Farm (Pty) Ltd, a subsidiary of G7 Renewable Energies (Pty) Ltd, has received approval to develop a 140 megawatt (MW) Wind Energy Facility (WEF) near Laingsburg, on the border of the Northern Cape Province and the Western Cape Province in South Africa. The authorised WEF is located in the Karoo Hoogland, the Witzenberg (Ceres) and the Laingsburg Local Municipalities, which fall within the Namakwa, the Cape Winelands and the Central Karoo District Municipalities, respectively. It comprises of up to 58 turbines, with a generating capacity of between 1.5MW and 4MW each.

In response to the original Heritage Impact Assessment completed by Booth in 2016, it was recommended by SAHRA and HWC that a more detailed archaeological assessment be conducted of the final layout of the proposed infrastructure to be developed as part of the Brandvalley WEF project. This recommendation was reiterated as a condition of authorisation in the original EA granted for the Brandvalley WEF project in 2016. The final layout for the Brandvalley WEF avoids impact to all known significant heritage resources present within the development area. The walkdown of the final layout revealed no new significant heritage resources that are likely to be impacted. It is therefore recommended that this report is accepted as satisfying this condition of the Environmental Authorisation issued for the Brandvalley West WEF project.

One of the other conditions of the EA issued was that “After initial vegetation clearance has taken place but before the ground is levelled for construction, a professional palaeontologist must undertake a walkthrough and document any identified paleontological findings. The survey/walkthrough must be conducted as per the South African Heritage Resources Agency (SAHRA) requirements.”

However, the PIA completed for this project concluded that “The overall impact significance of the construction phase of the proposed wind energy project is assessed as LOW (negative) in terms of palaeontological heritage resources.” The one area of high palaeontological significance identified in the PIA i.e. the occurrence of very rare tetrapod burrows and associated skeletal remains within the Abrahamskraal Formation along the Kabeltou Pass (Muishond Rivier 161) is located well away from all proposed WEF infrastructure and no negative impact to this area is anticipated.

Almond (2016) concludes that “The great majority of the Brandvalley WEF study area is assessed as being of low palaeontological sensitivity due to the scarcity of significant fossil vertebrate, plant and other remains here. Sensitive no-go areas within the proposed development footprint itself have not been identified in this study... Highly sensitive “no-go” areas within the proposed development footprint itself have not been identified in this study. Pending the potential discovery of substantial new fossil remains during construction, specialist palaeontological mitigation is not recommended for the Brandvalley WEF project.” It is therefore recommended that the condition of the EA regarding the palaeontological walkdown is not appropriate for this project.

A Conservation Management Plan will be drafted for the Brandvalley WEF as required by SAHRA and in the EA for the project.



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1. INTRODUCTION

1.1 Background Information on Project

Brandvalley Wind Farm (Pty) Ltd, a subsidiary of G7 Renewable Energies (Pty) Ltd, has received approval to develop a 140 megawatt (MW) Wind Energy Facility (WEF) near Laingsburg, on the border of the Northern Cape Province and the Western Cape Province in South Africa. The authorised WEF is located in the Karoo Hoogland, the Witzenberg (Ceres) and the Laingsburg Local Municipalities, which fall within the Namakwa, the Cape Winelands and the Central Karoo District Municipalities, respectively. It comprises of up to 58 turbines, with a generating capacity of between 1.5MW and 4MW each.

The Brandvalley Wind Energy Facility (WEF) is proposed on the border of the Northern Cape and Western Cape along the R354 road which connects Matjiesfontein to Sutherland. This project is the third phase (Phase 3) of a series of projects which started in 2011 with the proposed establishment of the Roggeveld Wind Energy Facility (CaseID 473). The original Roggeveld WEF project was broken down into smaller WEFs in 2013. The first of these was the Roggeveld Wind Farm Phase 1 (CaseID 4503). This was followed by the Karreebosch Wind Energy Project (Roggeveld Phase 2) (CaseID 6884) in 2014/2015. The proposed Brandvalley and Rietkloof WEFs are Phases 3 and 4 of the original project although the extent of the farms affected by the various developments have changed since the inception of the project.

The authorised Brandvalley Wind Energy Facility (WEF) falls within both the Western Cape and the Northern Cape and as such, falls under the jurisdiction of two separate Heritage Authorities. Heritage Western Cape (HWC) is the authority with the competence to manage heritage resources in the Western Cape and the National Authority, the South African Heritage Resources Agency (SAHRA) manages heritage resources in the Northern Cape.

On 2 September 2016, SAHRA issued a Final Comment on the Brandvalley WEF development in terms of section 38(8) of the NHRA. In this comment, SAHRA endorsed and supported the recommendations made in the Heritage Impact Assessment and made a number of recommendations (see attached Annexure A). SAHRA's Final Comment stated:

- If the layout of the turbines, roads and other associated infrastructure proposed for the Northern Cape section of the development is altered, a heritage walk-down including a palaeontological walk-down must be conducted prior to construction. A Walk-Down report must be submitted to SAHRA for comment. No construction may commence without comments from SAHRA;
- It is noted that Turbine 42 has now been excluded from the proposed revised layout. Previously issued comments noted an indirect impact on palaeontological resources, as Turbine 42 would have been located approximately 100m from plant stem casts or burrows (Loc 194). As this turbine has been removed, the impact should decrease, however careful monitoring of the area near Loc 194 during the construction of the access roads must be conducted by the ECO for any additional plant stem casts or burrows;
- 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 (Itumeleng Masiteng/Mimi Seetelo 012 320 8490), must be alerted immediately. 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.

- SAHRA must be informed if the Environmental Authorisation for the project is granted and the relevant documents should be uploaded to the case file.

On 20 October 2016, HWC issued a Final Comment on the Brandvalley WEF development in terms of section 38(8) of the NHRA. and made a number of recommendations (see attached Annexure B). HWC's Final Comment stated:

The Committee supports the recommendations of the HIA, subject to the following conditions:

- The 20-30 metre buffers proposed in the archaeological specialist study for archaeological sites (BV SAI, BV SA2, BV SA3, BV SA4, BV SA5, BV SAZ, BV SW2, BV SW16), graveyard (BVGI) and built environment sites (BV HS3, BV HS5 and BV SW12) should be implemented and respected throughout the lifetime of the project, unless mitigation measures are undertaken in terms of a workplan;
- The standard buffer of 500 meters from any wind turbine that applies to occupied buildings must be equally applied to all unoccupied buildings, older than 60 years, on the site.
- All stone-walled sites, regardless of whether they have been identified prior to construction or not, should be regarded as no-go areas. If they cannot be avoided then they should be reported to an archaeologist who would advise on the need for mitigation;
- The highly sensitive palaeontological area (very rare tetrapod i.e. terrestrial vertebrate) burrows and associated skeletal remains within the Abrahamskraal Formation along the Kabelou Pass (Muishond Rivier 161) in the northwest of the study area should be regarded as a no-go area at all times;
- A targeted walk-down of the final layout must be conducted by an archaeologist, approved by the responsible heritage authority (and with relevant qualifications and experience and professional standing in heritage management in terms of S 38 (2) (a)), at least six months prior to construction in order to determine whether any archaeological recording and mitigation measures may still be required and to identify any further sites in proximity to the footprint that need to be mitigated or treated as no go areas during all phases of the project. A report to HWC is required for approval;
- The ECO must be briefed on what to look out for in terms of archaeological and palaeontological heritage resources that might be revealed during construction and must monitor all major surface clearance and deeper (>1m) excavations for fossil material (bones, teeth, petrified wood etc.) in the construction phase; The ECO must report as mentioned below.
- If any archaeological material, palaeontological material or human burials are uncovered during the course of development then work in the immediate area must be halted and the find protected *in situ* as far as is possible. The find would need to be reported to the heritage authorities and may require inspection by an appropriate heritage practitioner. Such heritage is the property of the state and may require excavation and curation in an approved institution.

EA was granted for the Brandvalley WEF on 23 November 2016. In the EA, various requirements were stipulated in terms of impacts to Historical, Cultural and Palaeontological sites (Table 1 below).

Table 1: EA requirements for Heritage

<i>EA Requirements</i>	<i>Implementation</i>
A conservation management plan as required by SAHRA	To be completed
A 30m buffer must be applied around all identified archaeological sites	Adhered to in the final layout
After initial vegetation clearance has taken place but before the ground is levelled for construction, a professional palaeontologist must undertake a walkthrough and document any identified paleontological findings. The survey/walkthrough must be conducted as per the South African Heritage Resources Agency (SAHRA) requirements.	At construction
Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made	During construction
Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material that may be encountered and the procedures to follow when they find sites.	At construction
All buffers and no-go areas stipulated in this report must be adhered to for both the facilities and all roads and powerlines.	During construction
Should any human remains be uncovered during development they must be immediately protected in situ and reported to the heritage authorities or to an archaeologist. The remains will need to be exhumed at the cost of the developer.	During construction
All construction and maintenance crew and vehicles (except small vehicles which may use existing farm tracks) should be kept out of the buffer zones.	During construction
The final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected.	This report satisfies this requirement

1.2 Description of Property and Affected Environment

The Brandvalley WEF is nearly 30km north of Matjiesfontein on the western side of the R354 that connects Sutherland to Matjiesfontein. This WEF is one of a number of other WEFs that are proposed in the area between Sutherland, Matjiesfontein, the Ceres Karoo and the Moordenaars Karoo. The turbines are mainly located on the top of a series of moderately high ridges and koppies that characterise the study area. The WEF can be accessed via Brandvalley and Fortuin farms or via Barendskraal farm when driving up through the kloofs on the southwestern end of the area. The Snydersberg is a prominent landmark in the northwestern area.

The agricultural activities have predominantly consisted of sheep farming with very small scale crop agriculture such as onion seeds accompanied by subsistence farming. Ruins dot the area along the gravel access roads linking up the old farms but the extended drought in the mid 2010s has made a noticeable impact on the vegetation and water levels available. A prolonged water shortage is still in place at Sutherland to the north and much of the farming activities have been scaled back to adapt to the intensely arid conditions experienced here. The vegetation consists of succulent karoo bushes and much of the terrain is broken and rocky.

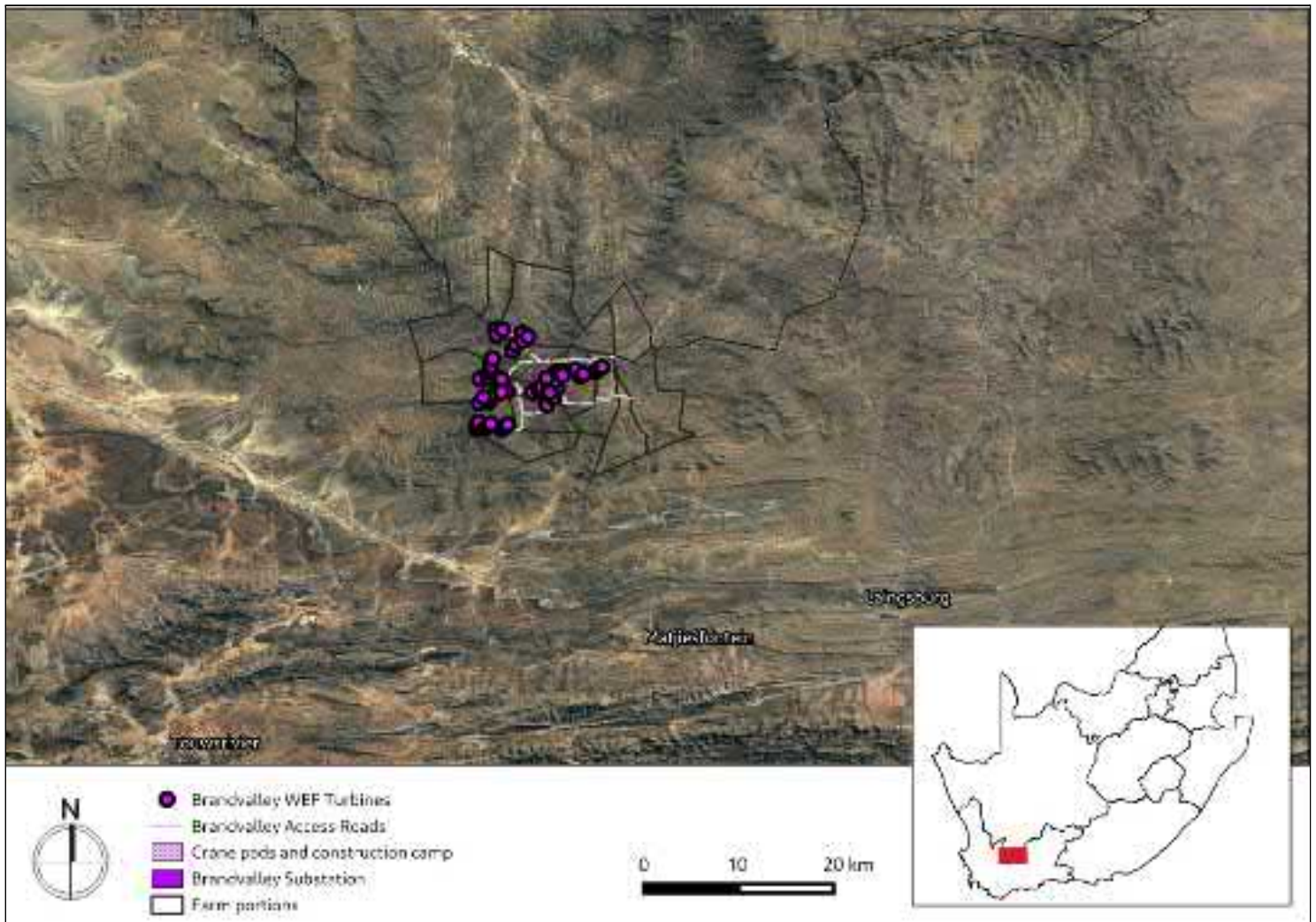


Figure 1.1: Close up satellite image indicating proposed location of the Brandvalley WEF development



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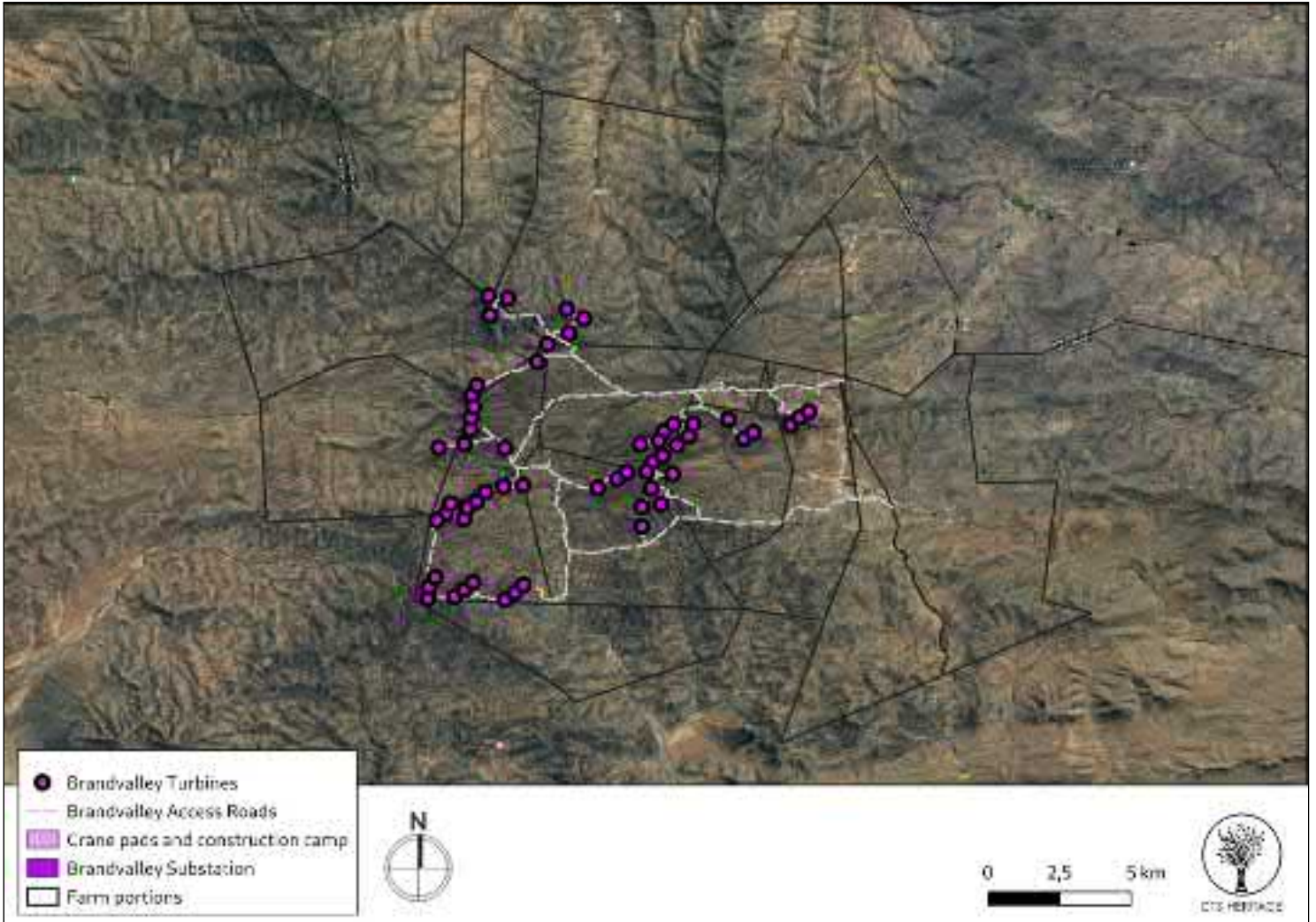


Figure 1.2: Final proposed layout for the Brandvalley WEF development

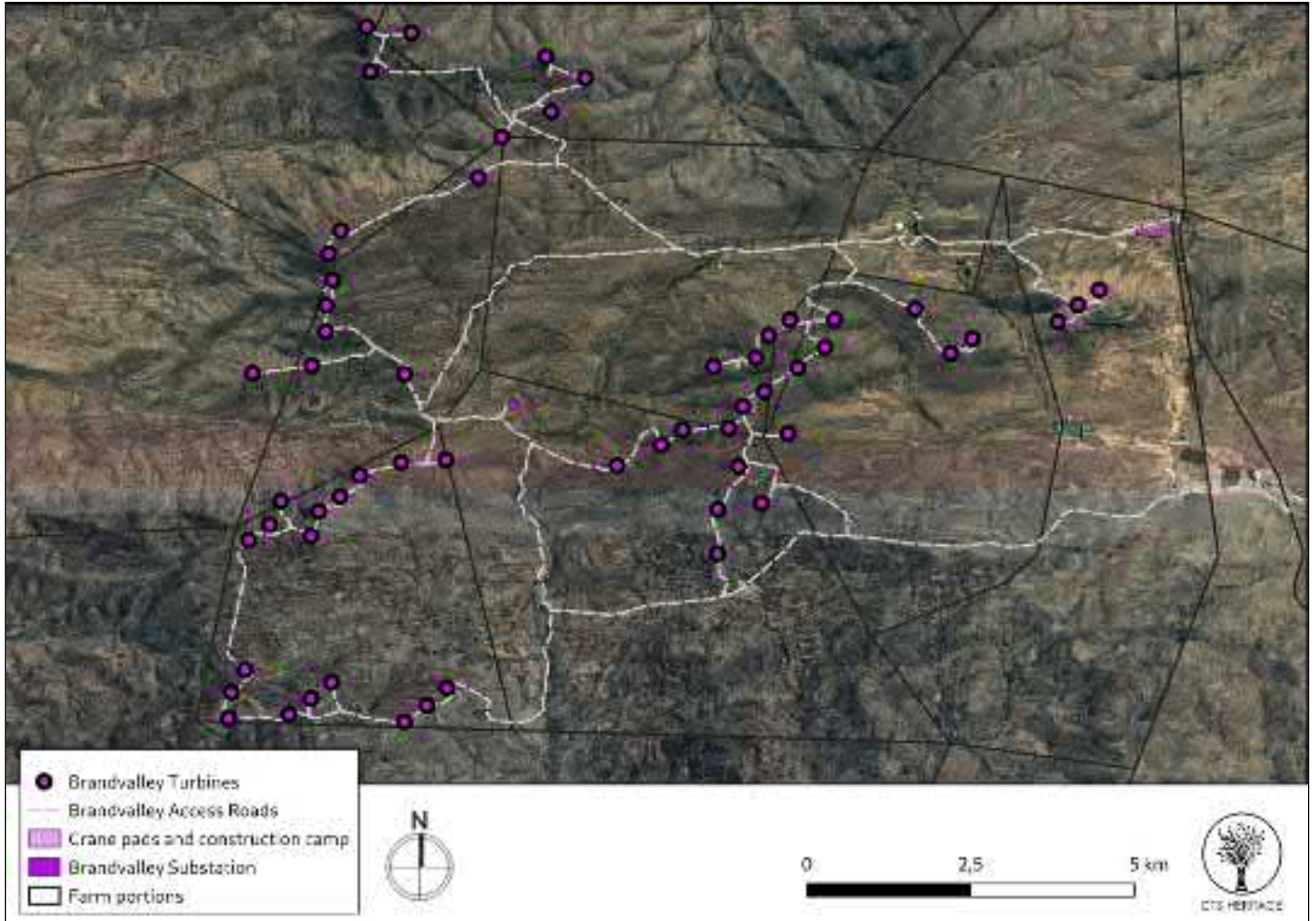


Figure 1.3: Final proposed layout for the Brandvalley WEF development

2. METHODOLOGY

2.1 Purpose of Walkdown

In the conditions of the Environmental Authorisation (2016), it was required that the final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected. This was also required by both HWC and SAHRA. As the final layout of the Brandvalley WEF has changed, an archaeological walkdown was completed.

2.2 Summary of steps followed

- An archaeologist conducted a full detailed walkdown and micro-siting of the Final development footprint for the Brandvalley WEF between 24 and 28 July 2021 to determine what archaeological resources are likely to be impacted by the approved development.
- The area proposed for development was assessed on foot 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).

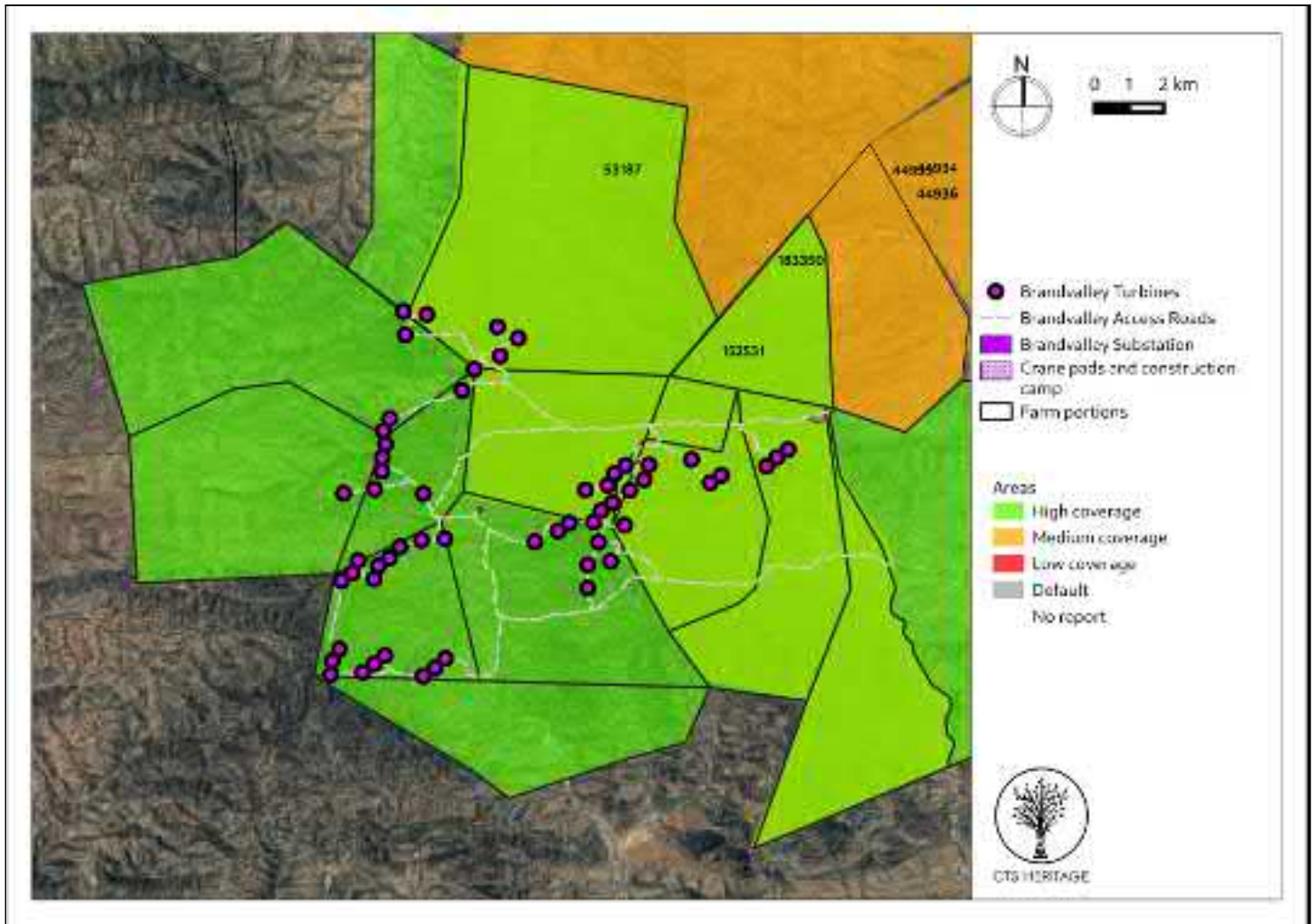


Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted

2.3 Constraints & Limitations

While the overall archaeological visibility was high as the vegetation cover is relatively sparse, movement across this terrain is challenging underfoot as the ridges are covered with eroding sandstone, slates and greywhacke. Recording of historical layering of heritage resources such as stock kraals, ruins, windmills and dams was relatively unencumbered as the ridges and access roads provided ample access to identify these structures. Stone Age material was concentrated lower down the valleys, albeit rarely in great densities, while isolated flakes were encountered higher up on the ridges.

3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

The area proposed for the Brandvalley WEF is located immediately adjacent to the proposed Karreebosch and Rietkloof WEFs and is located within a REDZ area. The results of the heritage assessments completed for these projects have relevance here.

The area proposed for development is located approximately 30km north of Matjiesfontein and is in the southern



Roggeveld. This part of the Karoo is prized for its wide-open spaces and expansive vistas. Hart et al. (2016) note that the cultural landscape of this area is agricultural in nature, and consists of mostly stock farming with very occasional agriculture. The area is isolated with natural qualities and semi-desert landscapes. The interaction between the topography, geology, flora and historical remnants of human occupation of the area form a unique cultural landscape.

The Karrebosch HIA (2015) “revealed that the study area is relatively austere in terms of pre-colonial heritage, however valley bottoms contain evidence of early trekboer cultural landscapes – ruins, graves and occasional middens. These consist of collections of ruined stone and mud buildings, threshing floors and kraals located exclusively in the valley areas between the high longitudinal ridges that characterise the study area. There are a number of existing farm houses that contain 19th century fabric, however very few of these have anything more than moderate heritage significance. Parts of the study area enjoy very high aesthetic qualities with the area known by locals as “Gods Window” having grade II aesthetic qualities, hence the significance of the study area lies mainly with its undeveloped wilderness qualities. Interestingly, pre-colonial or stone age heritage and archaeology is extremely scarce in the areas that were searched. Very few archaeological sites of these kinds were recorded despite the fact that overall 9 experienced archaeologists were involved in scouring the landscape.”

The HIA for the Karrebosch WEF notes that “The most important colonial archaeological sites in the study area are associated with Ekkraal Valley, the Rietfontein-Wilgebosch River valley and the Krans Kraal-Karrekraal valley. The valley bottoms are archaeologically sensitive...”. Similar findings were made by ACO in their report (2010, SAHRIS Ref: 53187) for developments in close proximity. According to the ACO reports (2011, 2013 and 2015), parts of the study area enjoy very high aesthetic qualities hence the significance of the study area lies mainly with its undeveloped wilderness qualities which may be negatively impacted by the development of the proposed development.

Similar findings were made by Booth in HIA completed for the Rietkloof WEF HIA (2016). Booth (2016) notes that the Rietkloof WEF area “held several historical features (stone walling kraals and cottages) some with associated historical artefacts situated along the access roads in the valleys and associated with the homestead settlements. The area, however, also held evidence of both Middle and Later Stone Age stone artefacts alongside water courses and on the flat floodplains.”

However, it must be noted that the proposed development is located within a Renewable Energy Development Zone which has been identified for this kind of development. In REDZ areas, there is a reasonable expectation that the cultural landscape of an area will be changed to be dominated, or at least heavily altered, by renewable energy development and its associated infrastructure. In fact, this is the intention of the REDZ areas.



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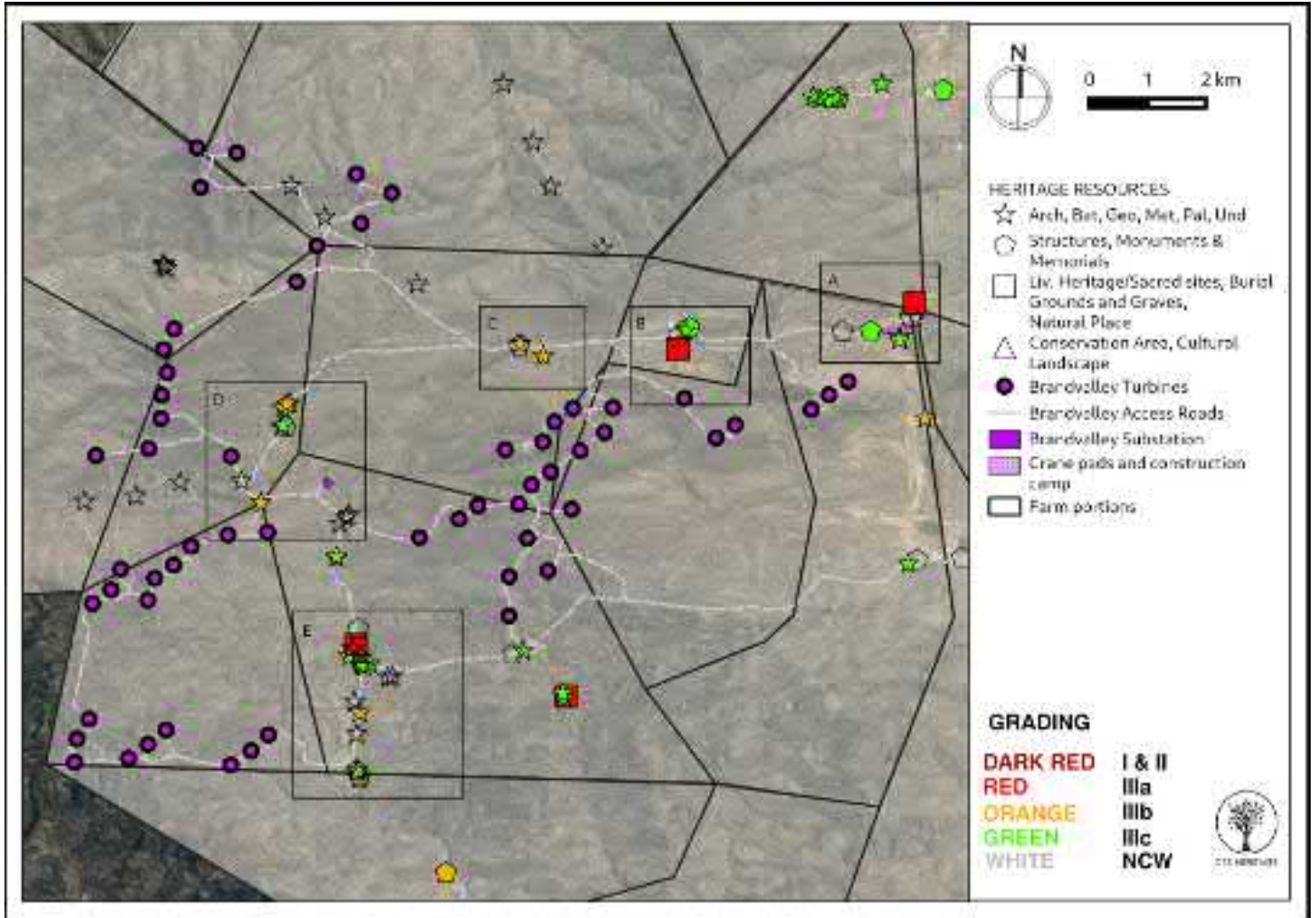


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area from SAHRIS



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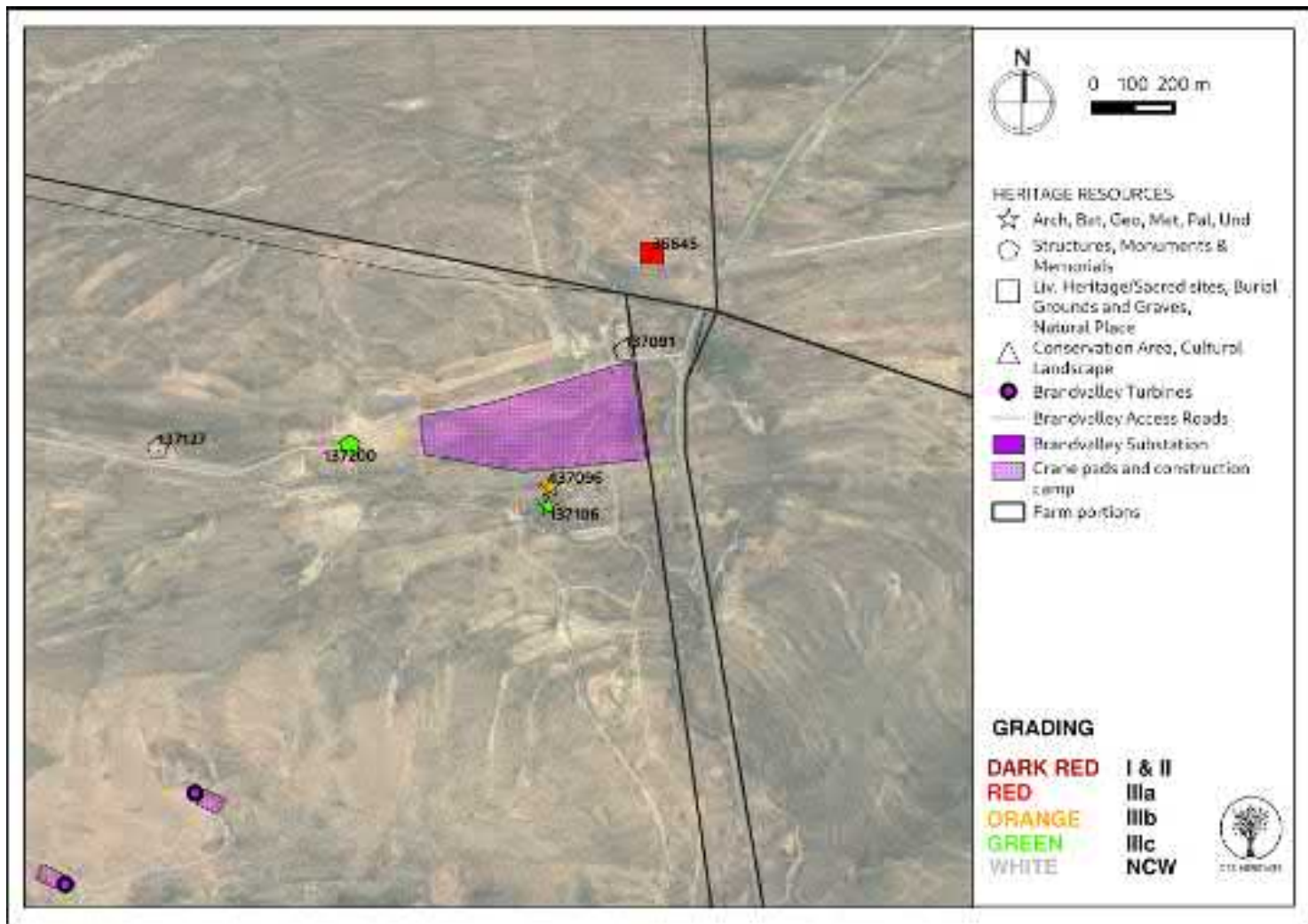


Figure 3.1. Heritage Resources Map. Inset A



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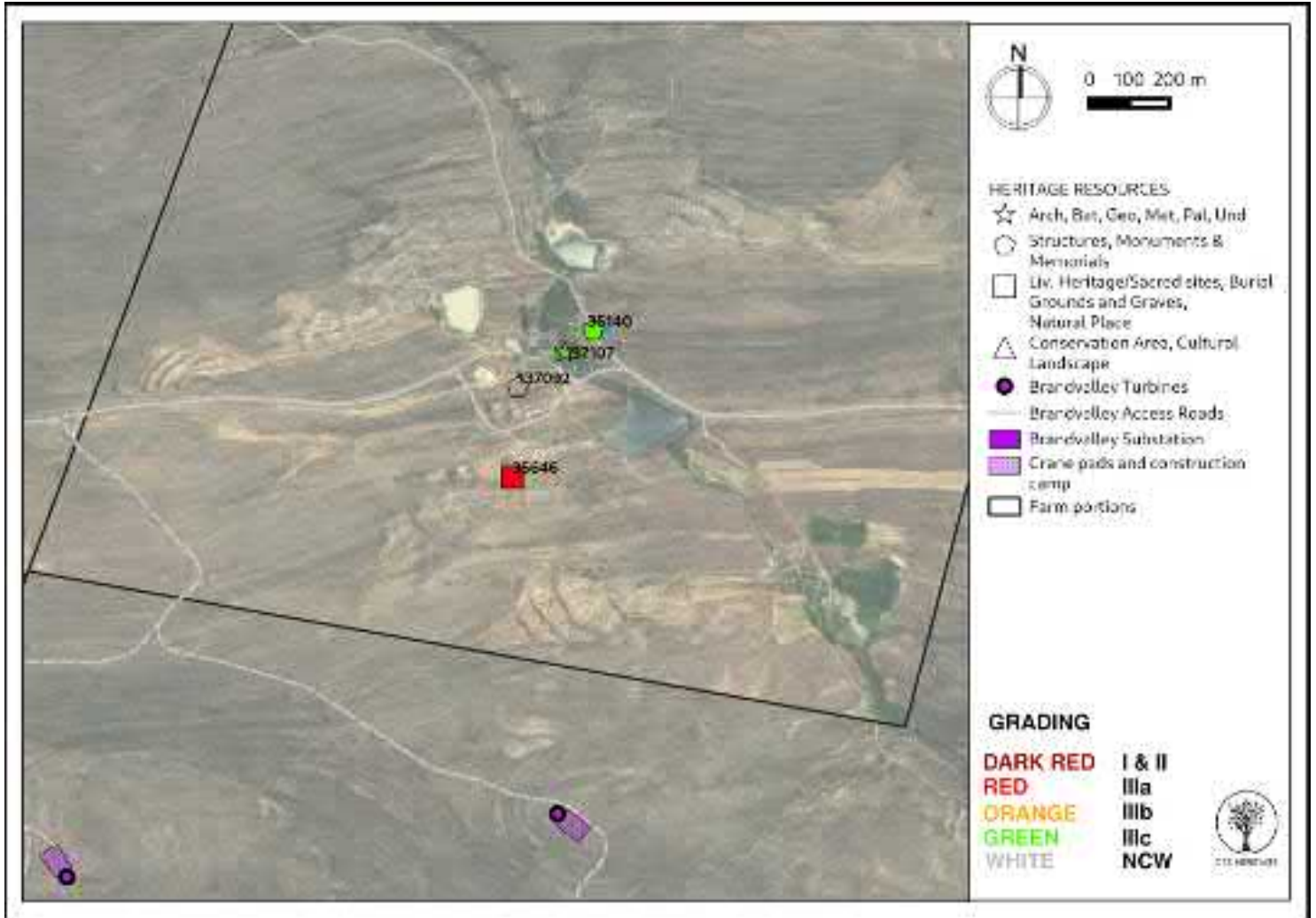


Figure 3.2. Heritage Resources Map. Inset B



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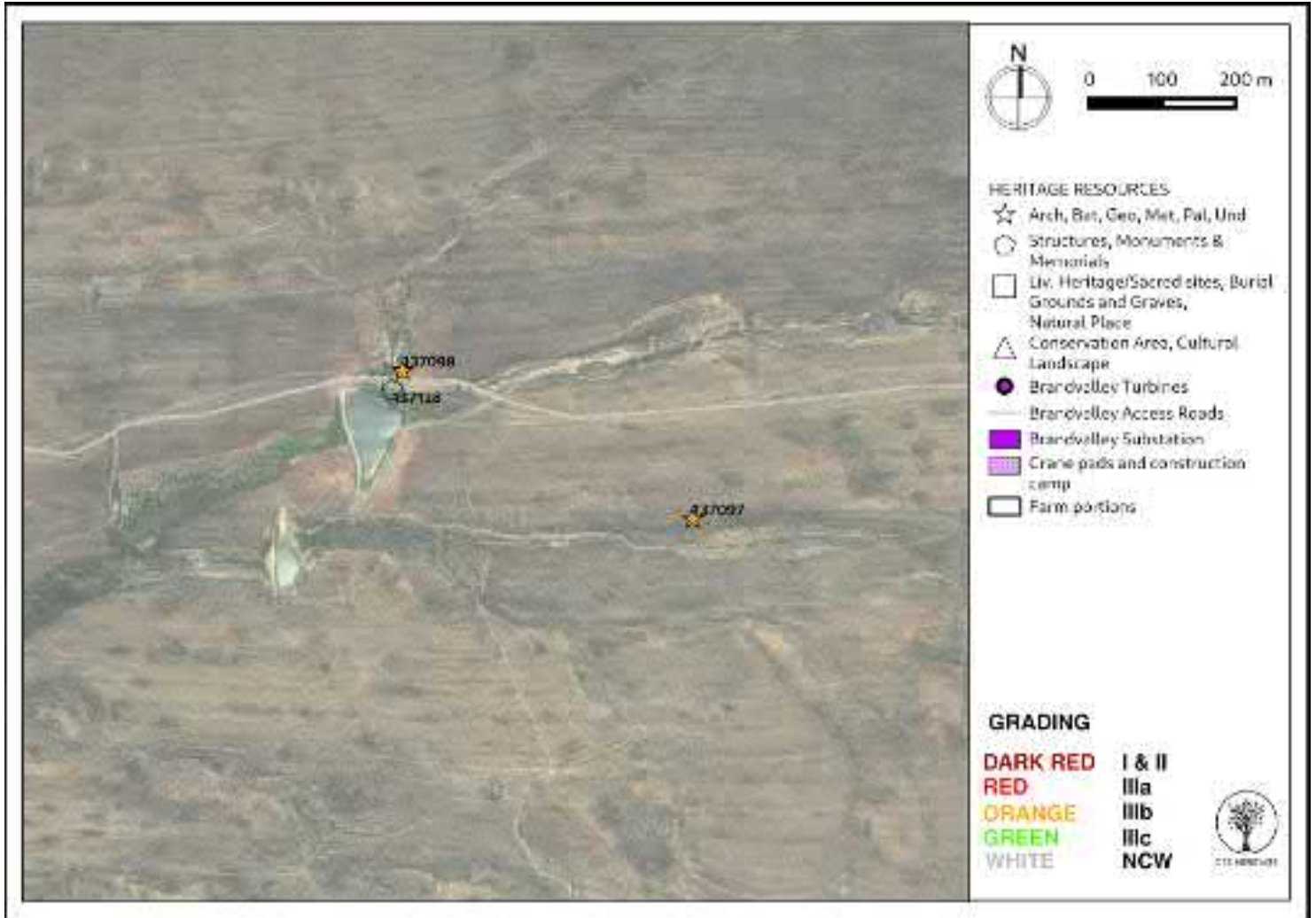


Figure 3.3. Heritage Resources Map. Inset C



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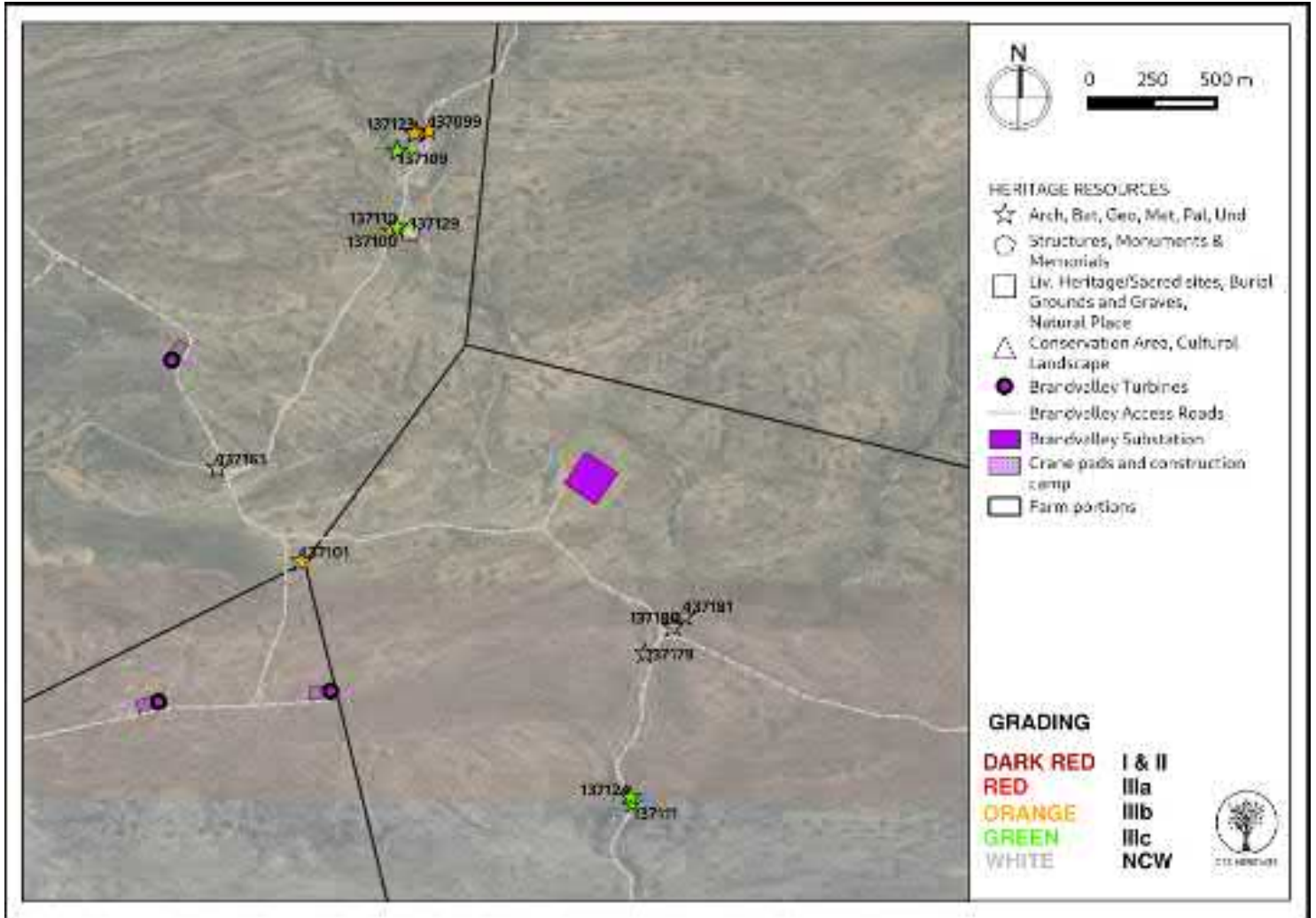


Figure 3.4. Heritage Resources Map. Inset D



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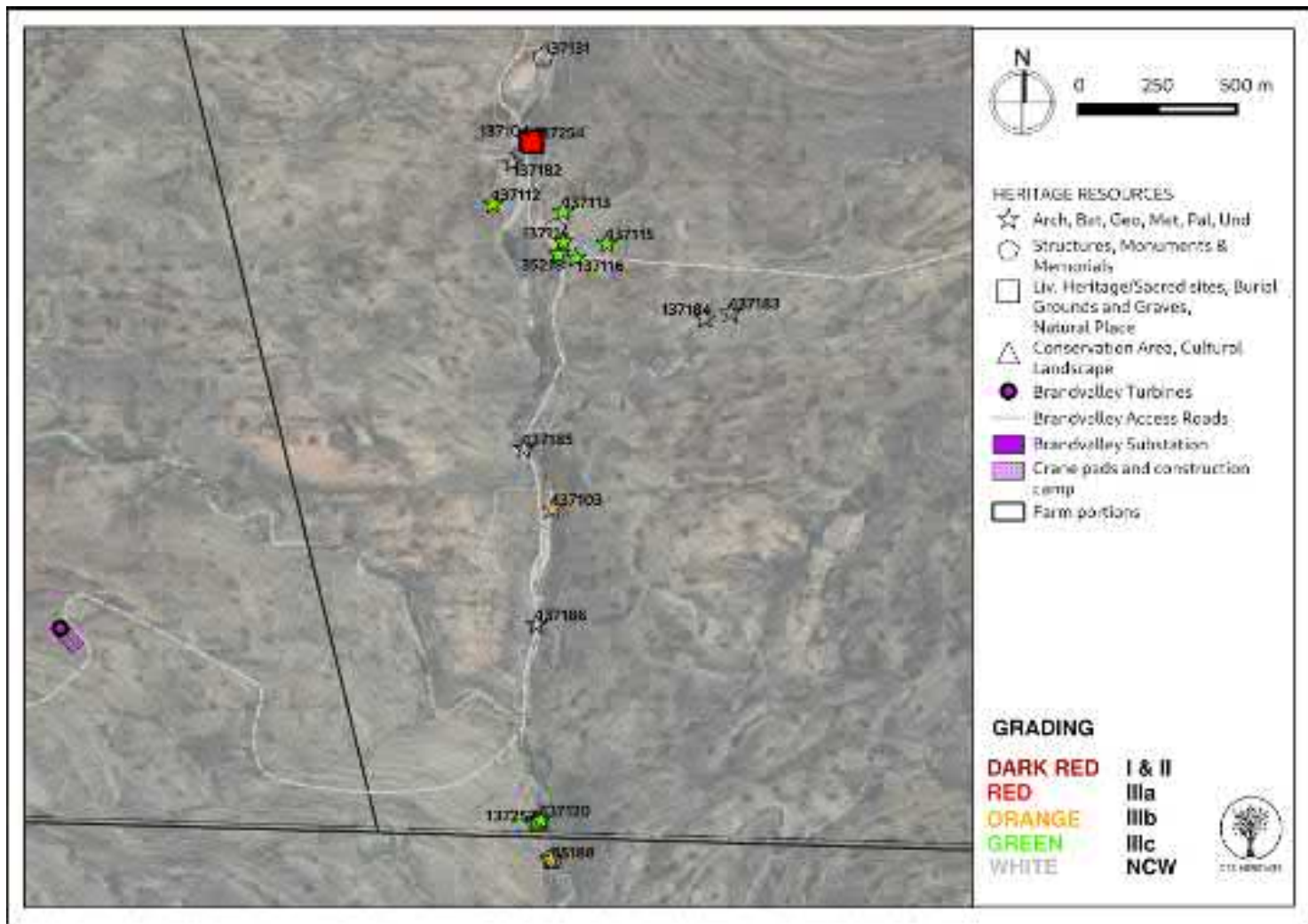


Figure 3.5. Heritage Resources Map. Inset E

4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Findings of previous assessments

Archaeology, Graves and the Built Environment

A Heritage Impact Assessment was completed by Booth (2016) for the Brandvalley WEF. Booth (2016) notes that the area held several historical features (stone walling kraals and cottages) some with associated historical artefacts situated along the access roads in the valleys and associated with the homestead settlements. The area, however, also held evidence of both Middle and Later Stone Age stone artefacts alongside water courses and on the flat floodplains.

All of the heritage resources identified by Booth (2016) have been recorded on SAHRIS and mapped relative to the final proposed layout. The previously identified heritage resources located in close proximity to the development area have been listed in Table 2 and mapped in Figure 3.

Table 2: Archaeological, palaeontological and built environment observations noted during the HIA (2016) completed for the Brandvalley WEF and associated infrastructure, and from other relevant heritage assessments (Mapped in Figure 3)

Site ID	Site no	Full Site Name	Site Type	Grading
35140	ROG009	Roggeveld 009	Building	Grade IIIc
35141	ROG010	Roggeveld 010	Building	Grade IIIc
35578	GK056	Gamma Kappa 056	Artefacts	Grade IIIb
35188	ROG024	Roggeveld 024	Ruin > 100 years	Grade IIIb
35217	ROG035	Roggeveld 035	Ruin > 100 years	Grade IIIc
35218	ROG036	Roggeveld 036	Stone walling	Grade IIIc
35185	ROG023	Roggeveld 023	Burial Grounds & Graves	Grade IIIa
35645	GK122	Gamma Kappa 122	Burial Grounds & Graves	Grade IIIa
35646	GK123	Gamma Kappa 123	Burial Grounds & Graves	Grade IIIa
137160	BWE-052	Brandvalley Wind Energy	Deposit	
137161	BWE-053	Brandvalley Wind Energy	Deposit	
137162	BWE-054	Brandvalley Wind Energy	Deposit	
137163	BWE-055	Brandvalley Wind Energy	Deposit	
137164	BWE-056	Brandvalley Wind Energy	Deposit	
137165	BWE-057	Brandvalley Wind Energy	Deposit	
137166	BWE-058	Brandvalley Wind Energy	Deposit	
137176	BWE-068	Brandvalley Wind Energy	Deposit	
137177	BWE-069	Brandvalley Wind Energy	Deposit	
137178	BWE-070	Brandvalley Wind Energy	Deposit	
137179	BWE-071	Brandvalley Wind Energy	Deposit	



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137180	BWE-072	Brandvalley Wind Energy	Deposit	
137181	BWE-073	Brandvalley Wind Energy	Deposit	
137182	BWE-074	Brandvalley Wind Energy	Deposit	
137183	BWE-075	Brandvalley Wind Energy	Deposit	
137184	BWE-076	Brandvalley Wind Energy	Deposit	
137185	BWE-077	Brandvalley Wind Energy	Deposit	
137186	BWE-078	Brandvalley Wind Energy	Deposit	
137199	KWF-014	KAREEBOSCH WIND FARM	Building	
137200	KWF-015	KAREEBOSCH WIND FARM	Building	
137252	KWF-040	KAREEBOSCH WIND FARM	Structures	
137253	KWF-041	KAREEBOSCH WIND FARM	Stone walling	
137254	KWF-042	KAREEBOSCH WIND FARM	Burial Grounds & Graves	
137255	KWF-043	KAREEBOSCH WIND FARM	Structures	
137065	RFWE-007	RIETKLOOF WIND ENERGY	Stone walling	Grade IIIc
137091	BWE-001	Brandvalley Wind Energy	Building	
137092	BWE-002	Brandvalley Wind Energy	Building	
137093	BWE-003	Brandvalley Wind Energy	Building	
137094	BWE-004	Brandvalley Wind Energy	Building	
137095	BWE-005	Brandvalley Wind Energy	Building	
137096	BWE-006	Brandvalley Wind Energy	Artefacts	Grade IIIb
137097	BWE-007	Brandvalley Wind Energy	Artefacts	Grade IIIb
137098	BWE-008	Brandvalley Wind Energy	Artefacts	Grade IIIb
137099	BWE-009	Brandvalley Wind Energy	Artefacts	Grade IIIb
137100	BWE-010	Brandvalley Wind Energy	Artefacts	Grade IIIb
137101	BWE-011	Brandvalley Wind Energy	Artefacts	Grade IIIb
137102	BWE-012	Brandvalley Wind Energy	Artefacts	Grade IIIb
137103	BWE-013	Brandvalley Wind Energy	Artefacts	Grade IIIb
137104	BWE-014	Brandvalley Wind Energy	Burial Grounds & Graves	Grade IIIa
137105	BWE-015	Brandvalley Wind Energy	Burial Grounds & Graves	Grade IIIa
137106	BWE-016	Brandvalley Wind Energy	Stone walling	Grade IIIc
137107	BWE-017	Brandvalley Wind Energy	Stone walling	Grade IIIc
137108	BWE-018	Brandvalley Wind Energy	Stone walling	Grade IIIc



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137109	BWE-019	Brandvalley Wind Energy	Stone walling	Grade IIIc
137110	BWE-020	Brandvalley Wind Energy	Stone walling	Grade IIIc
137111	BWE-021	Brandvalley Wind Energy	Stone walling	Grade IIIc
137112	BWE-022	Brandvalley Wind Energy	Stone walling	Grade IIIc
137113	BWE-023	Brandvalley Wind Energy	Stone walling	Grade IIIc
137114	BWE-024	Brandvalley Wind Energy	Stone walling	Grade IIIc
137115	BWE-025	Brandvalley Wind Energy	Stone walling	Grade IIIc
137116	BWE-026	Brandvalley Wind Energy	Stone walling	Grade IIIc
137117	BWE-027	Brandvalley Wind Energy	Stone walling	Grade IIIc
137118	BWE-028	Brandvalley Wind Energy	Stone walling	Grade IIIc
137119	BWE-029	Brandvalley Wind Energy	Stone walling	Grade IIIc
137120	BWE-030	Brandvalley Wind Energy	Stone walling	Grade IIIc
137122	BWE-032	Brandvalley Wind Energy	Stone walling	Grade IIIc
137123	BWE-033	Brandvalley Wind Energy	Artefacts	Grade IIIb
137124	BWE-034	Brandvalley Wind Energy	Artefacts	Grade IIIc
137125	BWE-035	Brandvalley Wind Energy	Artefacts	Grade IIIc
137127	BWE-037	Brandvalley Wind Energy	Structures	
137128	BWE-039	Brandvalley Wind Energy	Structures	
137129	BWE-040	Brandvalley Wind Energy	Structures	
137131	BWE-042	Brandvalley Wind Energy	Structures	
137132	BWE-043	Brandvalley Wind Energy	Structures	
137133	BWE-044	Brandvalley Wind Energy	Structures	
137136	BWE-047	Brandvalley Wind Energy	Deposit	
137137	BWE-048	Brandvalley Wind Energy	Deposit	
137138	BWE-049	Brandvalley Wind Energy	Deposit	

Palaeontology

According to the SAHRIS Palaeosensitivity Map, the area proposed for development is underlain by sediments that are of moderate and very high palaeontological sensitivity (Figure 4.1). According to the extract from the Council for GeoScience Map 3220 for Sutherland (Figure 4.2), the area proposed for development is underlain by sediments of the Karoo Supergroup assigned to the Abrahamskraal Formation (Pa) of the Beaufort Group and the Waterford Formation (Pw or Pwa) of the Ecca Group.

The Palaeontological assessment completed for the Brandvalley WEF by Almond (2016) notes that “The Brandvalley WEF study area lies in the mountainous Klein-Roggeveldberge region and is underlain by several formations of potentially fossil bearing sedimentary rocks. The majority of the bedrocks are of Late Palaeozoic age (Middle Permian) and belong to the Karoo Supergroup which is internationally famous for its rich fossil record. Palaeontological field assessment of the Brandvalley WEF study area shows that in this portion of the southwestern Karoo:

- Waterford Formation (Upper Ecca Group) deltaic bedrocks have small outcrop areas crossing the central part of the study area. These small areas lie largely outside the main development footprint and are generally fossil-poor, apart from low-diversity trace fossil assemblages. However, isolated blocks and rare logs of well-preserved petrified wood recorded from this formation just to the south of the study area (Rietkloof WEF project area) are of high scientific and conservation value and similar material might also be present in the Brandvalley WEF study area.
- Abrahamskraal Formation (Lower Beaufort Group) fluvial bedrocks underlying the great majority of the study area are generally considered to be of high palaeontological sensitivity. However, in this area of the south-western Karoo they are generally fossil-poor, apart from occasional horizons with plant debris or low-diversity trace fossils. A few examples of large tetrapod (i.e. terrestrial vertebrate) burrows as well as disarticulated skeletal remains (dispersed bones, teeth) recorded from these beds during the present field assessment are of considerable scientific interest but are very rare indeed.
- Late Caenozoic superficial sediments (alluvium, colluvium, calcretes, soils, surface gravels etc) overlying the Palaeozoic bedrocks are of low palaeontological sensitivity. Pediment and surface gravels along the foot of the Klein-Roggeveld Escarpment and elsewhere locally contain numerous clasts of petrified wood reworked from the Karoo Supergroup (probably Waterford Formation).

The overall impact significance of the construction phase of the proposed wind energy project is assessed as LOW (negative) in terms of palaeontological heritage resources. This is a consequence of (1) the paucity of irreplaceable, unique or rare fossil remains within the development footprint as well as (2) the extensive superficial sediment cover overlying most potentially-fossiliferous bedrocks within the Brandvalley WEF study area. This assessment applies to the wind turbines, laydown areas, access roads, substations, construction camps including a batching plant area, 33kV powerlines and associated WEF infrastructure within the study area. A comparable low impact significance is inferred for all project infrastructure alternatives and layout options under consideration, including different options for routing of access roads, turbine layouts and siting of construction camps and substations.

Almond (2016) also notes that “The great majority of the Brandvalley WEF study area is assessed as being of low palaeontological sensitivity due to the scarcity of significant fossil vertebrate, plant and other remains here. Sensitive no-go areas within the proposed development footprint itself have not been identified in this study. The occurrence of very rare tetrapod (i.e. terrestrial vertebrate) burrows and associated skeletal remains within the Abrahamskraal Formation along the Kabeltou Pass (Muishond Rivier 161) is a notable exception. This highly sensitive area, which lies within the Western Cape and outside the WEF development footprint, should not be disturbed. Highly sensitive “no-go” areas within the proposed development footprint itself have not been identified in this study. Pending the potential discovery of substantial new fossil remains during construction, specialist palaeontological mitigation is not recommended for the Brandvalley WEF project.”

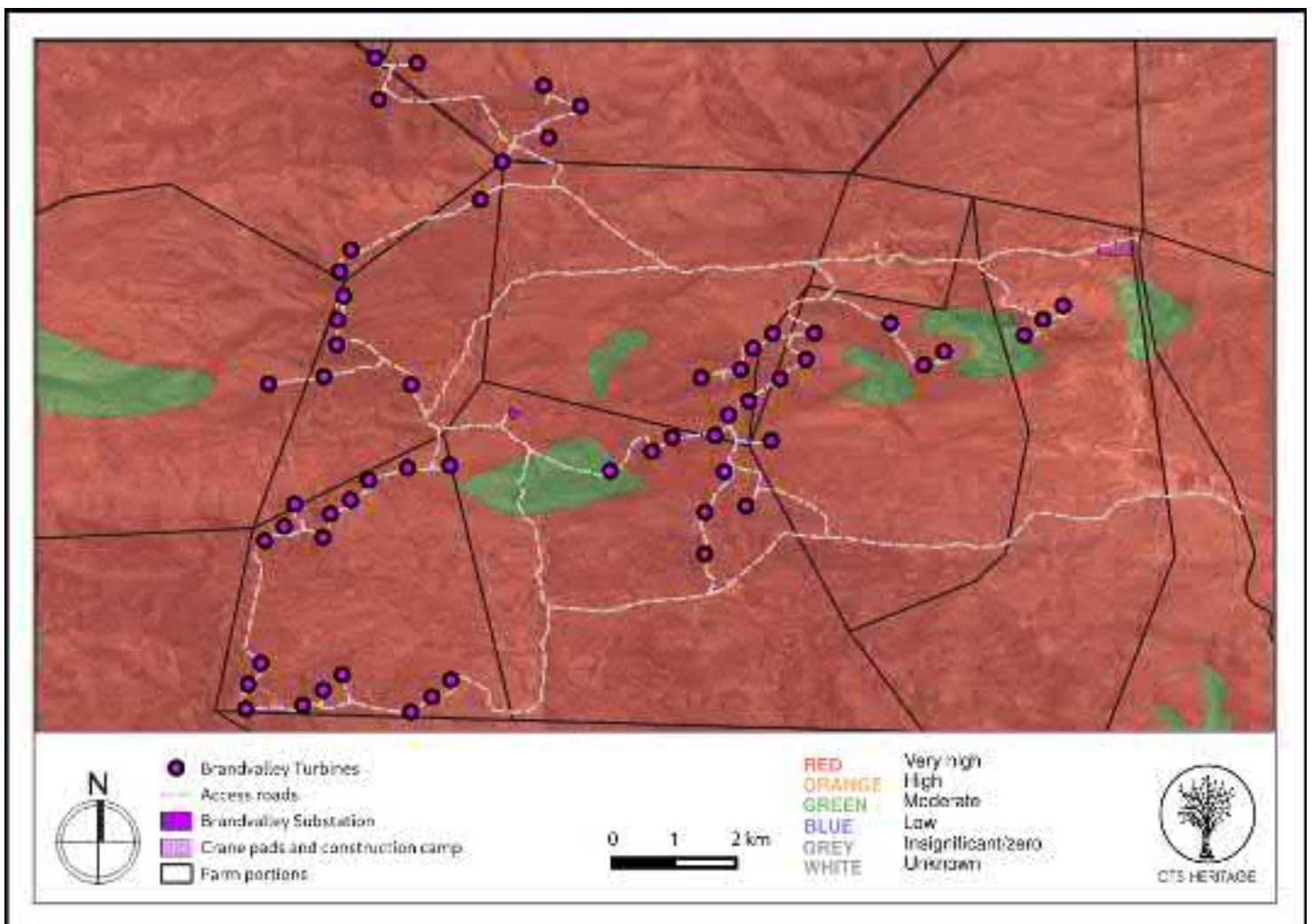


Figure 4.1: Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area



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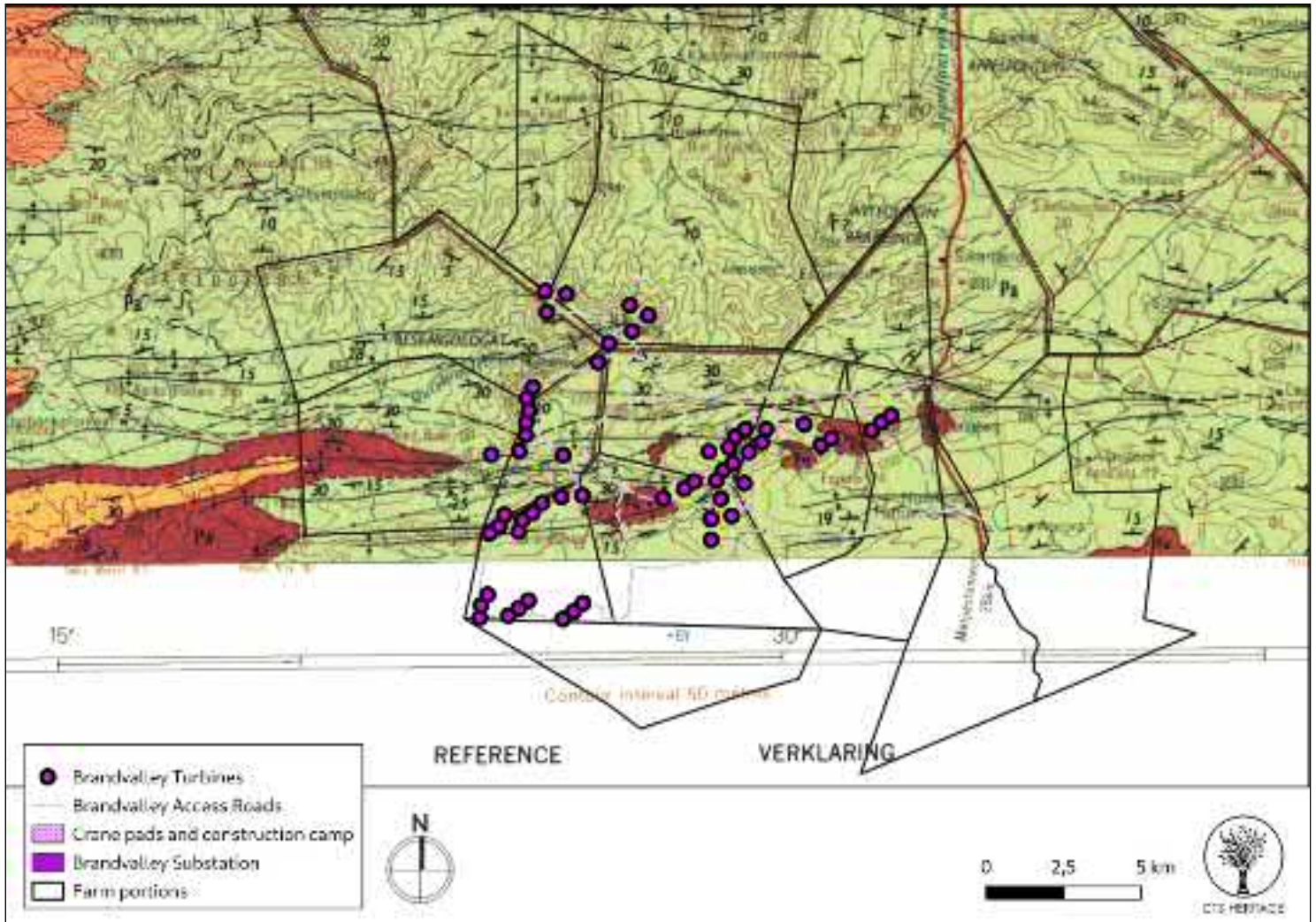


Figure 4.2: Geology Map. Extract from the CGS 3220 Sutherland Map indicating that the development area is underlain by sediments of the Karoo Supergroup assigned to the Dwyka group (C-Pd), as well as the Prince Albert (Pp), Tierberg (Pt) and Collingwood (Pc) formations of the Ecca Group, as well as the Blinkberg (Dbl), Witpoort (Dwi), Floriskraal (Cf), Swartruggens (Ds), Waaipoort (Cw) and Kweekvlei (Ck) formations of the Witteberg Group and Quaternary Sands

Summary of heritage recommendations from the completed reports:

The overall area is considered as having a medium - high heritage significance. The proposed development of the Brandvalley WEF may proceed, however, the following recommendations must be considered prior to the development activities:

- This report must be submitted to Heritage Western Cape (HWC), the heritage authority for any Western Cape developments, and as a commenting authority in terms of the National Heritage Resources Act 25 of 1999, Section 38.
- This report must be submitted to the South African Heritage Resources Agency (SAHRA) to comment on the portion of the proposed development that occurs within the Northern Cape Province. Nine proposed turbines are situated on the Farm Rietfontein 197 in the Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province. No archaeological or other heritage resources were documented within

this area. No further studies or mitigation is required, unless the layout of these nine turbines and associated infrastructure and access roads change.

- The power lines routes were not assessed as part of this study, but is a separate study as part of the Basic Assessment Process. The recommendations of this report should not be read in isolation from the report prepared for the Basic Assessment.
- Substations: Substation 1 (SS1) situated south of the internal access road on the Farm Fortuin 74 is the preferred option for the establishment of the substation. However, if the preferred Substation option (SS1) is not feasible according to input from other studies conducted the appropriate mitigation measures should be followed with regards to the other three substation alternatives. It is recommended that a survey focusing on the area along the watercourse be conducted between Substation 2 (SS2) and Substation 4 (SS4) to establish the real extent of the artefact occurrences prior to development. Consultation with local Western Cape archaeological repositories (generally museums and universities) can be made to determine whether it would be necessary for to make a collection of artefacts.
- Construction Camps: Construction Camp 2 (CC2) situated on the Farm Fortuin 74 is the preferred option for the establishment of the construction camp. However, if the preferred Construction Camp 2 option (CC2) is not feasible according to input from other studies conducted the appropriate mitigation measures should be followed with regards to the other two substation alternatives. Similarly to the recommendation made for the substation option, a survey focusing on the area along the watercourse be conducted between the proposed Substation 2 (SS2) and Substation 4 (SS4) which would include Construction Camp 2 (CC2) to establish the real extent of the artefact occurrences. Consultation with local Western Cape archaeological repositories (generally museums and universities) can be made to determine whether it would be necessary for to make a collection of artefacts
 - Although the Construction Camp 1 option (CC1) is not the preferred option, several mitigation measures could be considered, similarly if the proposed area for Construction Cape 2 (CC2) is not feasible.
 - One suggestion is that a 30 m buffer be established around the stone packed walling feature (BV_SW1) situated on the southern boundary and clearly demarcated to avoid any damage by the construction camp activities and other possibly negative human impact.
 - Another suggestion is that, if relevant to an archaeological repository (usually a museum or university) in the Western Cape, the real extent of the stone artefact scatters and types could be recorded in detail and collected prior to development activities.
 - A third suggestion is that the location of the proposed Construction Camp 1 (CC1) be shifted to an alternative area, possible west along the existing access road.
- Upgrading of the internal access roads: The existing internal access roads be upgraded up to the 12 m wide proposed expansion except in the cases that heritage resources (including archaeological, historical and palaeontological) as well as the other studies conducted may be negatively impacted and recommend differently. Recommendations for the establishment of 20 m – 30 m buffer zones that are clearly demarcated and in some instances the possible rerouting of the proposed road to avoid negative impact and promote the

implementation of precautionary measures be adopted for heritage resources occurring along the route (stone and historical artefact scatters, stone walling features, graveyards, etc.) have been detailed in the report.

- If any of the old farm buildings are to intended for rehabilitation or re-use or demolition a qualified and experienced professional (historical archaeologist / historical architect) must be consulted.
- No turbines are to be located on Tafelkop or Spitskop. 9. An archaeological heritage walk-through survey must be conducted if any changes to the positions of the wind turbines, associated infrastructure and roads outside the scope of this study are made for the final layout and further recommendations and mitigation measures be suggested if necessary.
- If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including burials and graves) are uncovered during construction, all work within close vicinity of the find must cease immediately and be reported the South African Heritage Resources Agency (SAHRA) (021 462 4502) or Heritage Western Cape (HWC) (021 483 5959) so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of testpitting/sampling or systematic excavations and collections of the pre-colonial shell middens and associated artefacts will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities within the specific area can continue.
- Construction managers/foremen and/or the Environmental Control Officer (ECO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.



Figure 5.1: Contextual Image of development area



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Figure 5.2: Contextual Image of development area



Figure 5.3: Contextual Image of development area



Figure 5.4: Contextual Images of Development Area



Figure 5.5: Contextual Images of Development Area

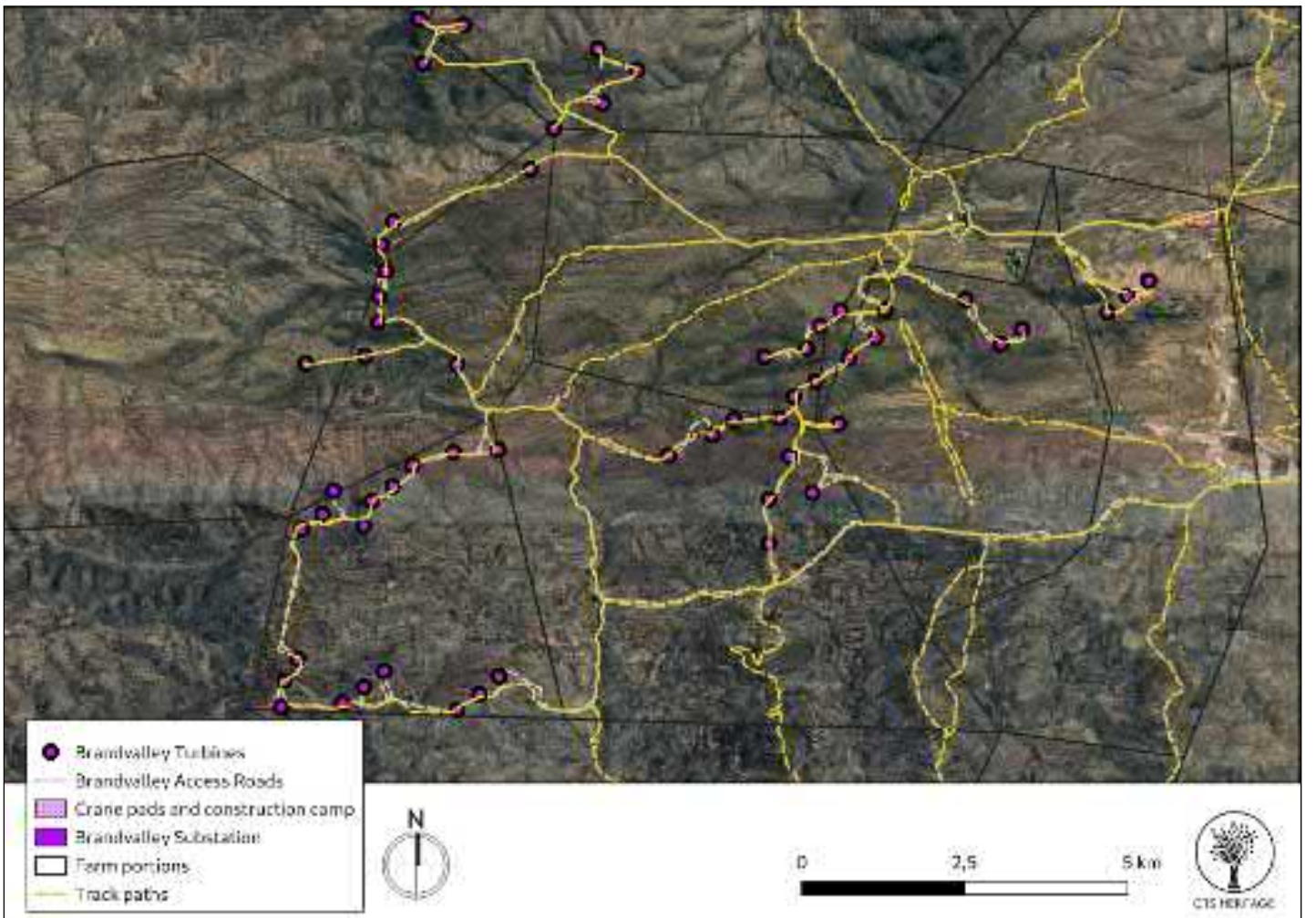


Figure 6.: Overall track paths of foot survey

4.2 Heritage Resources identified in the Walkdown

The locations of recordings made during the previous studies were included in the planning of the walkdown to ensure that additional ruins and historical infrastructure wasn't overlooked due to potential changes in the layout of the final design of the WEF and access roads. No obvious omissions were found during the survey of the Brandvalley WEF and the coverage along existing jeep tracks and gravel farm roads was therefore deemed to have adequately recorded the historical archaeology and built environment heritage of the area. Stone Age sites were expected to be very scarce and this was borne out yet again in the foot survey of the ridges where the WEF roads and turbine positions have been planned. Only a couple of isolated Later and Middle Stone Age sites were located and the artefacts showed signs of retouch. These locations have therefore been interpreted as representing temporary hunting and foraging locales taking advantage of the wide views down onto the valleys either side of the ridges. Less than 1% of the overall archaeological material found in the area is therefore located on the ridges that are windswept, highly rocky and difficult to move through on foot. No overhangs or even substantial outcrops of boulders providing natural shelter were found on the ridges.

Table 3: Archaeological and built environment observations noted during the walk down for the WEF and associated infrastructure

Obs #	Site Name	Description	Period	Co-ordinates		Grading
012	Brandvalley 012	Chert, hornfels, quartzite flakes	LSA, MSA	-32.99232	20.5421	NCW
014	Brandvalley 014	Farmers trap, corrugated sheet, wire, wooden post	Modern	-33.02031	20.41447	IIIB
015	Brandvalley 015	Chert flake prominent dorsal scars	LSA	-33.01957	20.39709	NCW



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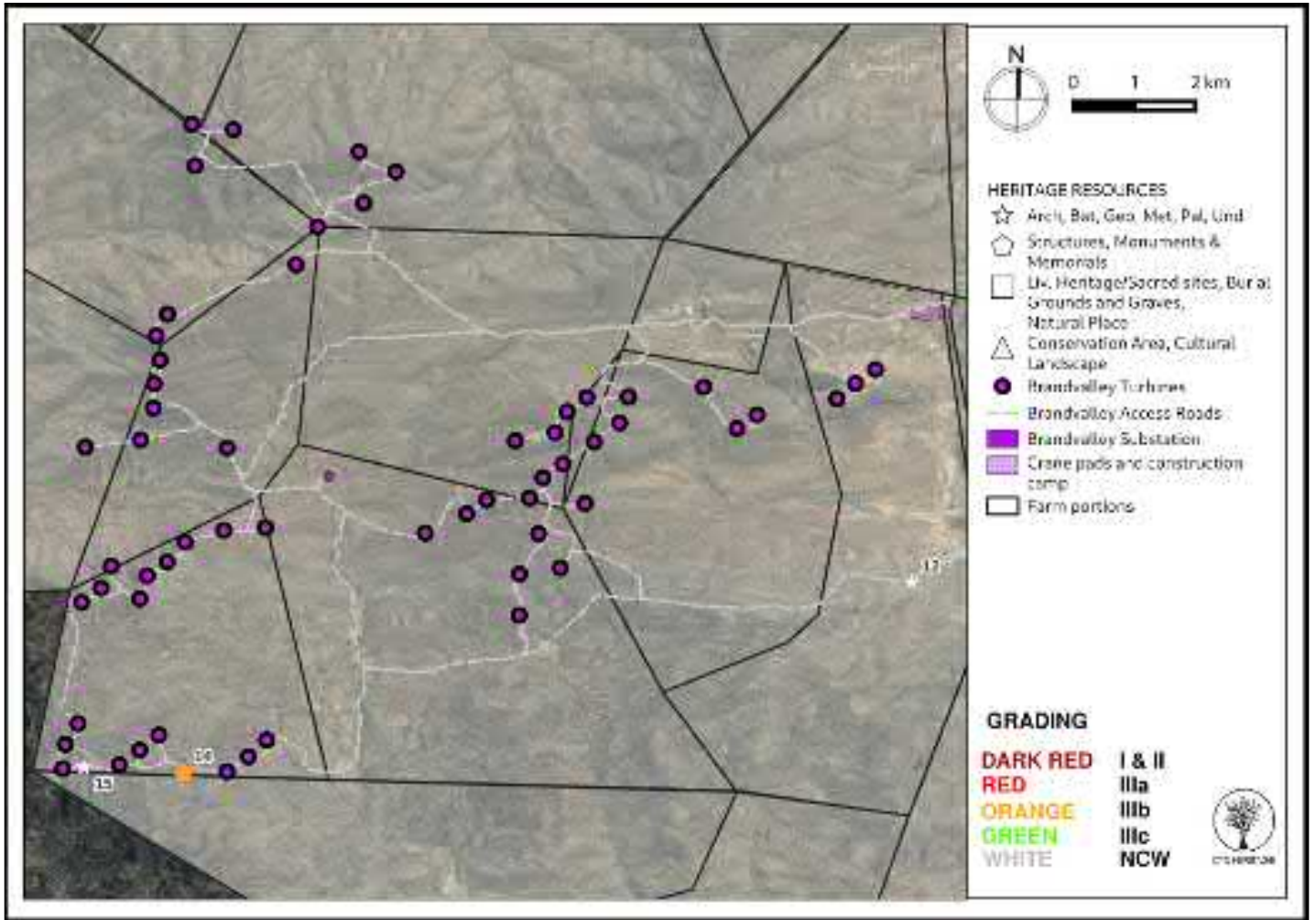


Figure 7.: Location of observations recorded during the walkdown

4.3 Selected photographic record

(a full photographic record is available upon request)



Figure 8.1: Observation 012



Figure 8.2: Observation 014



Figure 8.3: Observation 015



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Figure 8.4: Observation 014



Figure 8.5: Observation 015

5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Archaeological Resources

The survey provided a very good account of the generally ubiquitous MSA material spread across the study area in low densities. No impacts on significant heritage resources are anticipated as the layout of the WEF has been drawn up to avoid the previously recorded sites of significance by Booth in 2016.

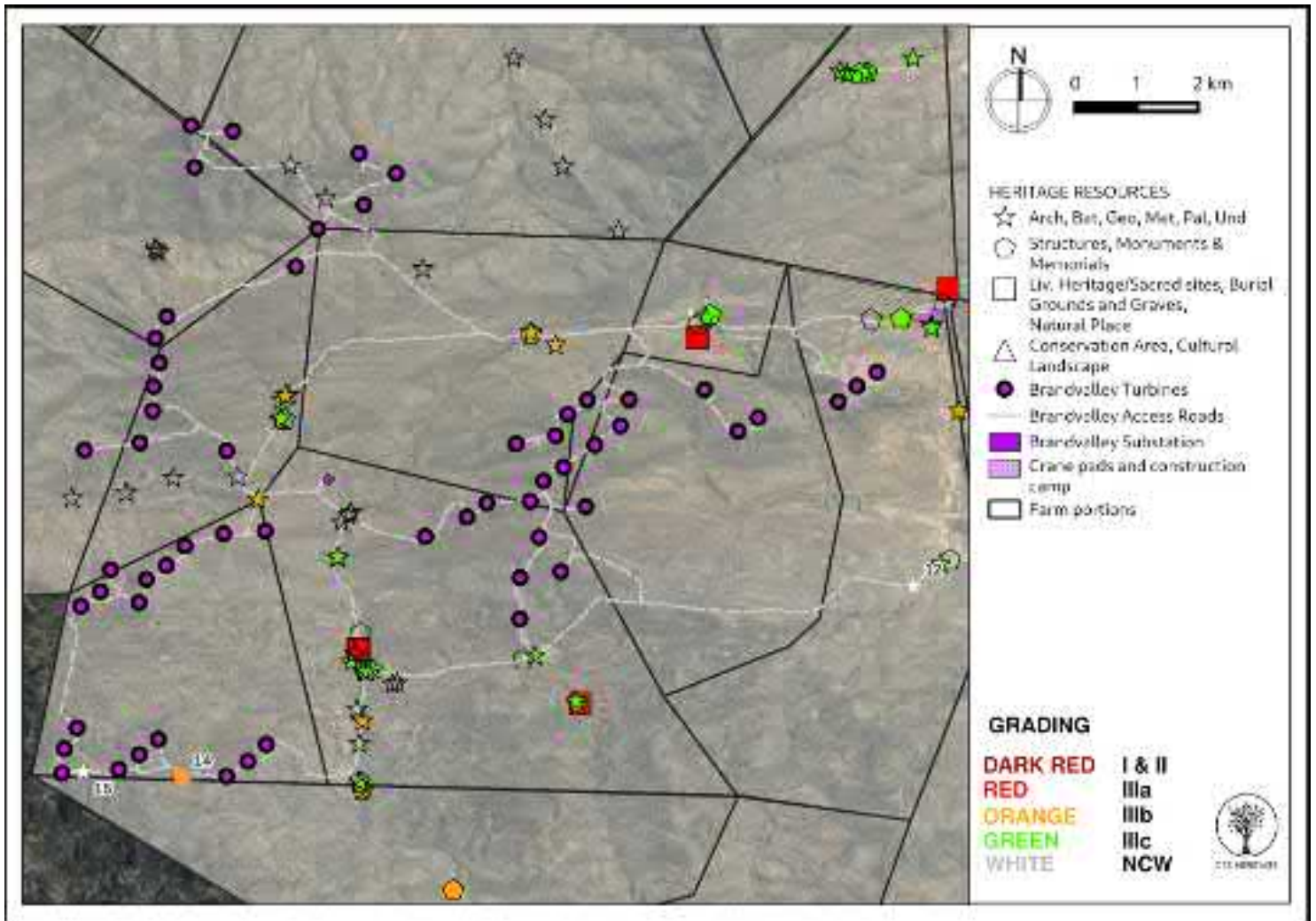


Figure 9: Map of all known heritage resources relative to the final proposed development footprint

6. CONCLUSION AND RECOMMENDATIONS

In response to the original Heritage Impact Assessment completed by Booth in 2016, it was recommended by SAHRA and HWC that a more detailed archaeological assessment be conducted of the final layout of the proposed infrastructure to be developed as part of the Brandvalley WEF project. This recommendation was reiterated as a condition of authorisation in the original EA granted for the Brandvalley WEF project in 2016.

The final layout for the Brandvalley WEF avoids impact to all known significant heritage resources present within the development area. The walkdown of the final layout revealed no new significant heritage resources that are likely to be impacted. It is therefore recommended that this report is accepted as satisfying this condition of the Environmental Authorisation issued for the Brandvalley West WEF project.

One of the other conditions of the EA issued was that “After initial vegetation clearance has taken place but before the ground is levelled for construction, a professional palaeontologist must undertake a walkthrough and document any identified paleontological findings. The survey/walkthrough must be conducted as per the South African Heritage Resources Agency (SAHRA) requirements.”

However, the PIA completed for this project concluded that “The overall impact significance of the construction phase of the proposed wind energy project is assessed as LOW (negative) in terms of palaeontological heritage resources.” The one area of high palaeontological significance identified in the PIA i.e. the occurrence of very rare tetrapod burrows and associated skeletal remains within the Abrahamskraal Formation along the Kabeltou Pass (Muishond Rivier 161) is located well away from all proposed WEF infrastructure and no negative impact to this area is anticipated.

Almond (2016) concludes that “The great majority of the Brandvalley WEF study area is assessed as being of low palaeontological sensitivity due to the scarcity of significant fossil vertebrate, plant and other remains here. Sensitive no-go areas within the proposed development footprint itself have not been identified in this study... Highly sensitive “no-go” areas within the proposed development footprint itself have not been identified in this study. Pending the potential discovery of substantial new fossil remains during construction, specialist palaeontological mitigation is not recommended for the Brandvalley WEF project.”

It is therefore recommended that the condition of the EA regarding the palaeontological walkdown is not appropriate for this project.

A Conservation Management Plan will be drafted for the Brandvalley WEF as required by SAHRA and in the EA for the project.



7. REFERENCES

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
359488	Heritage Screener	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	09/03/2016	Brandvalley Wind Energy Facility
53187	HIA Phase 1	Timothy Hart, Lita Webley	01/03/2011	HERITAGE IMPACT ASSESSMENT PROPOSED WIND ENERGY FACILITY
337370	PIA Phase 1	Duncan Miller	01/03/2011	Palaeontological Impact Assessment Proposed Roggeveld Wind Energy Facility
356316	Heritage Screener	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	02/02/2016	Heritage Screener CTS15_015b EOH Brandvalley Wind Energy Facility
356318	Heritage Screener	Mariagrazia Galimberti, Kyla Bluff, Nicholas Wiltshire	01/02/2016	Heritage Screener CTS15_015a EOH Rietkloof Wind Energy Facility
364162	PIA Phase 1	John E Almond	01/04/2016	PALAEONTOLOGICAL HERITAGE ASSESSMENT: COMBINED DESKTOP & FIELD-BASED STUDY - PROPOSED BRANDVALLEY WIND ENERGY FACILITY LAINGSBURG, WESTERN & NORTHERN CAPE PROVINCES
364163	AIA Phase 1	Celeste Booth	01/04/2016	A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED BRANDVALLEY WIND ENERGY FACILITY (WEF) SITUATED IN THE KAROO HOOGLAND LOCAL MUNICIPALITY (NAMAKWA DISTRICT MUNICIPALITY), THE WITZENBURG LOCAL MUNICIPALITY (CAPE WINELANDS DISTRICT MUNICIPALITY) AND LAINGSBURG LOCAL MUNICIPALITY (CENTRAL KAROO DISTRICT MUNICIPALITY).
4843	AIA Phase 1	Hilary Deacon	28/03/2008	Archaeological Impact Assessment: Proposed Breede Valley De Doorns Housing Project
	HIA	Dave Halkett, Lita Webley	11/04/2011	HERITAGE IMPACT ASSESSMENT: PROPOSED PERDEKRAAL WIND AND SOLAR ENERGY FACILITY , WESTERN CAPE PROVINCE

Additional References:

Hart, T. et al. (2016). **HERITAGE IMPACT ASSESSMENT (SCOPING) FOR THE PROPOSED KOLKIES WIND ENERGY FACILITY AND ASSOCIATED GRID CONNECTION TO BE SITUATED IN THE SOUTHERN TANKWA KAROO.** (Assessment conducted under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999) as part of an EIA). For Arcus Consulting. Unpublished and not submitted.

Hart, T. et al. (2016). **HERITAGE IMPACT ASSESSMENT (SCOPING) FOR THE PROPOSED KAREE WIND ENERGY FACILITY AND ASSOCIATED GRID CONNECTION TO BE SITUATED IN THE SOUTHERN TANKWA KAROO.** (Assessment conducted under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999) as part of an EIA). For Arcus Consulting. Unpublished and not submitted.

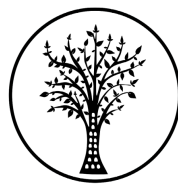
Shaw, Matthew & Ames, Christopher & Phillips, Natasha & Chambers, Sherrie & Dosseto, Anthony & Douglas, Matthew & Goble, Ron & Jacobs, Zenobia & Jones, Brian & Lin, Sam & Low, Marika & Mcneil, Jessica-Louise & Nasoordeen, Shezani



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& O’driscoll, Corey & Saktura, Rosaria & Sumner, T. & Watson, Sara & Will, Manual & Mackay, Alex. (2020). **The Doring River Archaeology Project: Approaching the Evolution of Human Land Use Patterns in the Western Cape, South Africa.**

Smith, Andrew B., and Michael R. Ripp. “**An Archaeological Reconnaissance of the Doorn/Tanqua Karoo.**” *The South African Archaeological Bulletin*, vol. 33, no. 128, 1978, pp. 118–133



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14 April 2022

Ashlea Strong
WSP

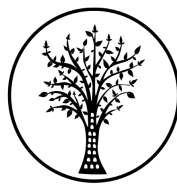
Dear Ms Strong,

RE: AMENDED LAYOUT FOR THE APPROVED BRANDVALLEY WEF NEAR MATJIESFONTEIN IN THE WESTERN AND NORTHERN CAPE

Brandvalley Wind Farm (Pty) Ltd, a subsidiary of G7 Renewable Energies (Pty) Ltd, has received approval to develop a 140 megawatt (MW) Wind Energy Facility (WEF) near Laingsburg, on the border of the Northern Cape Province and the Western Cape Province in South Africa. The authorised WEF is located in the Karoo Hoogland, the Witzenberg (Ceres) and the Laingsburg Local Municipalities, which fall within the Namakwa, the Cape Winelands and the Central Karoo District Municipalities, respectively. It comprises of up to 58 turbines, with a generating capacity of between 1.5MW and 4MW each.

The Brandvalley Wind Energy Facility (WEF) is proposed on the border of the Northern Cape and Western Cape along the R354 road which connects Matjiesfontein to Sutherland. This project is the third phase (Phase 3) of a series of projects which started in 2011 with the proposed establishment of the Roggeveld Wind Energy Facility (CaseID 473). The original Roggeveld WEF project was broken down into smaller WEFs in 2013. The first of these was the Roggeveld Wind Farm Phase 1 (CaseID 4503). This was followed by the Karreebosch Wind Energy Project (Roggeveld Phase 2) (CaseID 6884) in 2014/2015. The proposed Brandvalley and Rietkloof WEFs are Phases 3 and 4 of the original project although the extent of the farms affected by the various developments have changed since the inception of the project.

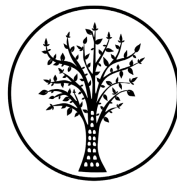
EA was granted for the Brandvalley WEF on 23 November 2016. In the EA, various requirements were stipulated in terms of impacts to Historical, Cultural and Palaeontological sites. In their responses, both SAHRA and HWC, as well as the EA, required that the Final Layout of the proposed development be subject to a walkdown by an archaeologist. This walkdown was completed by CTS Heritage between 24 and 28 July 2021 with the Walkdown Report completed in September 2021. Subsequent to the completed walkdown assessment, the layout was amended in November 2021 and again in April 2022.



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Table 1: EA requirements for Heritage

<i>EA Requirements</i>	<i>Implementation</i>
A 30m buffer must be applied around all identified archaeological sites	Adhered to in the final layout
After initial vegetation clearance has taken place but before the ground is levelled for construction, a professional palaeontologist must undertake a walkthrough and document any identified paleontological findings. The survey/walkthrough must be conducted as per the South African Heritage Resources Agency (SAHRA) requirements.	At construction
Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work in the immediate vicinity of the find must be stopped, SAHRA must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources to be made	During construction
Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material that may be encountered and the procedures to follow when they find sites.	At construction
All buffers and no-go areas stipulated in this report must be adhered to for both the facilities and all roads and powerlines.	During construction
Should any human remains be uncovered during development they must be immediately protected in situ and reported to the heritage authorities or to an archaeologist. The remains will need to be exhumed at the cost of the developer.	During construction
All construction and maintenance crew and vehicles (except small vehicles which may use existing farm tracks) should be kept out of the buffer zones.	During construction
The final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected.	Final Layout Walkdown Report drafted September 2021



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The proposed amendments consist of minor deviations (maximum deviation of approx. 600m). As with the previous layout, some of the heritage resources known from this area are located along the proposed road alignments. The road alignments have been slightly amended in the proposed amended layout, however it is not anticipated that these amended road alignments will negatively impact on significant archaeological heritage.

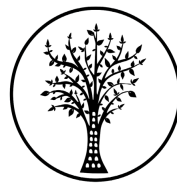
This letter is therefore drafted to confirm that the amended layout dated April 2022 for the Brandvalley WEF does not impact any known heritage resources and adheres to the recommendations included in the CTS Heritage Walkdown report for this development (September 2021) which concludes that “The final layout for the Brandvalley WEF avoids impact to all known significant heritage resources present within the development area. The walkdown of the final layout revealed no new significant heritage resources that are likely to be impacted. It is therefore recommended that this report is accepted as satisfying this condition of the Environmental Authorisation issued for the Brandvalley West WEF project.”

Please see the attached maps as confirmation.

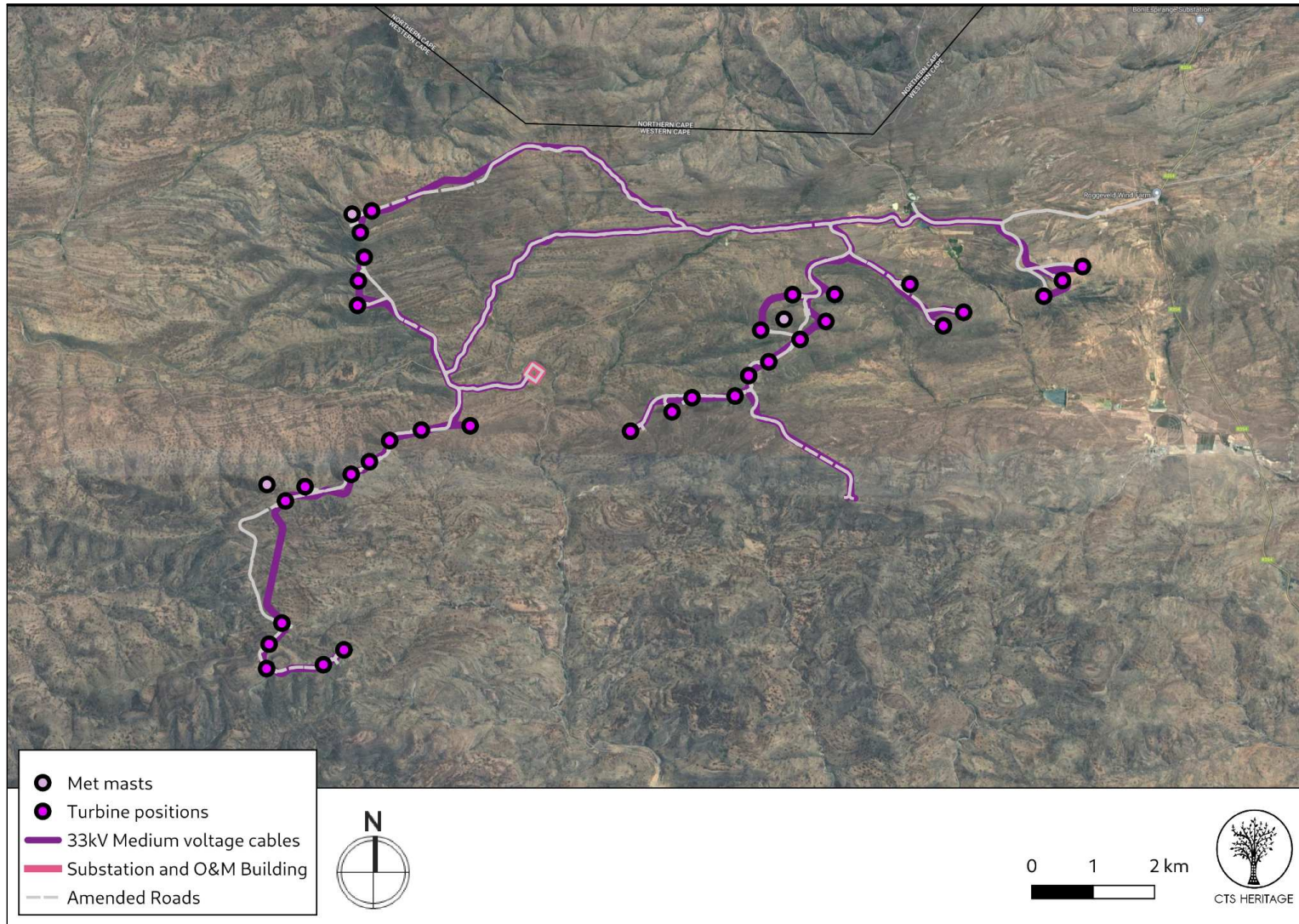
Please feel free to contact me should you have any further questions or concerns in this regard.

Yours sincerely

Jenna Lavin
Archaeologist
Heritage Assessment Practitioner

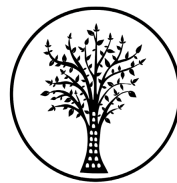


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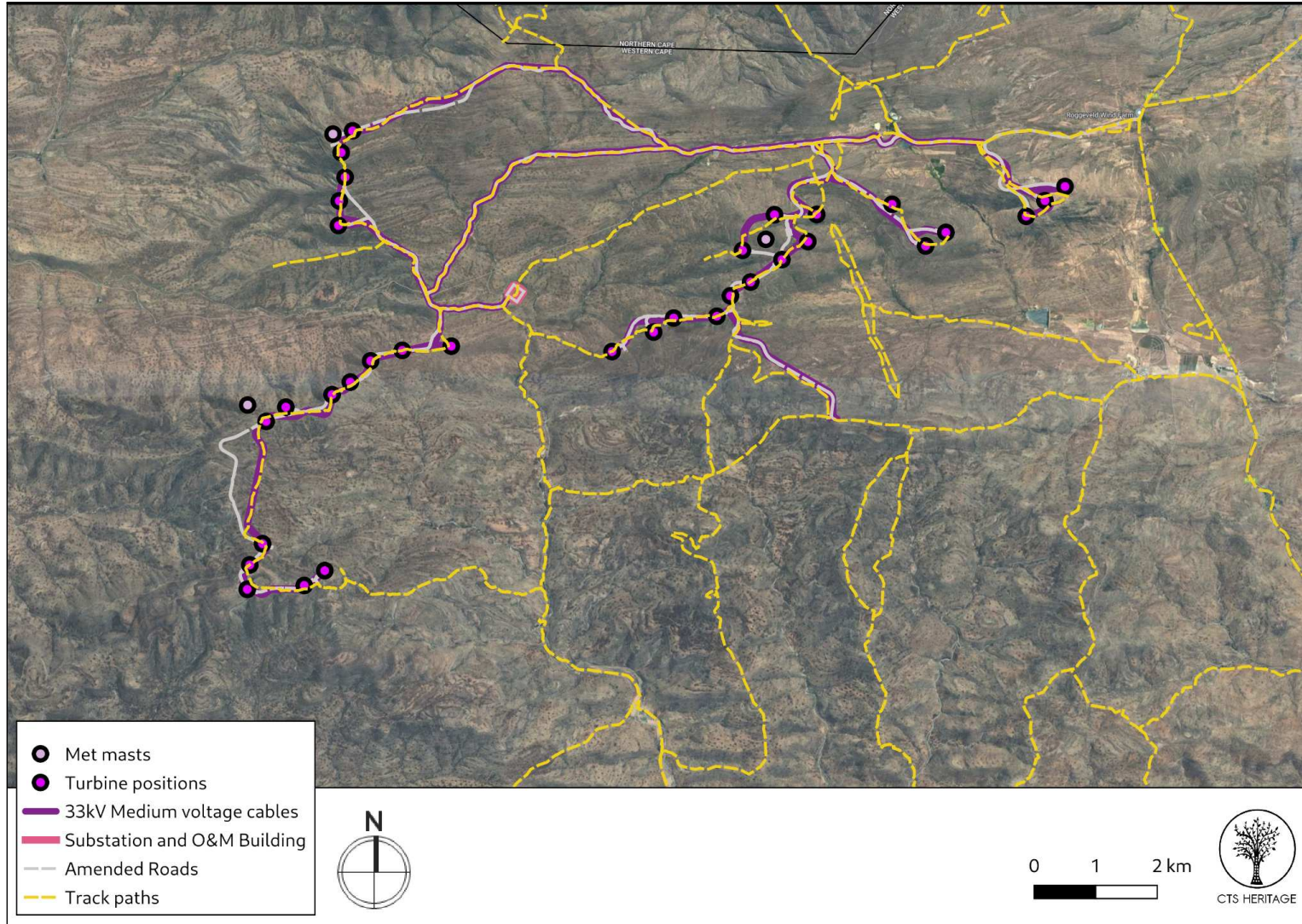


Map 1: Amended final layout of the Brandvalley WEF

Cedar Tower Services (Pty) Ltd t/a CTS Heritage
Reg: 2013/211135/07 VAT No: 4160278950
34 Harries Street, Plumstead, Cape Town, 7945
Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com

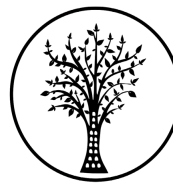


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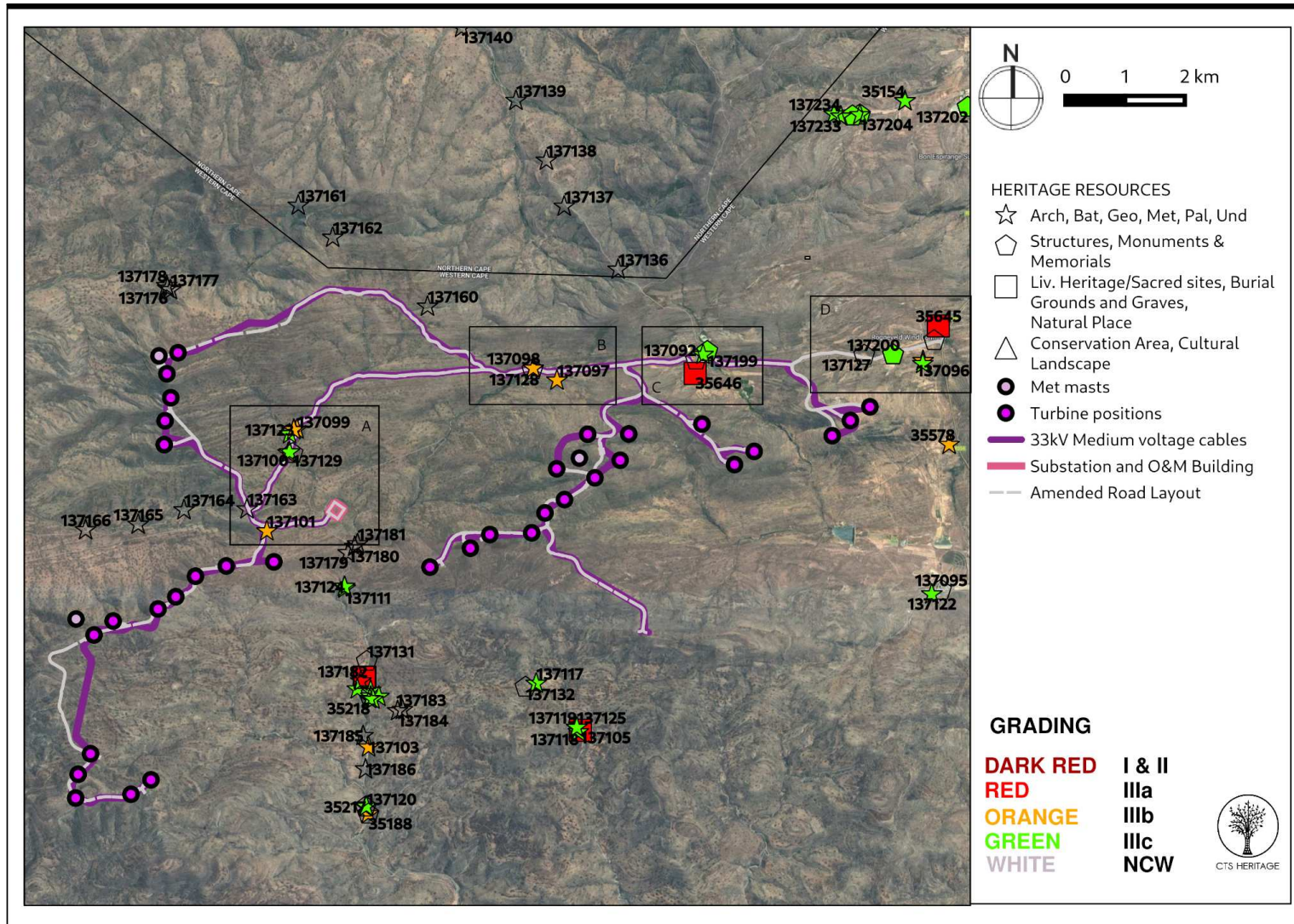


Map 2: Track paths followed for the walkdown of the Final Layout

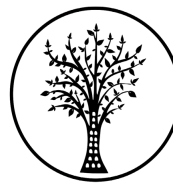
Cedar Tower Services (Pty) Ltd t/a CTS Heritage
Reg: 2013/211135/07 VAT No: 4160278950
34 Harries Street, Plumstead, Cape Town, 7945
Tel: +27 (0)87 073 5739 Email: info@ctsheritage.com Web: www.ctsheritage.com



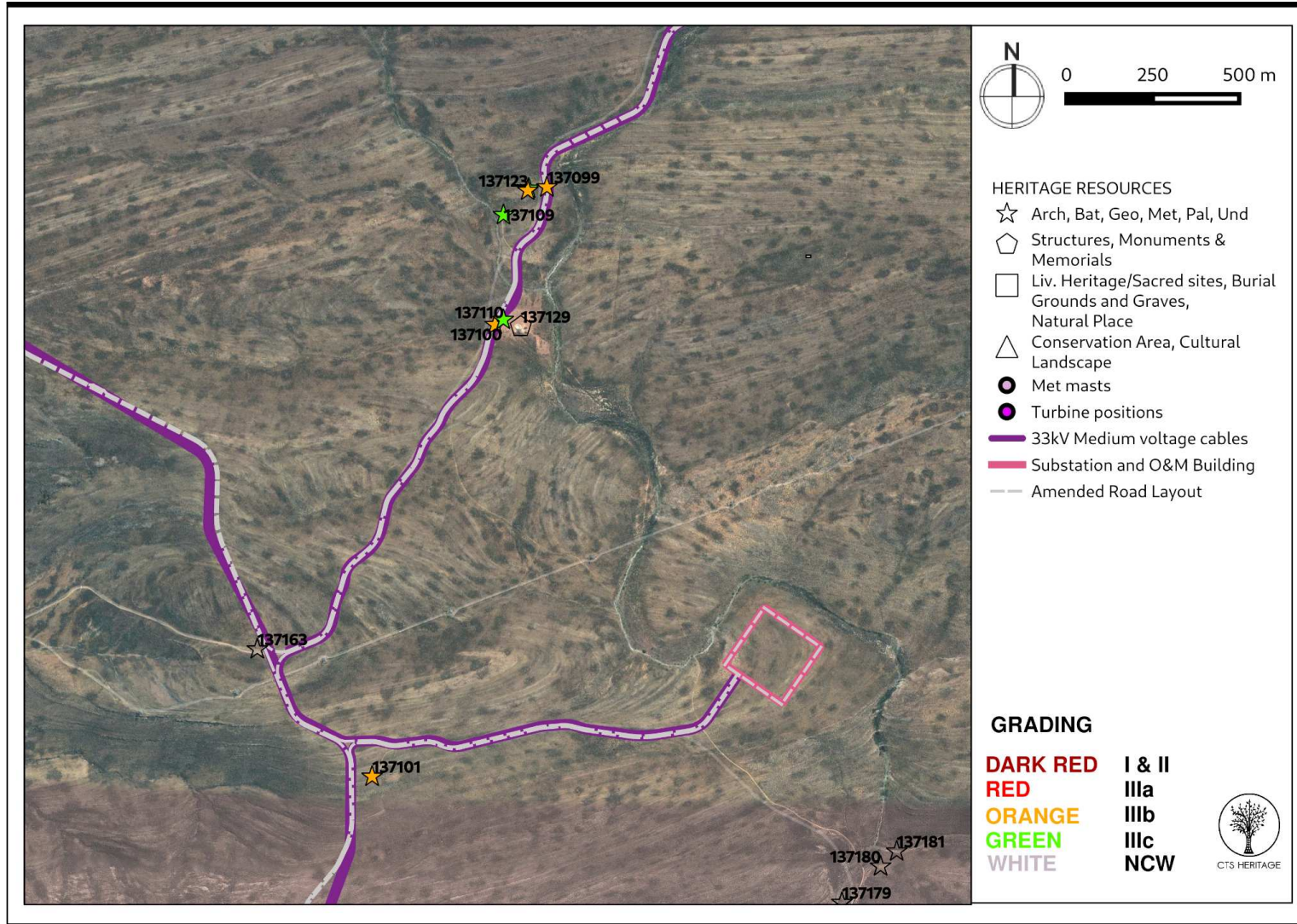
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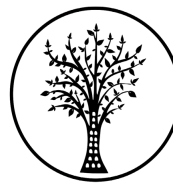
Map 3: Known heritage resources overlain with the proposed amended layout (refer to Walkdown Report September 2021 for the Site details)



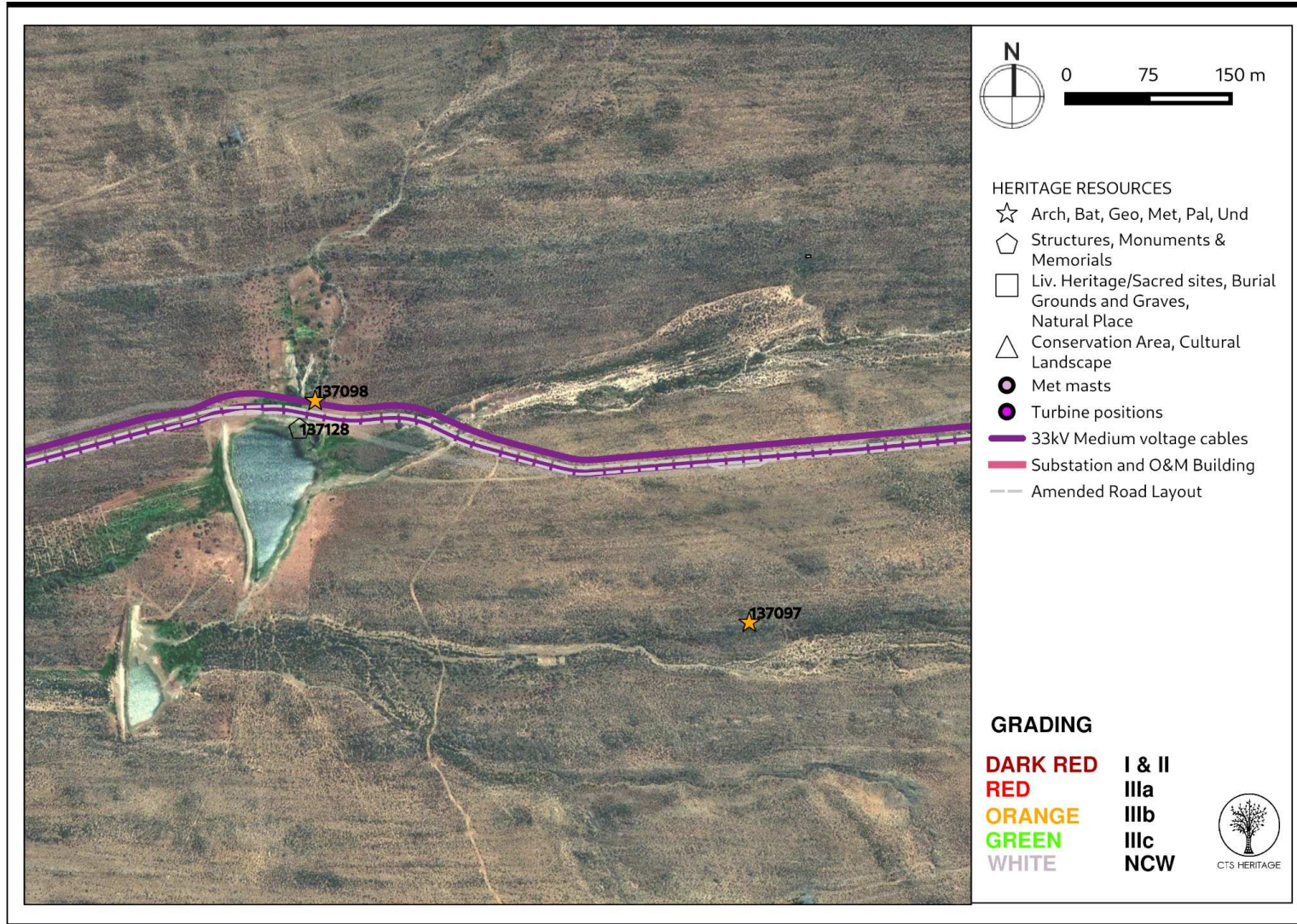
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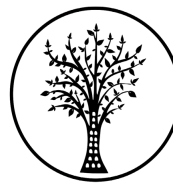
Map 3a: Known heritage resources overlain with the proposed amended layout - Inset A



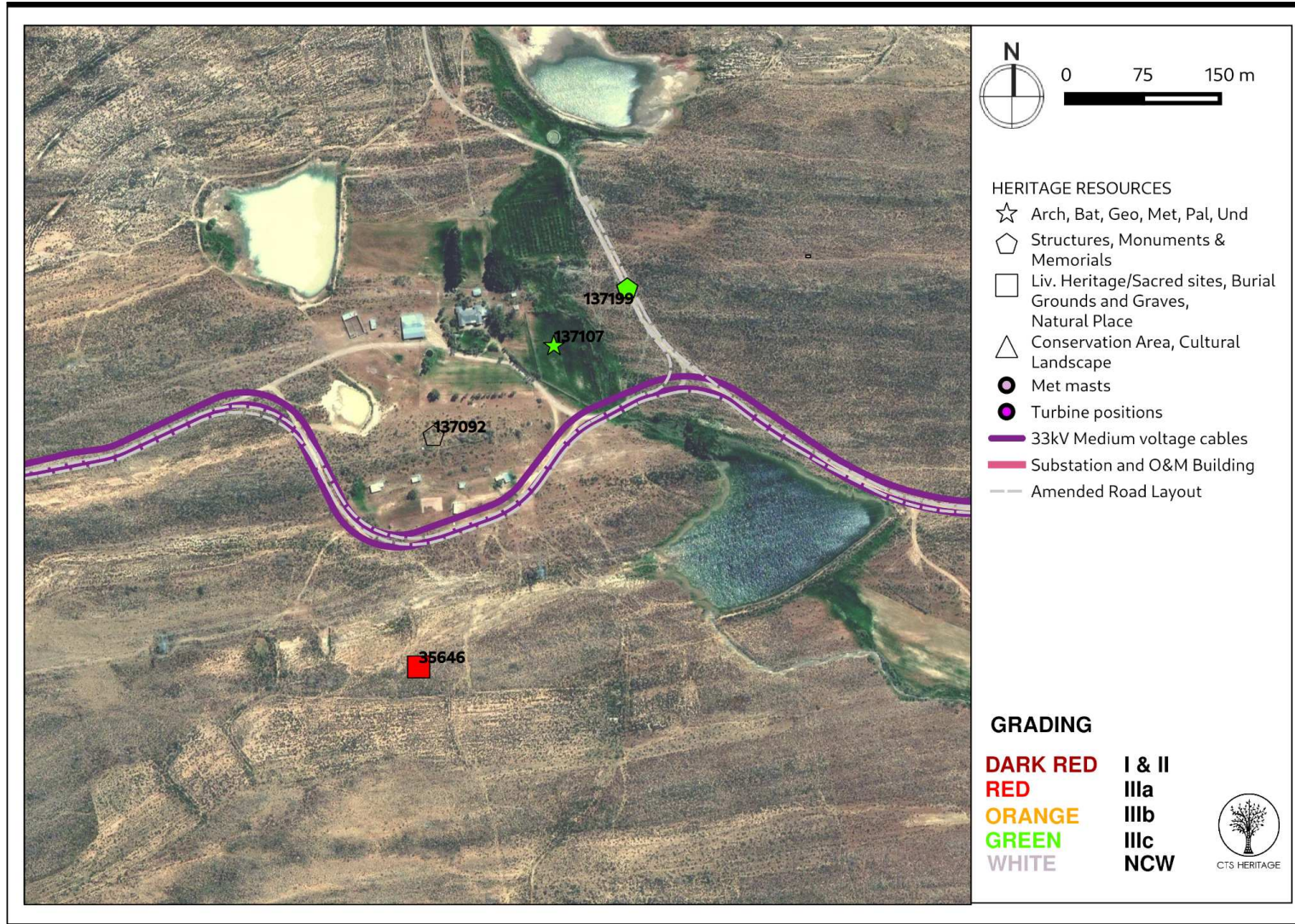
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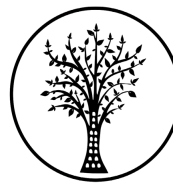
Map 3b: Known heritage resources overlain with the proposed amended layout - Inset B



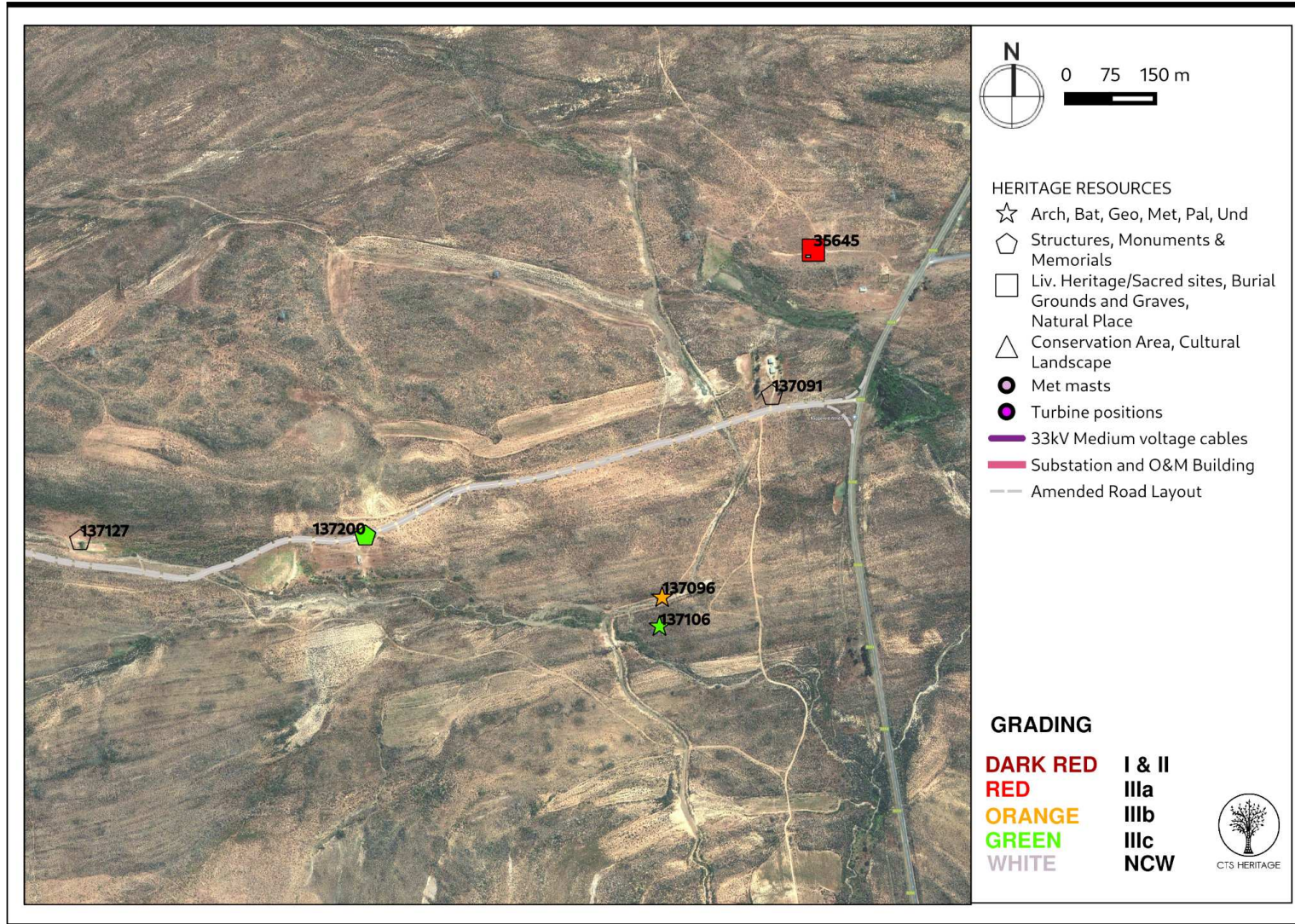
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Map 3c: Known heritage resources overlain with the proposed amended layout - Inset C



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Map 3d: Known heritage resources overlain with the proposed amended layout - Inset D