HERITAGE SCOPING REPORT: PROPOSED HUGO WIND ENERGY FACILITY, BETWEEN TOUWSRIVER AND MONTAGU, WESTEN CAPE PROVINCE

Assessment conducted under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999) as part of an Environmental Impact Assessment

Prepared for:

ERM Southern Africa (Pty) Ltd

On behalf of:

The Energy Team (Pty) Ltd

Draft for Comment: 23 November 2023

Prepared by

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1 EXECUTIVE SUMMARY

TerraMare Archaeology (Pty) Ltd was appointed by ERM Southern Africa (Pty) Ltd, on behalf of The Energy Team (Pty) Ltd, to undertake a heritage scoping assessment for the proposed Hugo Wind Energy Facility between Touwsriver and Montagu in the Western Cape.

This report provides heritage input for inclusion in the Scoping Report for the project and its associated infrastructure and its findings will feed into the heritage impact assessment that is likely to be required as part of the EIA to be undertaken for the project.

This report is desk-based and has relied on a range of primary and secondary information to provide a high-level description of the potential palaeontological, archaeological and historical built environment sensitivity of the development site and the identification of potential heritage impacts.

Findings:
A palaeontological assessment has not yet been conducted for the Hugo WEF, but a previous study conducted for the proposed Ezelsjacht WEF provides a useful insight into the likely palaeontology of the Hugo development site.

The area is underlain by high to very high sensitivity Table Mountain and Bokkeveld Group bedrock but the Ezelsjacht assessment found that because of the high levels of tectonic deformation of the fossiliferous bedrock, and the marked near-surface weathering of both mudrock and sandstone within that project area, the actual palaeontological sensitivity of the that project area is much lower than indicated on the SAHRA map.

While this suggests that the same could apply in the adjacent Hugo WEF area, until a palaeontological assessment has been conducted it should be assumed that the SAHRIS palaeontological sensitivity indicators for the Hugo WEF are correct, and that the construction of the WEF will impact palaeontological resources.

There have been relatively few archaeological studies in the vicinity of the Hugo WEF. Those that have been conducted have found only limited evidence for the presence of significant archaeological sites or materials.

The farms within the Hugo WEF footprint were well-established by the second half of the 19th century and are likely to have been used and settled by farmers of European descent at least a century before. This long temporal span of agricultural use suggests that there will be historical buildings and structures on particularly the older farms portions in the area. A review of early trigonometric map sheets indicates that the farm complexes at Vredelus (Re 172), and Nadini (9/148) are likely to contain historical structures.

Graveyards associated with the historical farm complexes in the WEF area are likely, as are pre-colonial graves which can occur almost anywhere in the WEF area, but particularly in places like riverbanks, where soft sand made burial easy.

The cultural landscape within which the Hugo WEF will be located is largely natural and with only a light cultural overlay comprised of features - fences, wind pumps, farm roads and occasional farm complexes - which reflect the historical and modern use of the area for agriculture. The although the cultural landscape of the WEF is generally only lightly developed, the R318 has been identified as a feature of scenic value and the section of the N1 to the north of the WEF is a route of major scenic/ heritage value. The construction of the WEF in this landscape will alter its visual character.

Conclusions:

Impacts to palaeontological resources, archaeological sites and materials, graves and burials, and to the cultural landscape are the principal heritage concerns related to the Hugo WEF.

Although the Hugo WEF is in an area of high to very high palaeontological sensitivity this is not a red flag or fatal flaw and should not constrain the proposed development, provided suitable measures to mitigate any impacts are implemented as part of the development of the WEF. Mitigation measures will be detailed in the HIA and may include site visits by a palaeontologist, the monitoring of earthworks by the Environmental Compliance Officer and the implementation of a protocol or mechanism for reporting and dealing with chance finds of fossil material made during project activities.

Archaeological sites are generally limited in extent and have much smaller development constraints footprints that those applicable to biodiversity or ecology, for example. It is generally possible to mitigate or avoid impacts on archaeological resources should they be found to be present within a development footprint. Experience from many previous WEF and solar developments has shown that the presence of archaeological resources within a development area is seldom a fatal flaw, and this is likely to be the case for the Hugo WEF project, provided suitable mitigation measures are implemented.

The proximity of any formal historical burial grounds in or near farm complexes means that they are likely to be avoided in the planning and siting of the project. Although historical graves and burials are extremely sensitive heritage receptors, their presence within the project area is not a fatal flaw, provided they are excluded from impacts during the development process. With respect to unmarked usually pre-colonial graves, they too are an extremely sensitive and often contested heritage resource, and it is generally impossible to predict their presence in advance of development. However, the inclusion in the project Environmental Management Programme of a procedure for reporting and dealing with chance finds of human remains will ensure that the sensitivity of the development with respect to this potential heritage resource is low and that they will not be a fatal flaw.

The cultural landscape within which the Hugo WEF will be located is likely to be the heritage resource most affected by the construction of the WEF. Given that it is of low significance, the likely impacts of the project on the cultural landscape do not appear be a fatal flaw.

Finally, it must be expected that Heritage Western Cape will request a Heritage Impact Assessment for the Hugo WEF as part of the EIA. Given the high palaeontological sensitivity of the development site, the HIA will need to include at least a desk-based palaeontological impact assessment, and will probably require a site assessment. An archaeological site assessment has already been included in the budget for the project and will be undertaken before the HIA is produced.

A comment on the HIA will be required from HWC and any comments received must be considered by the competent authority before issuing an Environmental Authorisation.

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2 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 between approximately 2 million and 200 000 years ago**.**

Fossil: Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage: That which is inherited and forms part of the National Estate, as defined by the National Heritage Resources Act 25 of 1999.

Later Stone Age: The archaeology of the last 20,000 years associated with fully modern people.

Middle Stone Age: The archaeology of the Stone Age between approximately 200,000 and 20,000 years ago, associated with early modern humans.

Palaeontology: Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

SAHRA: South African Heritage Resources Agency – the compliance authority which protects national heritage.

Structure (historic): Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Protected structures are those which are over 60 years old.

3 ABBREVIATIONS

BESS	Battery Energy Storage System
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
kV	Kilovolt
LSA	Later Stone Age
MSA	Middle Stone Age
MW	Megawatts
NHRA	National Heritage Resources Act (No 25 of 1999)
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
WEF	Wind Energy Facility

4 INTRODUCTION

TerraMare Archaeology (Pty) Ltd was appointed by ERM Southern Africa (Pty) Ltd, on behalf of The Energy Team (Pty) Ltd, to undertake a heritage scoping assessment for the proposed Hugo Wind Energy Facility (WEF) between Touwsriver and Montagu in the Western Cape. (Figure 1).

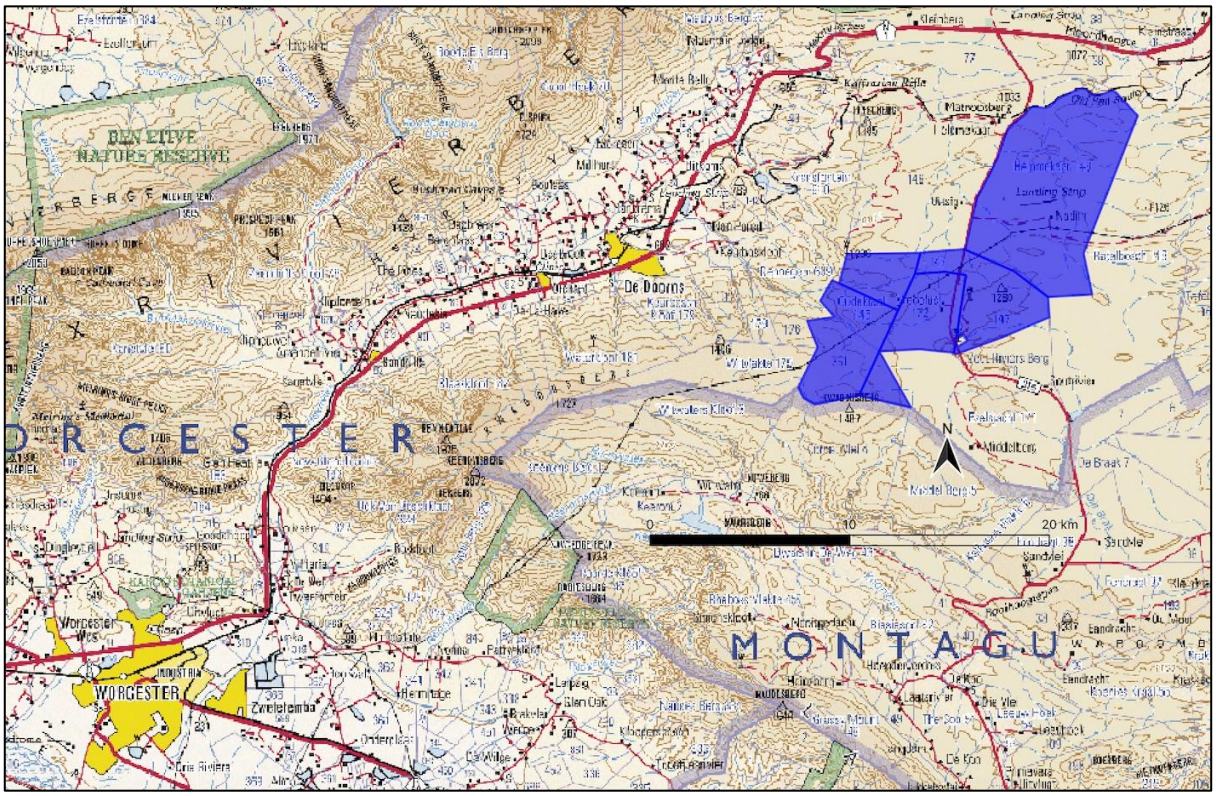

Figure 1: Extract from 1:250 000 topographical map sheet showing the proposed Hugo WEF site (blue polygon) in relation to De Doorns and the wider area (Source: 1:250 000 chart 3319, National Geo-spatial Information, http://www.ngi.gov.za).

4.1 Terms of Reference

This report provides heritage input for inclusion in the project Scoping Report for the proposed Hugo WEF and its associated infrastructure.

TerraMare Archaeology were requested to provide an initial, desk-based scoping of the heritage potential and likely heritage issues on the development site. The objective of this report is to indicate any obvious heritage-related fatal flaws or red flags to the project and to contribute to defining no-go areas and identifying developable areas for the WEF.

This scoping report will inform the archaeological site visit and will also be used in the development of the heritage impact assessment (HIA) that is likely to be required as part of the EIA that is being undertaken for the project.

4.2 The Author

John Gribble has an MA (UCT, 1989), in archaeology and has been working in cultural resource management since the early 1990s. He has worked in both the regulatory and commercial heritage management fields: the former during 13 years at the National Monuments Council / South African Heritage Resources Agency (SAHRA), and the latter as both a terrestrial and maritime archaeological consultant in South Africa and the UK.

He holds archaeological accreditation with the Association of Southern African Professional Archaeologists CRM section (Member #43) as follows:

- Principal Investigator: Maritime Archaeology and Colonial Archaeology; and
- Field Director: Stone Age Archaeology.

A signed and certified specialist statement of independence is attached to this scoping report as Appendix A and the author's CV is attached as Appendix B.

5 METHODOLOGY

This scoping report aims to provide a general description of the known and potential heritage sensitivities of the project site and to flag any heritage-related fatal flaws to the proposed development of the Hugo WEF, together with draft opportunities and constraints for the proposed project.

The National Heritage Resources Act (No 25 of 1999) (NHRA) defines the range and extent of what are considered to be South Africa's heritage resources. At its broadest, according to Section 2(xvi) of the Act, a heritage resource is "any place or object of cultural significance". This means that the object or place has aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

In terms of the definitions provided in Section 2 of the NHRA, heritage resources potentially present on the Hugo WEF site which may be impacted by the proposed development include:

- Palaeontological resources;
- Pre-colonial archaeological sites and materials;
- Colonial era archaeological sites and materials;
- Rock paintings and / or rock engravings;
- Historical built structures; and
- Graves and burials.

5.1 Sources of Information

This scoping report relies on a range of primary and secondary information to provide a high-level assessment of the potential palaeontological, archaeological and historical built environment sensitivity of the development site.

The sources of information used are shown in Table 1 below and include published archaeological papers and reports for the general project area and unpublished archaeological and heritage impact assessments that have been undertaken in the vicinity of the project site.

Table 1: Information sources used in this assessment

Data/Information	Source	Date	Type	Description
Maps	Chief Directorate: National Geo-SpatialInformation	Various	Spatial	Historical and current 1:50 000 topographic maps of the study area and immediate surrounds
Geological chart	Council for Geoscience	Various	Spatial	Current 1:250 000 geological survey chart for the area
Aerial photographs	Chief Directorate: National Geo-SpatialInformation	Various	Spatial	Historical aerial photography of the study area and immediate surrounds
Aerial photographs	Google Earth	Various	Spatial	Recent and historical aerial photography of the study area and immediate surrounds

Cadastral data	Cape Farm Mapper	Current	Spatial	Cadastral boundaries, extents and aerial photography
Cadastral data	Chief Directorate: National Geo-Spatial Information	Various	Survey diagrams	Historical and current survey diagrams, property survey and registration dates
Background data	South African Heritage Resources Information System (SAHRIS)	Various	Reports	Previous impact assessments for any developments in the vicinity of the study area
Palaeontological sensitivity	South African Heritage Resources Information System (SAHRIS)	Current	Spatial	Map showing palaeontological sensitivity and requiredactions based on the sensitivity.
Background data	Books, journals, websites	Various	Books, journals, websites	Historical and current literature describing the study area and any relevant aspects of cultural heritage.

Together, these information sources have allowed a description of the heritage potential of the project site and the identification of potential high level heritage impacts.

5.2 Restrictions and Assumptions

This scoping report is a desk-based assessment. It has not been possible to conduct an archaeological site visit yet, but this will take place as part of the heritage impact assessment for the project that is likely to be required by Heritage Western Cape.

No palaeontological fieldwork has yet been conducted on the project site.

6 PROJECT DESCRIPTION

The applicant proposes the development of a wind energy facility to be known as the Hugo WEF, comprising up to 48 turbines with a maximum output capacity of up to 360 megawatts (MW). The purpose of the facility is to generate clean electricity from a renewable energy source, to contribute to the national energy grid and/or to serve any private off takers.
The WEF and associated infrastructure will be located on the following properties:

- Ou de Kraal, Remainder Farm 145
- Stinkfonteins Berg, Remainder Farm 147
- Stinkfontein, Rermainder Farm 145
- Driehoek, Farm 173
- Presents Kraal, Remainder Farm 174
- Helpmakeer, Portion 9 of Farm 148.

The WEF will straddle the R318 approximately 3,5 km south of the N1, between Touwsriver to the north-east and the Koo Valley to the south (Figure 1 and Figure 2).

The proposed turbine footprint and associated facility infrastructure will cover an area of up to 7900 ha, depending on the final design.

An on-site substation with a capacity up 132 kV is proposed, with an up to 33 kV overhead / underground export powerline to be installed. It is not known at this stage what the route or length of this grid connection powerline will be, or what route the cabling will be installed.

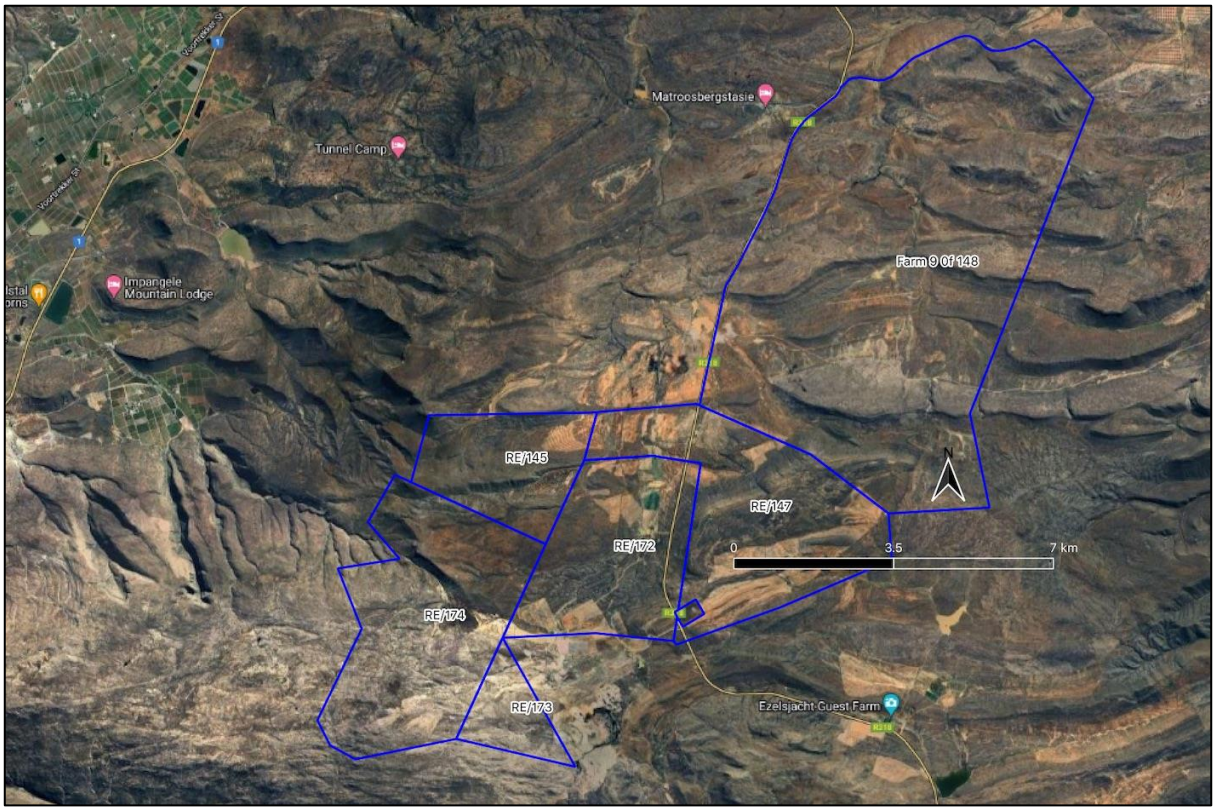

Figure 2: Farm portions comprising the proposed Hugo WEF (blue polygon) within local geographical context (Source: Google Earth)

The available project specifications are shown in Table 2 below:

Table 2: Hugo WEF project specifications

WEF Technical Details Components	Description / Dimensions
Maximum Generation Capacity	up to 360MW
Type of technology	Onshore Wind
Number of Turbines	Up to 48
WTG Hub Height from ground level	up to 150m
Blade Length	up to 100m
Rotor Diameter	up to 200m
Structure height (Tip Height)	up to 250m
Structure orientation	Wind regiment dependent
Operations and maintenance buildings (O&M building) with parking area	up to 1 HA
Site Access	Via the R318
Area occupied by inverter transformer stations/substations	up to 2.5 HA
Capacity of on-site substation	132/33kv
Battery Energy Storage System footprint	up to 5 HA
BESS type	Lithium-ion or Redox-flow technology, depending on the most feasible at the time of implementation
Length of internal roads	TBD

WEF Technical Details Components	Description / Dimensions
Width of internal roads	Access roads to the site and between project components with a width of approximately 4.5 m and a servitude of 13.5 m.
Internal Cabling	Cabling between the turbines, to be laid underground where practical.

6.1 Study Area

The study area for all the proposed Hugo WEF comprises the six farm portions listed above.

The assessment of the full extents of the affected farms, rather than just the proposed project footprint, allows the identification and assessment of less immediate heritage sensitivities such as potential visual impacts on the cultural landscape.

7 RECEIVING ENVIRONMENT

The property on which the Hugo WEF is proposed is rural farmland and is zoned agricultural. Historically the land has been and continues to be used for stock farming.

The project area is situated in semi-arid, rolling hilly terrain at the extreme western end of the Langeberg Range of the Cape Fold Mountains. The project site contains a mix of hills in the east and centre, and more mountainous terrain in the west above the Hex River Valley

Geologically, the site is underlain by Table Mountain sandstone, which crops out as rocky ridges and scarps, with Bokkeveld Group mudrock-dominated units in between on the more, low-lying terrain. A good deal of these dominant bedrock groups are covered by Late Caenozoic superficial deposits and particularly the Bokkeveld Group units are poorly exposed at surface (Almond 2022) (Figure 3).

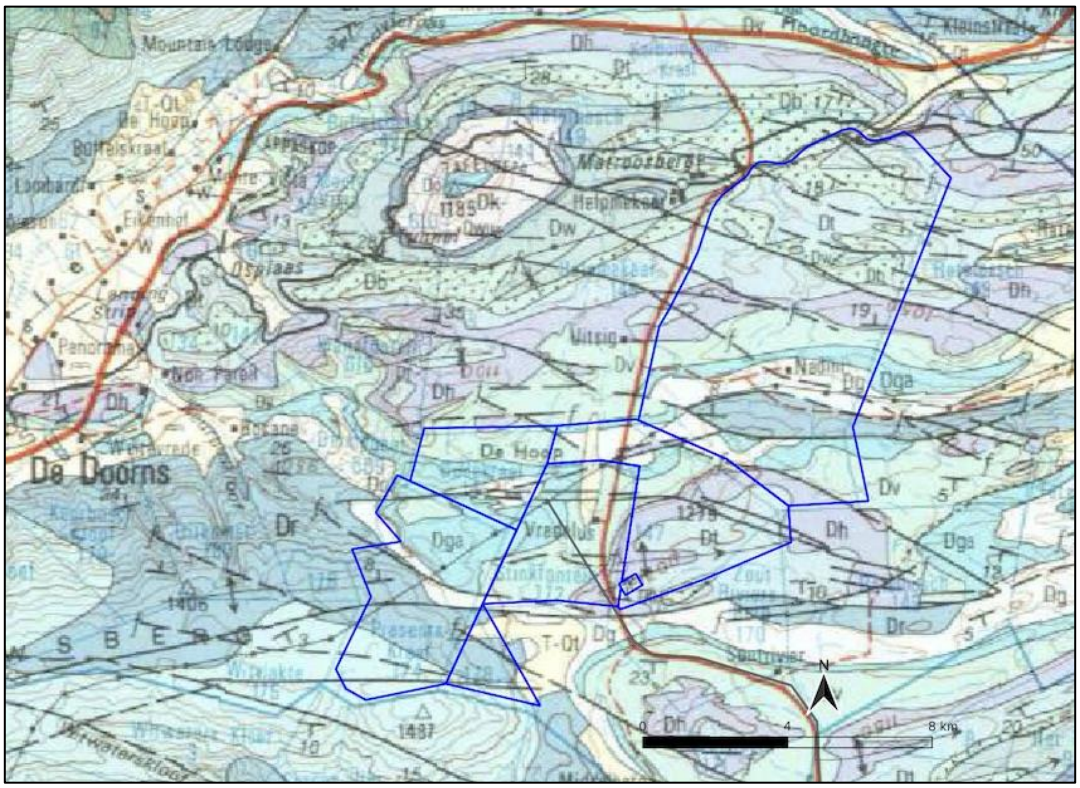

Figure 3: Proposed Hugo WEF location (blue polygon) superimposed on the geological chart of the area (Source: 1:250 000 geological chart 3319 Worcester, Council for Geoscience).

The vegetation is Succulent Karoo and is dominated by dwarf, succulent shrubs, of which the Vygies (Mesembryanthemaceae) and Stonecrops (Crassulaceae) are particularly prominent.

7.1 Heritage Sensitivities of Receiving Environment

This section describes the heritage sensitivities of the proposed Hugo WEF development site as they are currently understood.

7.1.1 Palaeontology

Although no palaeontological assessment has yet been conducted, a previous study conducted by Dr John Almond for the proposed Ezelsjacht WEF, which lies on the southern boundary of the Hugo WEF, provides a useful insight into the likely palaeontology of the Hugo development site (Figure 5.

The proposed Hugo WEF is underlain by several coastal to shallow marine formations of the Table Mountain and Bokkeveld Groups (Cape Supergroup) of Early to Middle Devonian age (*c*. 410 – 390 Ma) (Almond 2022) (Figure 3).

The Table Mountain Group, sandstone-dominated units (Rietvlei, Gamka and Hexrivier Formations) tend to build rocky ridges and scarps, while the intervening mudrock-dominated Bokkeveld Group subunits (Gydo, Voorstehoek and Tra Tra Formations) underlie, low-lying terrain and are generally poorly exposed at surface (Almond 2022).

The sandstones and pebbly beds of the fluvial / coastal marine Rietvlei Formation (uppermost Table Mountain Group) are associated in this area with low-diversity trace fossil assemblages as well as a marine shelly invertebrate faunule of Early Devonian, Malvinokaffric aspect.

The Lower Bokkeveld Group (Ceres Subgroup) and overlying Waboomberg Formation of the Bidouw Subgroup contains rich assemblages of shallow marine invertebrates, trace fossils and rarer fish remains of the Malvinokaffric Faunal Province of Gondwana (Almond 2022).

According to SAHRA's palaeo-sensitivity map (see https://sahris.sahra.org.za/map/palaeo), the Hugo WEF footprint is in an area of generally very high or high palaeontological sensitivity (Figure 4).

However, Almond's (2022) assessment for the Ezelsjacht WEF found that because of the high levels of tectonic deformation of the fossiliferous bedrock, and the marked near-surface weathering of both mudrock and sandstone within that project area, the actual palaeontological sensitivity of the that project area is much lower than indicated on the SAHRA map.

According to Almond (2022), none of the fossil sites he recorded in the Ezelsjacht WEF area were very well preserved and all represent common, widely distributed forms, of limited scientific or conservation value.

Although it is tempting to assume that the same will apply in the Hugo WEF, Almond (pers. comm.) warns that the Bokkeveld Group bedrocks probably become less deformed, and hence more fossiliferous, towards the north and away from the influence of the Cape Fold Belt.

He also indicates that there are important Devonian invertebrate fossil sites recorded in the region of Matroosberg Station, on and around De Doorns Tafelberg just to the west of the Hugo WEF development area, and north of the N1 near Bergplaas.

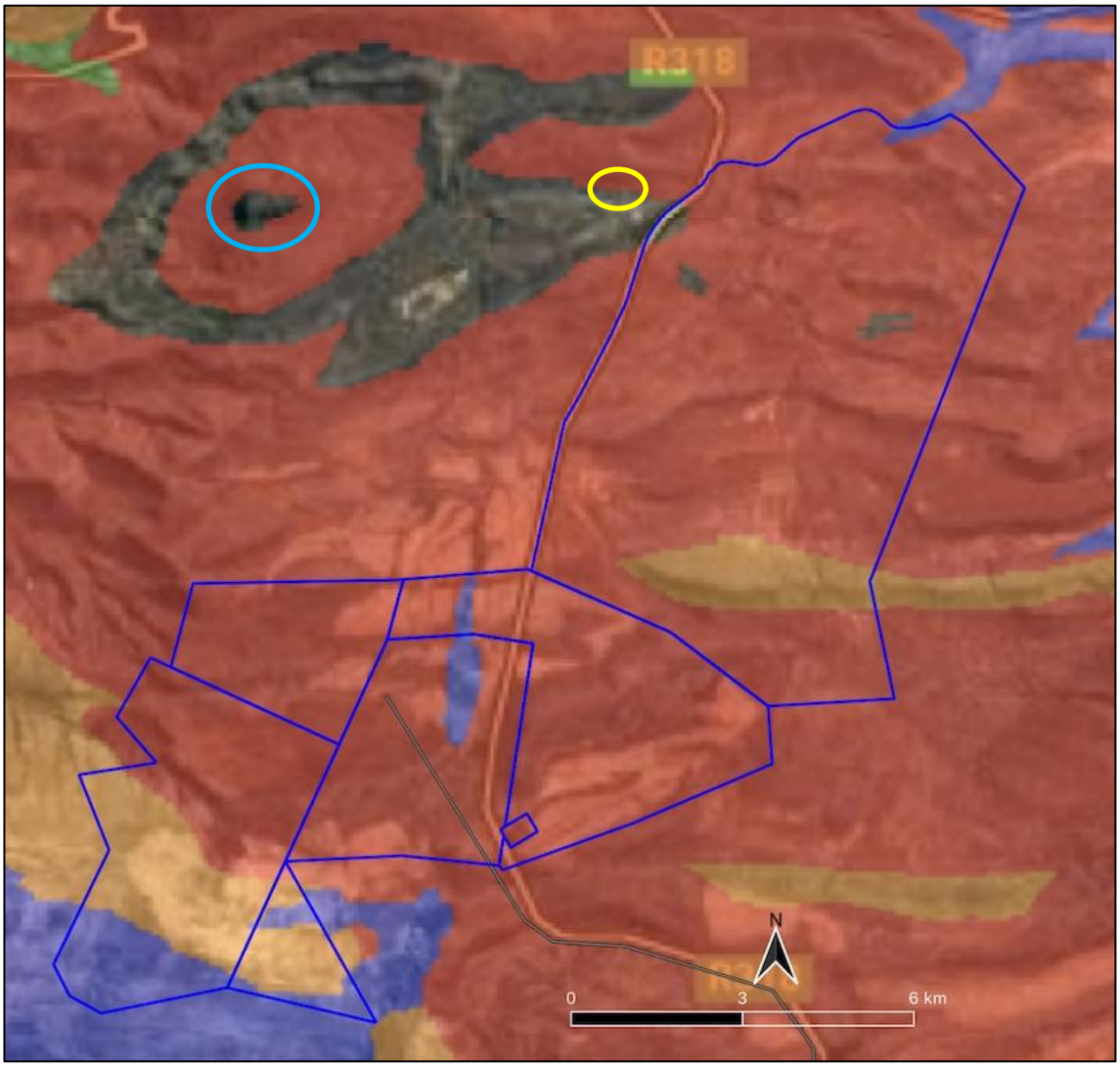

Figure 4: Extract from the SAHRIS palaeosensitivity map showing the generally high (yellow) and very high (red) palaeontological sensitivity of the Hugo WEF project area. Matroosberg Station and De Doorns Tafelberg are marked by the yellow and bule circles respectively (Source: https://sahris.org.za/map/palaeo).

7.1.2 Archaeology

There have been relatively few archaeological studies in the vicinity of the Hugo WEF.

In 2012 ACO Associates conducted an archaeological assessment prior to the raising of the Keerom Dam wall south-west of the WEF site (Halkett, 2012) (Figure 5). Although the assessment recorded a number of stone age artefacts around the periphery of the dam, "the majority of these are isolated finds (probably ESA or MSA) amongst which no diagnostic formal elements were noted" (Halkett 2012:8).

Kaplan undertook two archaeological assessment to the north-east of the Hugo WEF (Figure 5). In 2010 he surveyed an area at Nouga proposed for agricultural expansion and recorded large numbers of stone artefacts dating from the Middle (MSA) and Later Stone Ages (LSA). He also located what he referred to as a LSA factory site with many stone artefacts, including a number of formal tools (Kaplan 2010).

In a survey for the proposed Vredefort solar energy facility south of Touwsriver, Kaplan (2015) found a widespread background scatter of mainly MSA lithics of the sort that is common in the Karoo. It is important to note that both of Kaplan's study areas were on a plain and located

about 350 m lower than the mountainous and hilly Hugo WEF study area.

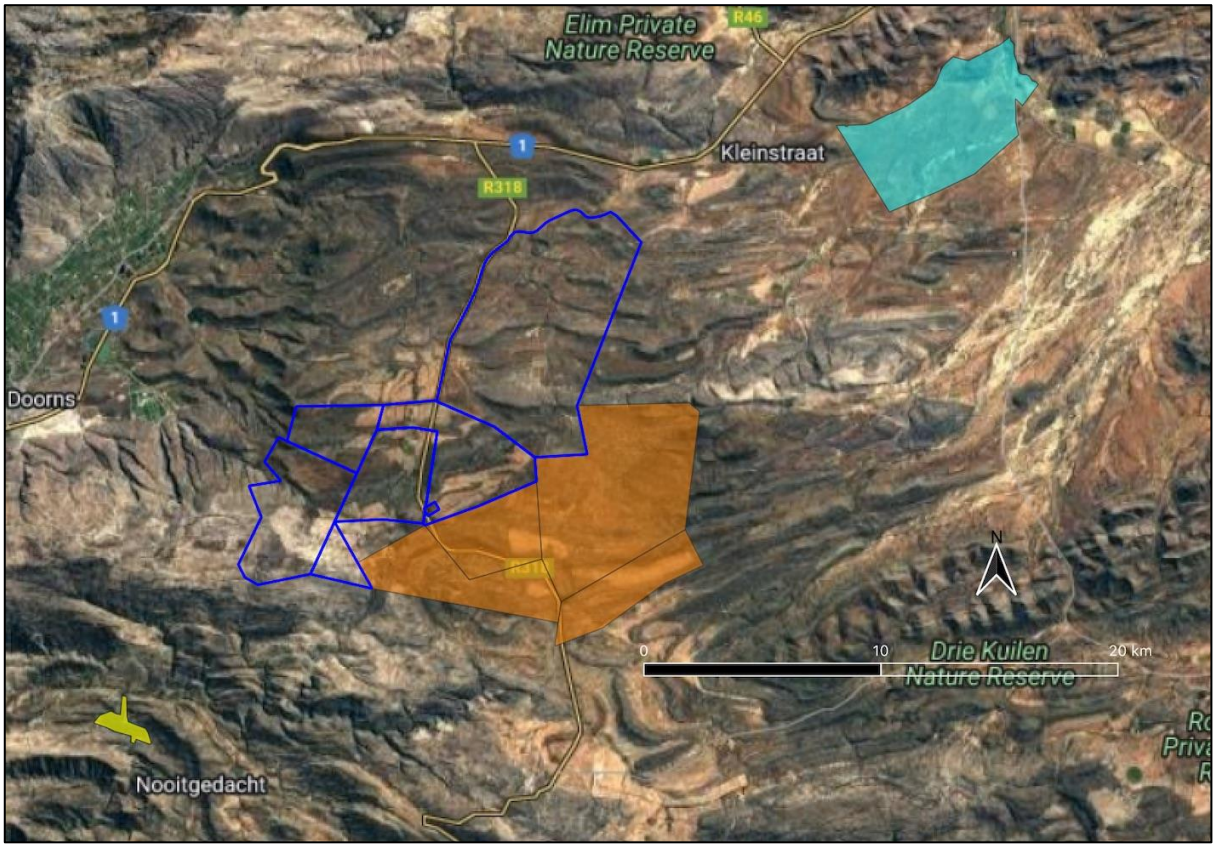

Figure 5: Previous archaeological assessments in the vicinity of the Hugo WEF (blue polygons). Vredefort SEF = light blue; Keerom Dam = yellow; Ezelsjacht WEF = orange (Source: Google Earth).

Most recently, Orton (2022) conducted an archaeological assessment for the proposed Ezelsjacht WEF which is located directly adjacent to the southern boundary of the Hugo WEF (Figure 5). The results of Orton's (2022) survey for the Ezelsjacht WEF reflected the well-established finding that archaeological materials and sites are not common in high-lying terrain, with only a few archaeological sites found. The most important was a LSA site with several retouched stone artefacts, and a scatter of LSA materials in a small dune field. Orton (2022) also reported some historical archaeological resources comprising mainly stone-walled kraals.

Due to the geology of the Karoo, caves and rock shelters are very rare and this means that most Karoo archaeological sites are open sites containing principally stone artefacts. Ostrich eggshell is sometime preserved and, occasionally, pottery on recent sites, but bone is rarely preserved except in rare, stratified contexts. Sites span the full range from the Early and Middle Stone Ages to the contact period between the Later Stone Age inhabitants of the region and the incoming European colonists within the last two centuries.

Potentially archaeologically sensitive areas in the landscapes like that of the Hugo WEF include:

- Springs, pans and watercourses which were a focus for human activity in the past, and prehistoric and colonial-era archaeological sites may be found around them.
- Outcrops of suitable stone which were quarried for tool making raw material during the Early, Middle and Later Stone Ages.
- Any accessible rock shelter or overhang on the skirts or slopes of hills and mountains. These have the potential to contain rock paintings and/or archaeological deposit.
- Rocky outcrops and boulders (particularly where dolerite is present) which may

contain pre-colonial and, in some instances, historical rock engravings.

Evidence from other parts of the South African interior (see for example, Webley & Hart 2010, Van der Walt 2016, Orton 2017, Gribble 2022) indicates that the bulk of archaeological material and sites are located in the river valleys. The higher ground like that to be occupied by the much of the Hugo WEF infrastructure is exposed and remote from resources such water, and the presence of archaeological sites and material in such areas is the exception rather than the rule.

7.1.3 Historical Built Environment

According to the National Heritage Resources Act, any built structure older than 60 years is considered to be historical and enjoys protection under the Act.

Available historical survey diagrams for the farms within the Hugo WEF footprint indicate that their parent farms were well-established by the second half of the 19th century and it is highly likely that the area had in fact been used and settled by farmers of European descent at least a century before.

The earliest colonial use of this area would have been for seasonal transhumant grazing. This was followed by a formal but still haphazard system of loan farms, where a farmer could rent an area of land, usually centred on a spring or water source, from the authorities at the Cape for a nominal annual fee. After the permanent British occupation of the Cape in the early 19th century, land tenure was formalised into a system of quitrents that resulted in the land divisions in the area that are in place today.

This long temporal span of agricultural use of the land suggests that there will be historical buildings and structures on particularly the older farms portions in the area. A comparison of the earliest 1:50,000 topographic map sheet for the area, which dates from 1969, with modern satellite imagery in a GIS indicates that the farming settlement nodes at Vredelus (Re 172), and Nadini (9/148), were already established in the 1960s and are thus likely to contain historical structures.

7.1.4 Graves and Burials

As indicated above, this area has been formally settled by farmers of European descent since at least the mid-19th century, and less formally for longer than that. The historical farm complexes in the WEF area, and potentially also any older, abandoned settlement nodes, can be expected to have cemeteries associated with them, although a review of satellite imagery for this report did not find any clear evidence for such.

Pre-colonial graves could occur almost anywhere in the WEF area, but the remote and mountainous nature of much of the wind energy facility footprint suggests that they are unlikely in those areas. Such burials are seldom marked, except possibly by a cairn of stones, and often occurred in places like riverbanks, where soft sand made burial easy.

7.1.5 Cultural Landscape

The area proposed for the Hugo WEF is remote and the landscape is largely natural and with only a light cultural overlay comprised of features - fences, wind pumps, farm roads and occasional farm complexes - which reflect the historical and modern use of the area for agriculture.

In their *Inventory and Policy Framework for Heritage and Scenic Resources,* Winter and Oberholzer (2013) identify the R318, which is straddled by the Hugo WEF as a "scenic / linking route of secondary importance". They also define the portion of the N1 directly to the north of the Hugo WEF as a route of major scenic / heritage value (Figure 6).

The although the cultural landscape of the Hugo WEF is generally only lightly developed, it does thus contain a number of identified features of significances and the construction of the WEF in this landscape will alter its visual character.

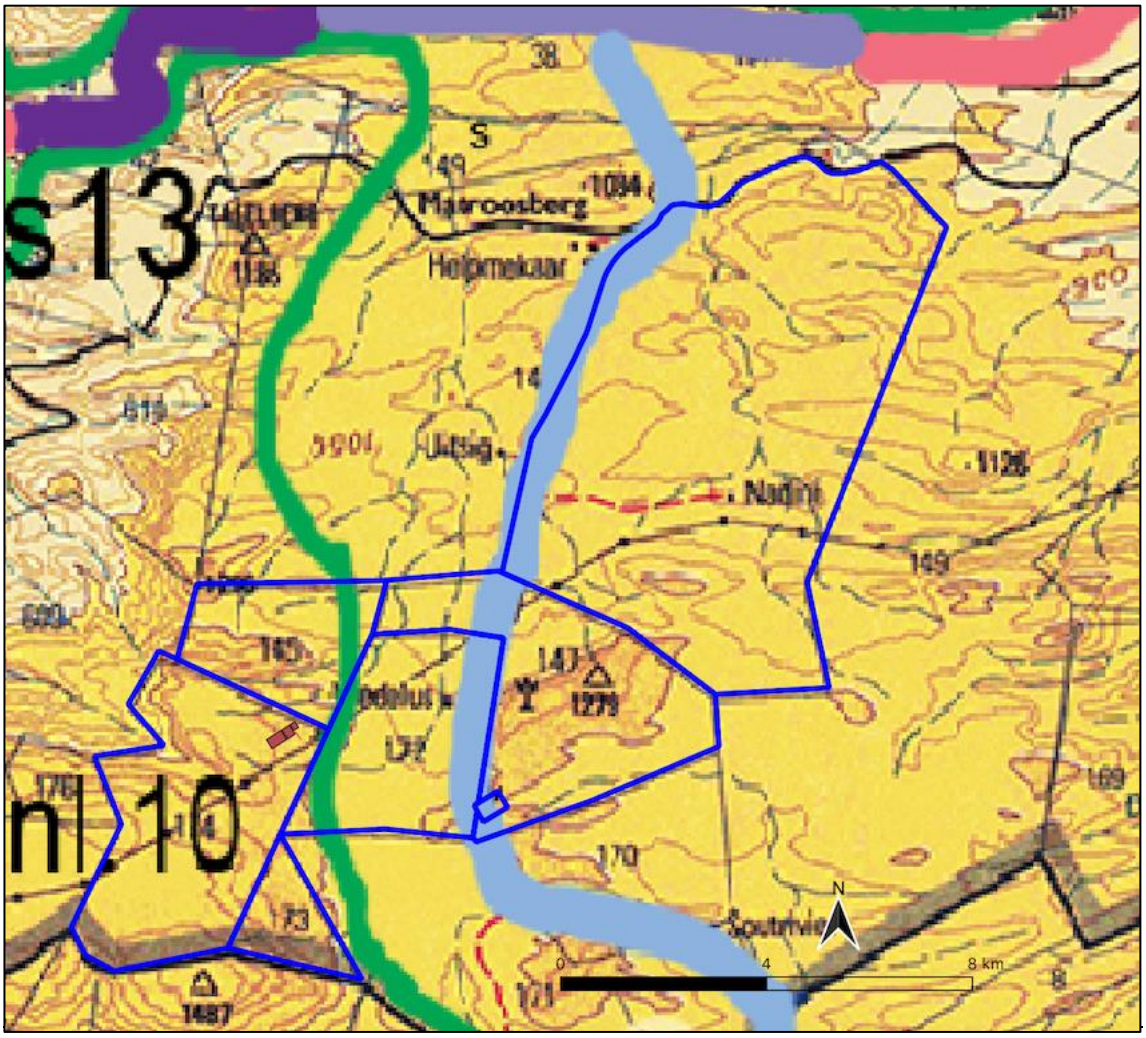

Figure 6: Overlay of Winter and Oberholzer (2013) Heritage and Scenic Resources map of the area with the footprint of the Hugo WEF. The pale blue line is the R318 and the purple and pinks lines north of the WEF show the various designations of the N1 route.(Source: Winter and Oberholzer (2013)).

7.2 Existing Impacts on Heritage Resources

There are currently no obvious threats to heritage resources in the study area aside from degradation caused by natural processes like weathering and erosion and possible impacts from farming activities (trampling of material by animals or damage from ploughing, vehicles, etc.). These impacts would generally be of negligible, negative significance.

There are no existing impacts to the cultural landscape (neutral).

7.3 Levels of Acceptable Change

The non-renewable nature of cultural heritage and archaeological resources means that any impact is unacceptable until such time as the resource has been inspected and studied further, if necessary.

Impacts to the landscape are difficult to quantify but in general a development that visually dominates the landscape from many publicly accessible vantage points is undesirable. The

height of turbines in the landscape is likely to have a negative impact, although the isolated nature of the landscape surrounding the project may ameliorate any impact.

8 POTENTIAL RISKS, ISSUES AND IMPACTS

Impacts to palaeontological resources, archaeological sites and materials, graves and burials, and to the cultural landscape are the principal concerns related to the Hugo WEF.

There is a possibility that the real palaeontological sensitivity of the WEF will be lower than that indicated by the SAHRA palaeo-map but, until a palaeontological assessment has been conducted, the SAHRA classification must be assumed to be correct.

Although the previous archaeological assessments conducted in the area suggest that the proposed Hugo WEF project site will not contain much significant archaeology, there is the chance (albeit small) that significant sites and/or material could be present.

The presence of graveyards at the settlement nodes within WEF area can be expected, as can the possibility that unmarked burials could be present on the site.

The historical built environment, particularly occupied farm complexes, can be expected to be buffered and thus excluded from direct and indirect (primarily visual) impacts arising from the WEF project.

The cultural landscape and its rural sense of place will potentially be the heritage receptor most affected by the WEF through the visual impact of the introduction of industrial elements into the landscape.

The following risks and impacts have been identified for the Hugo WEF project:

- Construction Phase
    - Potential impacts on palaeontology
    - Potential impacts on archaeology
    - Potential impacts on graves and burials
    - Potential impacts on the cultural landscape

    - Operational Phase
        - Potential impacts on the cultural landscape

        - Decommissioning Phase
        - Potential impacts on the cultural landscape

- Cumulative Impacts
- Potential impacts on palaeontology
- Potential impacts on archaeology
- Potential impacts on graves and burials
- Potential impacts on the cultural landscape.

9 SCOPING LEVEL - IMPACT ASSESSMENT

With the exception of possible visual impacts on the cultural landscape and the historical built environment, all other anticipated impacts are direct impacts.

The assessment below is a preliminary, high-level scoping impact assessment and impact ratings will be confirmed and detailed during the EIA phase, based on the results of more detailed heritage desktop study and fieldwork.

9.1 Potential Impacts during the Construction Phase

9.1.1 Palaeontology

Palaeontological resources may be affected by earthworks and excavation during the construction of the Hugo WEF.

However, the potential for fossils within the Table Mountain and Bokkeveld Groups bedrock and the younger, overlying soils that mantle much the area is very variable. The significance of impacts palaeontological resources will thus be low negative, but very low negative with the implementation of mitigation measures

9.1.2 Archaeology

Archaeological sites and materials may be affected by earthworks and excavation during the construction of the wind energy facility. At present very little archaeological material has been identified in the region and none within the wind energy project footprint.

The archaeology recorded by previous archaeological assessments in the vicinity of the Hugo WEF is generally of low significance, and the significance of impacts on such material, should it occur within the WEF area, would thus be low negative without the implementation of mitigation measures, and very low following mitigation.

9.1.3 Graves or Burials

Human graves or burials could be impacted almost anywhere on the site, but the probability of this happening during activities associated with the construction and decommissioning of the Hugo WEF is extremely low and the significance rating is thus very low negative both without and with the implementation of mitigation measures.

9.1.4 Cultural Landscape

The cultural landscape is likely to be the heritage resource most affected by the construction of the WEF. The introduction of the large infrastructural elements associated with a WEF into a generally rural landscape with identified scenic value has the potential to have a high negative impact on the cultural landscape. This may be reduced to medium negative if suitable measures to mitigate the intrusion of the WEF into the landscape can be implemented.

9.2 Potential Impacts during the Operational Phase

The only likely impact during the operational phase of the project will be to the landscape and the rating given above for the development phase remains applicable: high negative but reduced to medium negative if suitable measures to mitigate the intrusion of the WEF into the landscape have been implemented.

9.3 Potential Impacts during the Decommissioning Phase

The only likely impact during the decommissioning of the project will be to the landscape, but if decommissioning results int the removal of the WEF infrastructure, this impact is likely to be positive.

9.4 Cumulative Impacts

The consideration and assessment of cumulative impacts is based on the list of approved Wind and Solar PV projects in the Renewable Energy EIA Application (REEA) Database (2022_Q2) located within 30 km of the Hugo WEF. Two approved projects are located east of the Hugo WEF – the Montague Road and Touwsriver SEFs – and the proposed Ezelsjacht WEF lies directly south of the Hugo site.

Cumulative impacts to palaeontological material are difficult to assess because of the very variable distribution of fossils within the underlying bedrock of the region. Much of the region around the Hugo WEF is indicated as high or very high sensitivity on the SAHRA palaeo-map, and where impacts do occur, they can thus be expected to be significant. However, the patchy nature of the palaeontological resource means that the risk of impacts are reduced, and with mitigation, a low (negative) cumulative impact significance can be expected.

As with palaeontology, cumulative impacts to archaeological sites and/or materials and graves are difficult to assess, again because of the variable distribution of sites and materials across the landscape and because of the differences in the quality of surveys and reporting on different projects. Field observations made in previous assessments in the vicinity of the Hugo WEF suggest that significant archaeological sites and materials are not common in the area and that, provided appropriate mitigation measures are implemented, a low (negative) cumulative impact significance can be expected.

Impacts to the cultural landscape could be extensive if many projects are constructed in the vicinity, particularly if these projects are highly visible. These cumulative impacts cannot be fully mitigated but the implementation of the recommendations of visual consultants across all projects would likely reduce impacts from high to medium negative if highly sensitive areas are avoided.

Impacts to the landscape are considered to be the main driver of cumulative impacts on heritage resources.

9.5 No-Go Option

If the Hugo WEF is not developed, all heritage resources will remain as they are and the landscape will remain rural in nature.

10 LEGISLATIVE AND PERMIT REQUIREMENTS

The Scoping and EIA reports for Hugo WEF will require submission to HWC for comment. Any comments received from HWC must be considered by the competent authority before issuing an Environmental Authorisation.

No heritage-related permits are required for the development to be authorised, but if any archaeological or palaeontological material requires mitigation (whether a known resource or one discovered during construction) then the contracted archaeologist or palaeontologist willl need to obtain a permit from HWC, in their own name, to perform the work.

11 OPPORTUNITIES AND CONSTRAINTS

Although the Hugo WEF is located in an area of high to very high palaeontological sensitivity this is not a red flag or fatal flaw and should not constrain the proposed development, provided suitable measures to mitigate any impacts are implemented as part of the development of the WEF. Mitigation measures will be detailed in the HIA and may include site visits by a palaeontologist, the monitoring of earthworks by the ECO and the implementation of a protocol or mechanism for reporting and dealing with chance finds of fossil material made during project activities.

Archaeological sites are generally limited in extent and have much smaller constraints footprints on development that those applicable to biodiversity or ecology, for example. It is generally possible to mitigate or avoid impacts on these resources arising from WEF developments should they be found to be present within the development footprint. Experience from many previous WEF and solar developments has shown that the presence of archaeological resources within a development area is seldom a fatal flaw, and this is likely to

be the case for the Hugo WEF project, provided suitable mitigation measures are implemented.

The proximity of formal historical burial grounds in or near farm complexes means that they are likely to be avoided in the planning and siting of the project. Although historical graves and burials are extremely sensitive heritage receptors, their presence within the project area is not a fatal flaw, provided they are excluded from impacts during the development process.

With respect to unmarked usually pre-colonial graves, they too are an extremely sensitive and often contested heritage resource, and it is generally impossible to predict their presence in advance of development. However, the inclusion in the project Environmental Management Programme of a procedure for reporting and dealing with chance finds of human remains will ensure that the sensitivity of the development with respect to this potential heritage resource is low and that they will not be a fatal flaw.

The cultural landscape within which the Khoe WEF will be located is likely to be the heritage resource most affected by the construction of the WEF. The introduction of the large infrastructural elements associated with a WEF into a generally rural landscape with identified scenic value has the potential to have a high negative impact but need not be a fatal flaw if suitable measures to mitigate the intrusion of the WEF into the landscape can be implemented.

12 PLAN OF STUDY FOR THE IMPACT ASSESSMENT PHASE

It is to be expected that Heritage Western Cape (HWC) will request a Heritage Impact Assessment for the Hugo WEF as part of the EIA. Given the high palaeontological sensitivity of the development site, the HIA will need to include at least a desk-based palaeontological impact assessment, and will probably require a site assessment.

An archaeological site assessment has already been included in the budget for the project and will be undertaken before the HIA is produced.

It is recommended that if not already being planned, a visual impact assessment is commissioned for the project.

A comment on the HIA will be required from HWC and any comments received must be considered by the competent authority before issuing an Environmental Authorisation.

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14 APPENDIX A: SPECIALIST DECLARATION

(See separate PDF file)

15 APPENDIX B: CURRICULUM VITAE – JOHN GRIBBLE

(Last updated – October 2023)

NAME:	John Gribble
PROFESSION:	Archaeologist (Terrestrial & Maritime)
DATE OF BIRTH:	15 November 1965
COMPANY:	TerraMare Archaeology (Pty) Ltd
POSITION AT COMPANY:	Director & Senior Archaeologist
YEARS OF EXPERIENCE:	33
NATIONALITY:	South African

Education:

1979-1983	Wynberg Boys' High School
1986	BA (Archaeology), University of Cape Town
1987	BA (Hons) (Archaeology), University of Cape Town
1990	Master of Arts, (Archaeology) University of Cape Town

Employment:

- September 2017 – present: ACO Associates, Senior Archaeologist and Consultant
- 2014-2017: South African Heritage Resources Agency, Manager: Maritime and Underwater Cultural Heritage Unit
- 2012-2018: Sea Change Heritage Consultants Limited, Director
- 2011-2012: TUV SUD PMSS (Romsey, United Kingdom), Principal Consultant: Maritime Archaeology
- 2009-2011: EMU Limited (Southampton, United Kingdom), Principal Consultant: Maritime Archaeology
- 2005-2009: Wessex Archaeology (Salisbury, United Kingdom), Project Manager: Coastal and Marine
- 1996-2005: National Monuments Council / South African Heritage Resources Agency, Maritime Archaeologist
- 1994-1996: National Monuments Council, Professional Officer: Boland and West Coast, Western Cape Office

Professional Qualifications and Accreditation:

- Member: Association of Southern African Professional Archaeologists (ASAPA) (No. 043)
- Principal Investigator: Maritime and Colonial Archaeology, ASAPA CRM Section
- Field Director: Stone Age Archaeology, ASAPA CRM Section
- Class III Diver (Surface Supply), Department of Labour (South Africa) / UK (HSE III)

Experience:

I have more than 30 years of professional archaeological and heritage management experience. After completing my postgraduate studies and a period of freelance archaeological work in South Africa and aboard, I joined the National Monuments Council (NMC) (now the South African Heritage Resources Agency (SAHRA)) in 1994. In 1996 I become the NMC's first full-time maritime archaeologist and in this regulatory role was responsible for the management and protection of underwater cultural heritage in South Africa under the National Monuments Act, and subsequently under the National Heritage Resources Act.

In 2005 I moved to the UK to join Wessex Archaeology, one of the UK's biggest archaeological consultancies, as a project manager in its Coastal and Marine Section. In 2009 I joined Fugro

EMU Limited, a marine geosurvey company to set up their maritime archaeological section. I then spent a year at TUV SUD PMSS, an international renewable energy consultancy, where I again provided maritime archaeological consultancy services to principally the offshore renewable and marine aggregate industries.

In August 2012 I established Sea Change Heritage Consultants Limited, a maritime archaeological consultancy. Sea Change traded until 2018, providing archaeological services to a range of UK maritime sectors, including marine aggregates and offshore renewable energy.

In the UK I was also involved in strategic projects which developed guidance and best practice for the UK offshore industry with respect to the marine historic environment. This included the principal authorship of two historic environment guidance documents for COWRIE and the UK renewable energy sector (*Historical Environment Guidance for the Offshore Renewable Energy Sector* (2007) and *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector* (2010)). I was also manager and lead author in the development of the archaeological elements of the first Regional Environmental Assessments for the UK marine aggregates industry, and in the 2009 *UK Continental Shelf Offshore Oil and Gas and Wind Energy Strategic Environmental Assessment* for Department of Energy and Climate Change. In 2013-14 I was lead author and project co-ordinator on *The UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001: An Impact Review for the United Kingdom* and in 2016 I was co-author of a Historic England / Crown Estate / British Marine Aggregate Producers Association funded review of marine historic environment best practice guidance for the UK offshore aggregate industry.

I returned to South African in mid-2014 where I was re-appointed to my earlier post at SAHRA: Manager of the Maritime and Underwater Cultural Heritage Unit. In July 2016 I was appointed as Acting Manager of SAHRA's Archaeology, Palaeontology and Meteorites Unit.

I left SAHRA in September 2017 to join ACO Associates as Senior Archaeologist and Consultant. Since being at ACO I have carried out a wide range of terrestrial and maritime archaeological assessments, many of which are listed in the following section.

In 2018 of the potential impacts of marine mining on South Africa's palaeontological and archaeological heritage for the Council for Geoscience, on behalf of the Department of Mineral Resources.

I have been a member of the Association of Southern African Professional Archaeologists (No. 043) for more than thirty years and am accredited by ASAPA's Cultural Resource Management section.

I have been a member of the ICOMOS International Committee for Underwater Cultural Heritage since 2000 and served as a member of its Bureau between 2009 and 2018.

Since 2010 I have been a member of the UK's Joint Nautical Archaeology Policy Committee.

I am a member of the Advisory Board of the George Washington University / Iziko Museums of South Africa / South African Heritage Resources Agency / Smithsonian Institution 'Southern African Slave Wrecks Project'.

I have served on the Heritage Western Cape Archaeology, Palaeontology and Meteorites Committee since 2014.

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