PRE-CONSTRUCTION ARCHAEOLOGICAL WALKDOWN REPORT FOR THE HARTEBEESTHOEK WEST WIND ENERGY FACILITY OUTSIDE NOUPOORT IN THE NORTHERN CAPE

Prepared for

Arcus Consultancy Services South Africa (Pty) Ltd

On behalf of

EDF Renewables (South Africa) (Pty) Ltd

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ACO Associates cc
Archaeology and Heritage Specialists

Prepared by

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DETAILS OF THE SPECIALIST

This study has been undertaken by John Gribble BA Hons, MA (ASAPA) and Gail Euston-Brown BA of ACO Associates CC, archaeologists and heritage consultants.

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CONSULTANT DECLARATION OF INDEPENDENCE

I, John Gribble, declare that – general declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Name of company (if applicable): ACO Associates CC

Date: 3 January 2023

EXECUTIVE SUMMARY

ACO Associates CC was appointed by Arcus Consultancy Services South Africa (Pty) Ltd, on behalf of EDF Renewables (South Africa) (Pty) Ltd, to conduct a pre-construction walkdown survey of the authorised Hartebeesthoek West Wind Energy Facility located outside Noupoort in the Northern Cape.

The Hartebeesthoek West WEF has been subject to two previous archaeological assessments as part of the Environmental Impact Assessment process for the Phezukomoya WEF in 2017 and a Part 2 EA Amendment Application when the Hartebeesthoek West WEF was split off from the authorised Phezukomoya WEF.

Given the previous assessments of the site, the coverage already achieved and our knowledge of the heritage potential of the site, the pre-construction survey did not aim to resurvey the entire WEF layout, but rather to fill in gaps in previous survey coverage particularly inaccessible areas where there was the potential for archaeological sites and material to be present.

Findings: The three survey visits to the Hartebeesthoek West WEF indicate that there are very few archaeological sites on the mountaintops of the area, which tends to confirm what has proved to generally be the case across the Karoo: that high ridges, which are dry, windswept and very cold in winter, seldom attracted more than passing prehistoric human occupation.

The surveys identified a small number of archaeological occurrences and historical period stone structures within the proposed WEF area. The archaeological occurrences consisted of surface scatters of small numbers of heavily patinated hornfels stone artefacts of Middle Stone Age origin of low archaeological significance. A single Later Stone Age lithics scatter, also of low significance, was recorded. No rock engravings or San rock paintings were identified. The historical period sites comprised a number of stone cairns and a stone-built kraal.

The current design and layout of the Hartebeesthoek West WEF avoids all archaeological occurrences and historical structures recorded in the 2017 HIA and no mitigation measures were, consequently, recommended.

Similarly, the 2019 EA Amendment Report recommended no specific mitigation measures but did note that there was likely to be an impact arising from the alignment of a cable/ road on the possible farm boundary marker cairn (**GEB009**) which was directly on the alignment of cable/ road route. Although not of major heritage significance, it was recommended that the cable/ road avoid this historical marker to ensure its preservation as part of the evolving cultural landscape that is the WEF area. In the final WEF layout published in December 2022, **GEB009** has been avoided and will not be subject to impact.

Regarding single scatter of LSA lithics (**G003**) recorded inside the substation footprint in 2021, this site is not considered to be conservation-worthy and no measures to mitigate any potential impact to it are proposed.

It is possible that archaeological sites and artefacts that have not yet been identified will be present within the Hartebeesthoek West WEF and may be subject to impacts arising from its

the construction. However, the survey work carried out on the site in 2017, 2019 and 2021, and the nature of the sites that have been recorded within the WEF area suggest that should such sites occur, they will tend to be isolated artefacts or thin open scatters of mainly MSA lithics on deflated erosion surfaces, which are of limited archaeological value and significance. It is unlikely that significant archaeological sites will be impacted by the construction of the WEF.

With regard to rock art and rock engravings, the geology of the WEF site does not lend itself to rock shelters where rock art may be present, and the type of patinated dolerite boulders which often have rock engravings were not noted on the site during the various surveys. It is recommended, however, that in the unlikely event that either rock art or rock engravings are encountered during the construction of the WEF, work must cease in their vicinity, they must be cordoned off and left *in situ* and SAHRA must be informed of the discovery so that a decision can be made about how to deal with them.

Should any human remains be encountered at any stage during earthworks associated with the project, work in the vicinity must cease immediately, the remains must be left *in situ* but made secure and the project archaeologist and SAHRA must be notified immediately so that a decision can be made about how to mitigate the find.

Contractors must be made aware of the presence of the no-go areas recommended above and EDF Renewables, through the project Environmental Compliance Officer, must ensure that these heritage exclusion zones are implemented and respected.

The Environmental Management Programme Report for the Hartebeesthoek West WEF requires no change in respect to the assessment of impacts on archaeological sites and materials. It will need to be updated, however, to reflect the revised mitigation measures recommended in this report.

Conclusion: This assessment has found that while a number of significant heritage resources may be impacted by the construction of the Hartebeesthoek West WEF, provided the mitigation measures recommended in this report are implemented, the overall impact of the construction of the WEF is likely to be of very low significance and tolerable from an archaeological perspective and that the proposed activity is acceptable.

GLOSSARY

Archaeology: Remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures.

Early Stone Age: Period of the Stone Age extending approximately between 2 million and 20 000 years ago**.**

Holocene: The geological period spanning the last approximately 10-12 000 years.

Hornfels: Contact metamorphic rock that has been baked and hardened by the heat of intrusive igneous rock.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Middle Stone Age: Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

ACRONYMS

EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LSA	Later Stone Age
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency
WEF	Wind Energy Facility
WTG	Wind Turbine Generator

TABLE OF CONTENTS

1 INTRODUCTION AND TERMS OF REFERENCE

ACO Associates CC was appointed by Arcus Consultancy Services South Africa (Pty) Ltd (Arcus), on behalf of EDF Renewables (South Africa) (Pty) Ltd (EDF Renewables), to conduct a pre-construction walkdown survey of the authorised Hartebeesthoek West Wind Energy Facility (WEF) located outside Noupoort in the Northern Cape (Figure 1).

The Hartebeesthoek West WEF has been subject to two previous archaeological assessments: in 2017 as part of the Environmental Impact Assessment (EIA) process for the Phezukomoya WEF (Hart et al, 2017a) and in 2019 as part of a Part 2 EA Amendment Application when the Hartebeesthoek West WEF was split off from the authorised Phezukomoya WEF (Gribble & Euston-Brown 2019c) (Figure 2).

The pre-construction survey was required as a condition (No. 38) of the Environmental Authorisation for the WEF issued in June 2018, to ground truth the authorised wind turbine generator (WTG) positions, internal WEF cable and roads alignments, substation sites, laydown areas, etc., to identify heritage resources which may be impacted by the construction, operation and decommissioning of the WEF, to assess their significance and provide recommendations for mitigation that can be incorporated into the project Environmental Management Programme (EMPr).

Given the previous assessments of the site, the coverage already achieved and our knowledge of the heritage potential of the site, the pre-construction survey did not aim to resurvey the entire WEF layout, but rather to fill in gaps in previous survey coverage particularly inaccessible areas where there was the potential for archaeological sites and material to be present.

2 METHODOLOGY

A survey of some areas of the WEF not previously visited was undertaken by John Gribble and Gail Euston-Brown of ACO Associates on 12 October 2021.

Both members of the field team carried hand-held GPS receivers (using the WGS84 datum), pre-loaded with the footprint of the project elements and other data such as the farm boundaries and previously recorded sites, and these were used to log the survey tracks (Figure 3) and record the positions of any new heritage resources identified.

This was the third and second visit to the site by John Gribble and Gail Euston-Brown, respectively, and both were suitably qualified and experienced to date and characterise any heritage resources encountered during the survey.

No trial holes were dug and no material was removed from the project area. All observations were based on visible surface material.

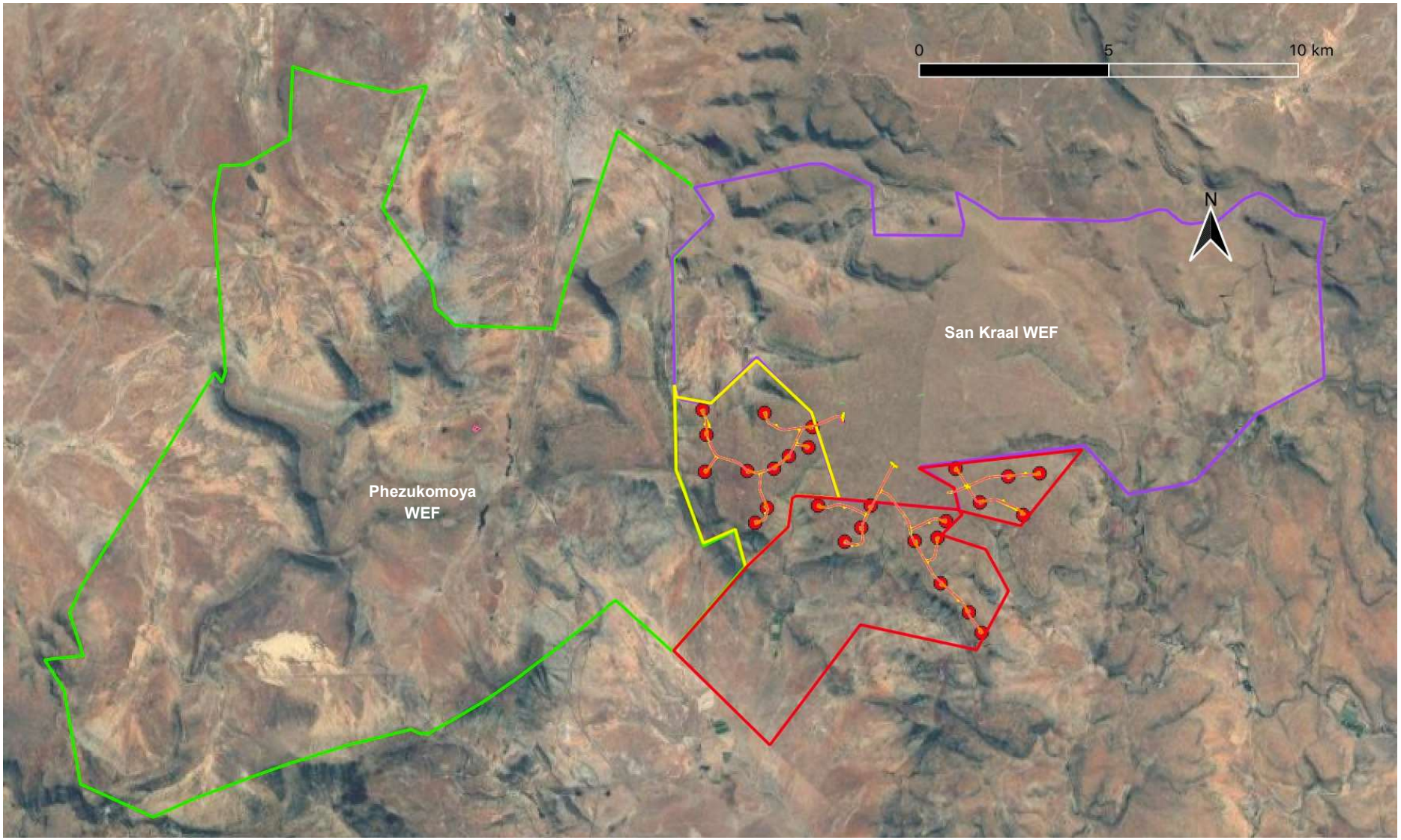

Figure 1: Location and final layout of the Hartebeesthoek West and East WEFs (red and yellow polygons respectively) and the extents of adjacent San Kraal and Phezukomoya WEFs (Source: Google Earth).

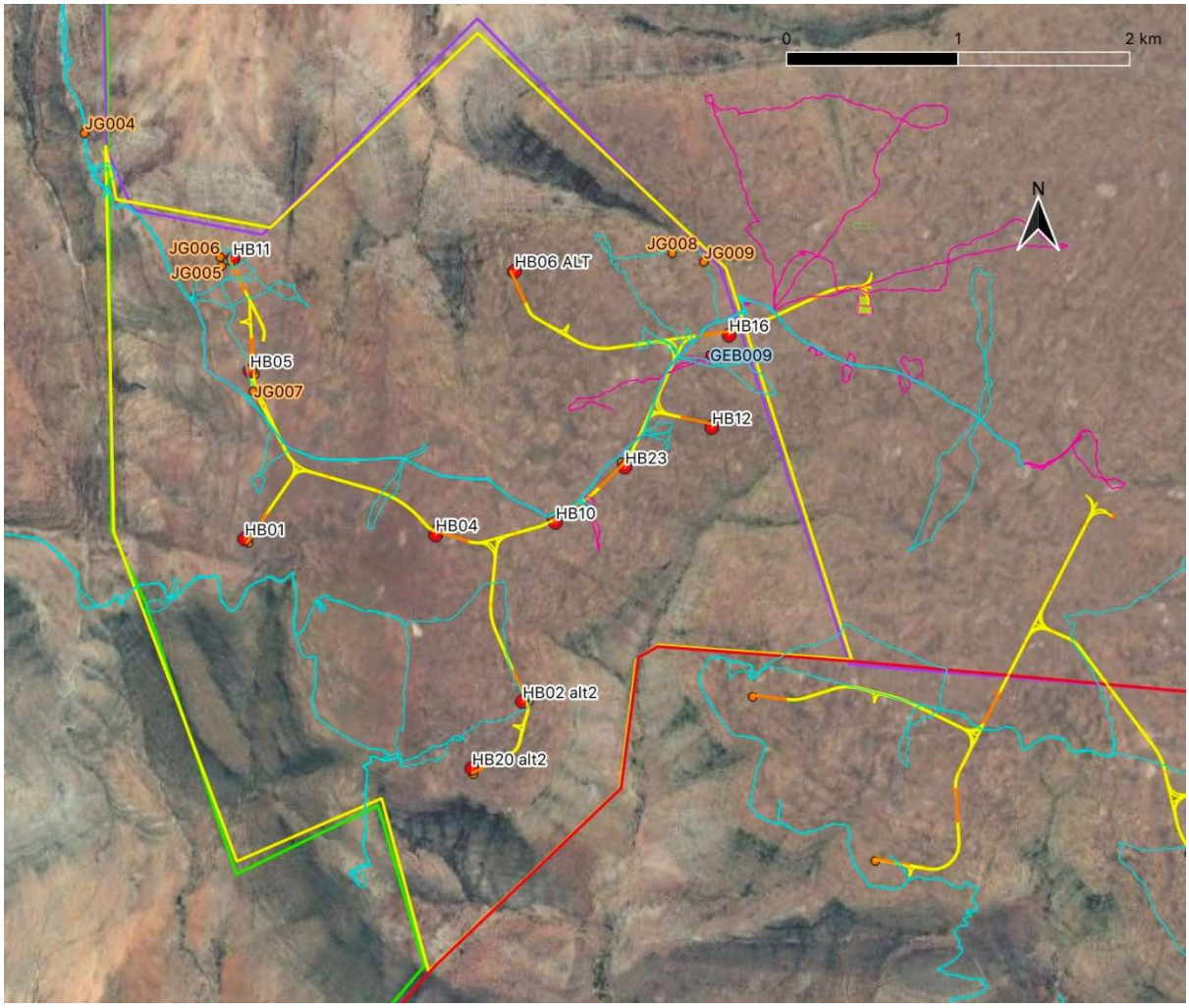

Figure 2: 2017 (pale blue lines) and 2019 (pink lines) archaeological survey track plots and sites (blue and orange numbers respectively) superimposed on the current layout of the Hartebeesthoek West WEF (Source: Google Earth).

2.1 Restrictions and Assumptions

Access to the WEF site was generally good, as was ground visibility, with vegetation cover not unduly affecting the survey outcome.

It was not possible to visit all current project components during this survey, but the coverage of the 2017 and 2019 surveys, coupled with the most recent site visit information has provided a good baseline understanding of the archaeological potential of the WEF area and the confidence in the findings set out later in this report is thus high.

3 SUMMARY OF FINDINGS OF THE 2017, 2019 and 2021 STUDIES

The three survey visits to the Hartebeesthoek West WEF indicate that the pre-colonial heritage sensitivities are typical of what has been found in the area before: that like the Karoo in general, there are very few archaeological sites on the Kikvorsberge. These high ridges where the Hartebeesthoek West WEF infrastructure will be situated are dry, windswept and very cold in winter and seldom attracted more than passing prehistoric

human occupation. Unless there is a rock shelter, a source of water or of stone raw material, these areas are not likely to be archaeologically sensitive.

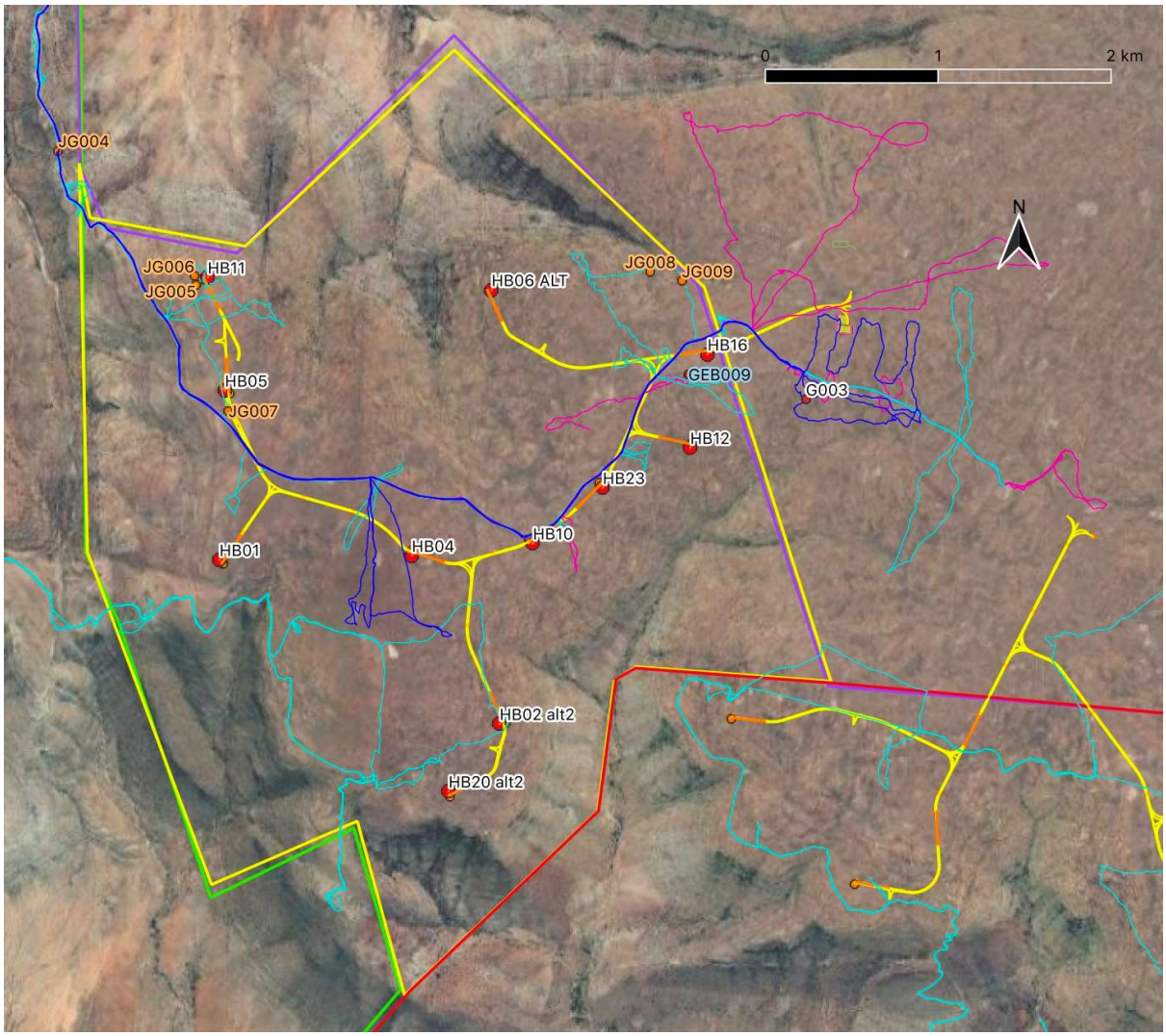

Figure 3: 2021 survey lines (dark blue) superimposed on the 2017 and 2019 archaeological survey track plots (pale blue and pink lines) and sites (blue and orange numbers) and on the current layout of the Hartebeesthoek West WEF (Source: Google Earth).

Valley bottoms were more favoured by pre-colonial people for occupancy. Here there are normally sources of water, shelter from the prevailing winds as well as the potential for grazing small stock on or close to the sandy river beds. Also important were low ridges on or adjacent to flat plains. Khoikhoi kraals were almost always built adjacent to or against low ridges and cliffs. Anywhere there is a cluster of rock that provided shelter from the wind or a shallow cave inevitably has archaeological material associated with it.

3.1 2017 Survey

The 2017 EIA survey for the then Phezukomoya WEF identified four (4) archaeological occurrences and historical period stone structures within the footprint of what is now the Hartebeesthoek West WEF (see Hart et al 2017a).

The two (2) archaeological occurrences identified comprised ephemeral surface scatters of stone artefacts made on hornfels and dating from the MSA. No ceramic period sites, rock engravings or San rock paintings were identified.

The historical period structures comprised a semi-circular kraal in the lee of a rock shelf marked with spaced upright rocks and a low stone cairn. One of the archaeological occurrences (**J006**) was found in proximity to a second small cluster of packed stone, although these sites are not related.

The sites are listed in Appendix 1 below.

3.2 2019 Survey

The 2019 field assessment took place as part of an EA Amendment Application when the Hartebeesthoek West WEF was split off from the authorised Phezukomoya WEF.

The site visit identified a single new stone structure: a possible farm boundary marker cairn of packed stone (**GEB009**) located very close to the WEF cable/ road alignment. The details of the site are provided in Appendix 1 below.

3.3 2021 Pre-Construction Survey

The 2021 pre-construction survey concentrated on visiting an infrastructure area within the WEF not previously surveyed and also revisited the substation site which is now larger than the area surveyed previously.

It should be noted that the final WTG layout for this WEF was amended after the completion of the 2021 fieldwork and again in late 2022.

These amendments to the layout do not materially affect the walkdown survey results but do ensure that **GEB009** will no longer be impacted by the project (Figure 4).

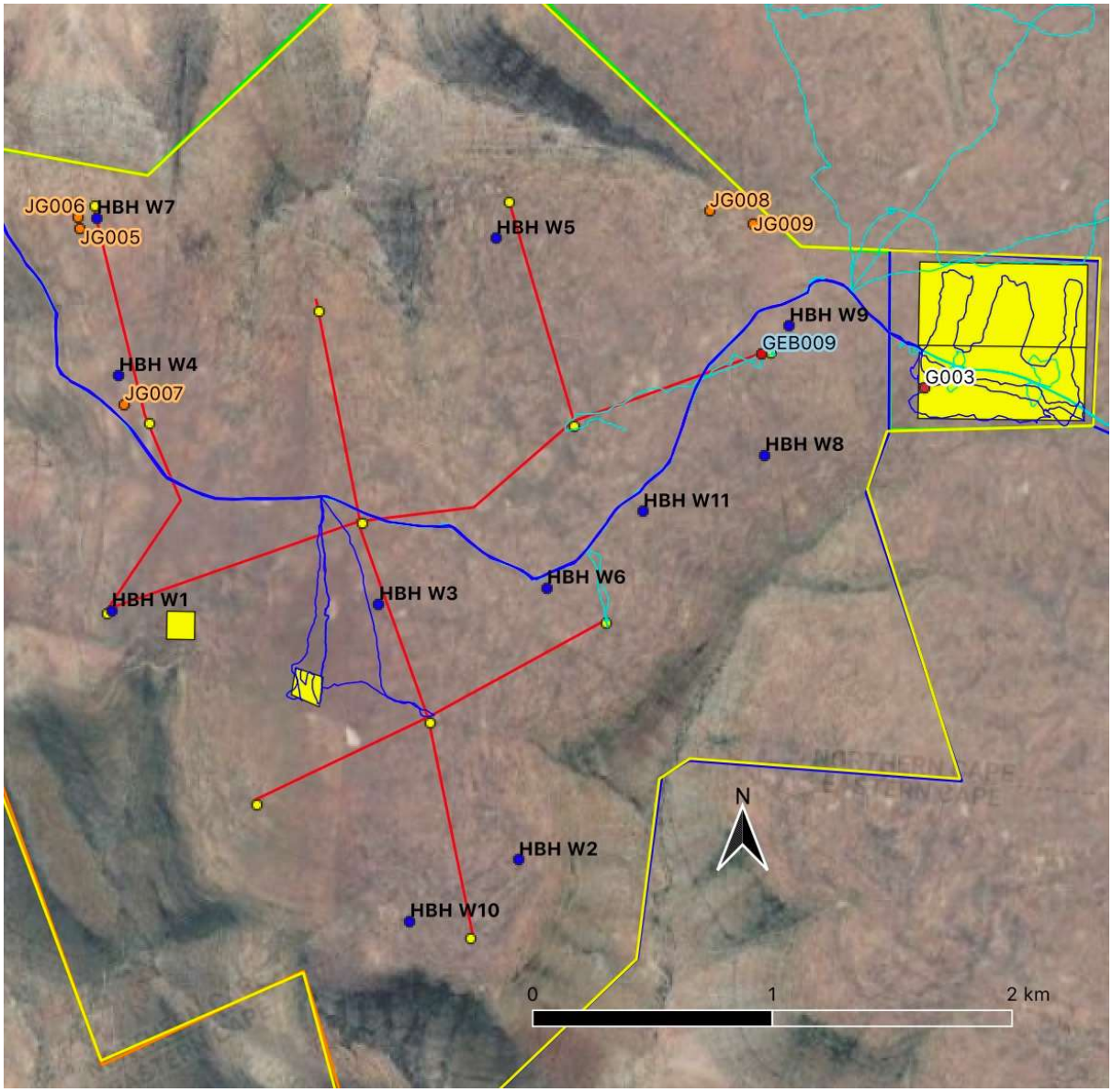

Figure 4: Hartebeesthoek West WEF infrastructure areas (yellow) which were surveyed in 2021. Survey tracks shown as dark (2021) and pale blue (2017 and 2019). Note the WTG postions at the time of the 2021 survey (yellow dots) and revised, post-survey postions (numbered dark blue dots) (Source: Google Earth).

A single new archaeological occurrence - two LSA flakes, one of which was a bladelet, near rocky outcrop on the western edge of the substation footprint (**G003**) - was identified. The site was not graded as conservation-worthy and its details are provided in Appendix 1 below (see also Figure 4 above).

As with the previous survey in the Hartebeesthoek West footprint, the 2021 survey evidenced an extremely low archaeological and historical presence in this mountaintop environment.

4 POTENTIAL IMPACTS AND RECOMMENDED MITIGATION MEASURES

The current design and layout of the Hartebeesthoek West WEF avoids all archaeological occurrences and historical structures recorded in the 2017 HIA and no mitigation measures were, consequently, recommended.

Similarly, the 2019 EA Amendment Report recommended no specific mitigation measures but did note that there was likely to be an impact arising from the alignment of a cable/ road on the possible farm boundary marker cairn (**GEB009**) which was directly on the alignment of cable/ road route. Although not of major heritage significance, it was recommended that the cable/ road avoid this historical marker to ensure its preservation as part of the evolving cultural landscape that is the WEF area. In the final WEF layout published in December 2022 and reviewed for this updated report, **GEB009** has been avoided and will not be subject to impact.

With regard to single scatter of LSA lithics (**G003**) recorded inside the substation footprint in 2021, this site is not considered to be conservation-worthy and no measures to mitigate any potential impact to it are proposed.

It is possible that archaeological sites and artefacts that have not yet been identified will be present within the Hartebeesthoek West WEF and may be subject to impacts arising from its the construction. However, the survey work carried out on the site in 2017, 2019 and 2021, and the nature of the sites that have been recorded within the WEF area suggest that should such sites occur, they will tend to be isolated artefacts or thin open scatters of mainly MSA lithics on deflated erosion surfaces, which are of limited archaeological value and significance. It is unlikely that significant archaeological sites will be impacted by the construction of the WEF.

With regard to rock art and rock engravings, the geology of the WEF site does not lend itself to rock shelters where rock art may be present, and the type of patinated dolerite boulders which often have rock engravings were not noted on the site during the various surveys. It is recommended, however, that in the unlikely event that either rock art or rock engravings are encountered during the construction of the WEF, work must cease in their vicinity, they must be cordoned off and left *in situ* and SAHRA must be informed of the discovery so that a decision can be made about how to deal with them.

Should any human remains be encountered at any stage during earthworks associated with the project, work in the vicinity must cease immediately, the remains must be left *in situ* but made secure and the project archaeologist and SAHRA must be notified immediately so that a decision can be made about how to mitigate the find.

Contractors must be made aware of the presence of the no-go areas recommended above and EDF Renewables, through the project Environmental Compliance Officer, must ensure that these heritage exclusion zones are implemented and respected.

The Environmental Management Programme Report for the Hartebeesthoek West WEF requires no change in respect to the assessment of impacts on archaeological sites and materials. It will need to be updated, however, to reflect the revised mitigation measures recommended in this report.

5 HERITAGE MANAGEMENT PLAN

The purpose of this heritage management plan (HMP) is to provide a framework, under the EMPr, for the management of heritage resources during the construction, operation and decommissioning of the Hartebeesthoek West WEF. The management of the palaeontological resources present within the WEF is dealt with in separate HMP.

The objective of the HMP is to put in place clear and practical management actions to ensure that heritage resources within the WEF development are protected and conserved and, where they occur, impacts to these resources are appropriately managed and mitigated.

The HMP below identifies:

- What heritage resources require management;
- Who will carry out the management of heritage resources;
- Appropriate management and mitigation actions to be implemented to ensure that heritage resources are not negatively impacted during the construction, operation and decommissioning of the WEF; and
- Procedures and processes to follow in the event of negative impact to previously identified or newly discovered heritage resources during the construction, operation and decommissioning of the WEF.

5.1 Heritage Resources Requiring Management

The known heritage resources within the Hartebeesthoek West WEF identified in the HIA and this pre-construction walkdown report are listed in Appendix 1 below and consist of a number of packed stone structures and some ephemeral MSA and LSA lithic scatters.

These heritage sites and materials are protected by the National Heritage Resources Act (NHRA) (25 of 1999) which provides protection for various categories of heritage resource from unauthorised disturbance, damage, or destruction, thereby ensuring their protection and preservation for the future.

The identified heritage resources within the Hartebeesthoek West WEF have been graded, in terms of the provisions of section 3 of the NHRA and the gradings for each site are shown in Appendix 1 below. Grading provides an indication of the significance and heritage value of a heritage resource and, in the context of a development such as the Hartebeesthoek West WEF, is key to the management of such resources.

5.2 Responsibility for the Management of Heritage Resources

The Hartebeesthoek West WEF straddles the provincial border between the Eastern and Northern Cape and therefore, falls under the jurisdiction of both the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) and the Northern Cape PHRA.

However, the management of archaeological resources in both the Eastern and Northern Cape is currently undertaken by SAHRA, on behalf of the two provincial agencies. Any management of heritage resources within the Eastern and Northern Cape must, therefore, follow the prescripts of the NHRA and the processes established by SAHRA.

The contact details for SAHRA are:

South African Heritage Resources Agency (SAHRA)	
Contact Person:	Mr P Hine (Manager: Archaeology, Palaeontology and Meteorites Unit)
Address:	111 Harrington Street, Cape Town, 8001
Tel:	021 462 4502
Email:	phine@sahra.org.za info@sahra.org.za
Website:	https://www.sahra.org.za

The ultimate responsibility for ensuring that heritage resources within the boundaries of the WEF are appropriately protected and managed during construction, operation, and decommissioning rests with the Project Company, EDF Renewables.

It is expected that the Project Company will appoint an independent environmental control officer (ECO) and/ or environmental officer (EO) to monitor the project compliance with the EMPr and conditions of the environmental authorisation.

The ECO and/or EO is expected to be in constant liaison with contractors and WEF staff and will be the key person(s) responsible for ensuring the effective day to day management of heritage resources for the project. The ECO and/ or EO will be expected to:

- Monitor the implementation of and compliance with the heritage management specifications and mitigation measures set out in the EMPr;
- Keep a register of compliance/non-compliance with the heritage management specifications;
- Identify and assess previously unforeseen, actual or potential impacts on heritage resources; and
- Ensure that regular heritage management monitoring reports are produced.

5.3 Potential Impacts to Identified Heritage Resources: Construction, Operational and Decommissioning Phases

The final layout of the WEF does not impact any significant recorded archaeological heritage resources and no site-specific archaeological mitigation measures have been recommended for the WEF. However, the following general measures must be implemented to ensure that there are no negative impacts to heritage resources during the various phases of the development:

- Currently unidentified archaeological sites, artefacts and structures may be present within the Hartebeesthoek West WEF and may be subject to impacts arising from

activities associated with the construction, operation and decommissioning of the WEF.

- In the unlikely event that archaeological material, rock art or rock engravings or historical structures are encountered during the construction of the WEF, work must cease in the vicinity, they must be cordoned off and left *in situ*. SAHRA must be informed of the discovery and a suitably qualified archaeologist must be called in to investigate the occurrence so that a decision can be made about how to deal with it.
- The identified stone-built structures and any others encountered within the WEF must be protected from vandalism or damage and no stone may be robbed from such structures.
- In the event that human remains are uncovered during the construction of the WEF, the Contractor must immediately stop work in that area and notify the ECO and/ or EO who must ensure that the remains are made secure and left in situ. The project archaeologist and SAHRA must immediately be informed of the find so that a decision can be made about how to mitigate the remains. This may require inspection by the archaeologist to determine whether mitigation should take place and what form that mitigation should take. An application to SAHRA for an emergency permit for the archaeologist to excavate and recover the remains may also be required.

5.4 Staff and Contractor Awareness

The ECO and/ or EO must ensure that the Contractor(s) and all site crews/staff are made aware of the heritage resources on the site, the mitigation measures set out above, and the steps to take if human remains or new archaeological material is encountered on site.

It is recommended that this information is presented in the site induction programme for project staff and in any refresher programmes that may be occur.

5.5 Revision of HMP

This HMP is a living document that can and must be reviewed and updated to reflect any changes to the heritage information for the site or the management protocols set out above.

The HMP must be revised every five (5) years, or more regularly should circumstances require it.

6 CONCLUSION

This assessment has found that the final layout of the WEF does not impact any significant recorded archaeological heritage resources, and provided the mitigation measures recommended in this report are implemented, the overall impact of the construction of the WEF is likely to be of very low significance and tolerable from an archaeological perspective.

The proposed activity is, therefore, acceptable.

7 REFERENCES

Gribble, J. & Euston-Brown, G.L. 2019c. *Archaeological Amendment Report: Hartebeesthoek West Wind Energy Facility, Noupoort, Northern Cape*. Unpublished report prepared for Arcus Consulting. ACO Associates.

Hart, T.G., Gribble, J. and Robinson, J. 2017a. *Heritage impact assessment for the proposed Phezukomoya Wind Energy Facility to be situated in the Northern Cape*. Unpublished report prepared for Arcus Consulting. ACO Associates.

APPENDIX 1: DETAILS OF RECORDED ARCHAEOLOGICAL SITES AND OCCURRENCES – HARTEBEESTHOEK WEST WEF

Note: More than one coordinate has been recorded for certain sites below, to provide an indication of the extent of the site concerned.

Site	Lat S	Lon E	Type	Description	Grading
2017 Survey					
JG005	-31.246114°	24.982720°	Stone Structure	Small cluster of packed stone on rocky shelf.	3C
JG006	-31.245733°	24.982631°	Stone Structure	Low rock cairn, possibly showing highest point of topography. Small scatter of flaked hornfels, potential MSA flakes.	3C
JG007	-31.251739°	24.984385°	Lithic Scatter	A pan with a scatter of patinated MSA stone artefacts.	3C
JG008	-31.245541°	25.006315°	Stone Kraal	Kraal marked with spaced upright rocks, semi-circular in the lee of a rock shelf.	3C
JG009	-31.245952°	25.007948°	Modern Feature	Modern borehole capping	NCW
2019 Survey					
GEB009	-31.250115°	25.008290°	Stone Structure	Packed stone cairn approx. 1 m^3. Close to farm boundary. Possibly boundary marker.	3C
2021 Survey					
G003	-31.251212°	25.014388°	Stone Scatter	2 x LSA flakes (incl. a bladelet) near rocky outcrop	NCW