

Heritage Statement

in support of Heritage Western Cape Notification of Intent to Develop (HWC NID
– Section 38)

(HWC Case No.: HWC24011815 and DEA&DP Ref. No. DEA&DP Ref No.
16/3/3/6/7/1/D6/18/0312/23)

**Proposed Hartenbos WWTW PV Solar Plant on a Portion of
RE/101/217 of Farm Hartenbosch, Mossel Bay Municipality, Western
Cape Province**

for

Mossel Bay Municipality, Mr. S Naidoo, 101 Marsh Street, Mossel Bay, Private Bag
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by



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29 November 2023
Revised with inputs on 17 January 2024

Summary - Conclusions & Recommendations

The following conclusions and recommendations are arrived at after reviewing information obtained through:

- previous heritage studies and HWC applications in the vicinity of the development footprint,
- SAHRIS PalaeoSensitivity map and inputs from palaeontologist Prof John Pether,
- previous archaeological and heritage related studies in the surrounding area,
- SG Diagrams,
- historic and Google Earth aerial photographs, and
- a site inspection (archaeological walk-through).

The SAHRIS PalaeoSensitivity map shows that the study area is shaded red, meaning that palaeontological sensitivity is VERY HIGH and that “field assessment and protocol for finds is required” (Figure 18). Even though the study area is transformed and consists of “made ground”, to err on the safe side palaeontologist, Prof John Pether was consulted for inputs.

Prof Pether concludes as follows “Due to the extensive transformation of the site, and the prevalence of petrified fossil wood in the general area, a significant impact on the palaeontological resources of the Hartenbos Fm., due to construction of the SEF and BESS, is not anticipated” (Pether 2023, Pg. 3).

“Just in case *in situ* fossil wood is unearthed in the parts of the site which have not been covered by “made ground”, such as from the shallow trenches made for the SEF cabling, an alert for the uncovering of fossil wood must be included in the Environmental Management Plan (EMP). A collection must be made of the finds of fossil wood, for later deposition at a museum, together with information of the find location. The fossil wood must be handed into the custody of the Environmental Control Officer (ECO) and/or the site manager, who must ensure its interim safe storage. On the completion of Construction Phase earthmoving activities, the fossil wood collection must be conveyed to a curatorial institution. The Albany Museum in Grahamstown (www.am.org.za) is an appropriate repository where palaeobotanist Dr Rosemary Prevec studies and curates the fossil plant collections, including Cretaceous plant fossils. A Collections Agreement exists with the Palaeosciences Centre, University of the Witwatersrand (Dr Marion Bamford), for petrified fossil wood specimens collected from the Maandagskop Quarry on Portion 12 of Farm Hartenbosch 217. As collaborating palaeobotanists Drs Bamford and Prevec must be consulted about the preferred repository for fossil wood specimens from the SEF site” (Pether 2023, Pg. 3).

The development footprint is significantly transformed and consists of “made ground”, and no colonial or pre-colonial heritage resources of significance were identified in the study area. If present in buried sediments, then Stone Age implements are expected to be of low significance and Not Conservation Worthy. No caves or rock shelters occur in the development footprint. No heritage resources in the surroundings will be impacted by the proposed activity.

Because there are no significant heritage resources associated with the development footprint, it does not meaningfully contribute to the already altered cultural landscape of the area. For the same reason there will be negligible to no cumulative impact on the heritage value of the area.

Being a field of solar panels, the proposed PV solar plant will have a relatively low vertical aspect and will be partially screened by existing vegetation and developments. Nevertheless,

on heritage grounds, due to the transformed nature of the site and the absence of heritage resources or themes in and around the affected portion of RE/101/217rf 116, the proposed solar facility and battery energy storage system will have a negligible to zero impact on the visual or aesthetic heritage value of the area. The former rural landscape is already transformed into an urban and residential cultural landscape with associated infrastructure. Consequently, the proposed solar plant will have negligible to zero visual impact on the aesthetic value of the area.

The positive socio-economic impact, including short-, medium- and long-term jobs as well as the urgent need for increasing the supply of electricity outweigh the negligible to zero negative impacts this project may have on heritage resources.

Because of the above, and because there is no reason to believe that significant heritage resources will be impacted by the proposed activity, it is recommended that the proposed activity be approved in full, and that a Heritage Impact Assessment is not warranted for the project.

Nevertheless, it is recommended that Heritage Western Cape consider and/or require that the following be included in the Environmental Authorisation / Environmental Management Program, if the project is approved:

- although not requiring further Palaeontological investigation, an alert for the uncovering of fossil wood must be included in the Environmental Authorisation and/or the Environmental Management Program (EMP) for the construction phase of project,
- due to the disturbed and transformed nature of the development footprint, as well as the findings of this and previous archaeological studies, archaeological monitoring is NOT recommended, but,
- if any human remains or significant archaeological materials are exposed during construction activities, then the find should be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned, and completed before construction continues in the affected area and will be at the expense of the developer.

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1. Name, Bio-sketch and Declaration of Specialist

I, Peter Nilssen (PhD in archaeology, University of Cape Town, 2000), herewith confirm that I am a Professional member - in good standing - of the Association of Southern African Professional Archaeologists (ASAPA), including the Cultural Resource Management section of the same association since 1989 (ASAPA professional member # 097). I am an accredited Principal Investigator for archaeozoology (specialist analysis), coastal, shell midden and Stone Age archaeology; Field Director for Colonial Period archaeology; and Field Supervisor for Iron Age archaeology and Rock Art. I have worked as a professional archaeologist in Cultural Resource Management since 1989 and have completed more than 260 heritage-related impact assessments and mitigation projects as Principal Investigator.

As the appointed independent specialist (archaeologist) for this project hereby declare that I:

- act as an independent specialist in this application,
- regard the information contained in this report as it relates to my specialist input/study to be true and correct,
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act,
- have and will not have no vested interest in the proposed activity proceeding,
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act,
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 982) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification, and
- am aware that a false declaration is an offence in terms of regulation 48 of GN No. R. 982.



Signature of the specialist:

Date: **29 November 2023**

2. Introduction & Background

To assist with the supply of electricity, the Mossel Bay Municipality is proposing the development of a Photovoltaic (PV) Solar Plant adjacent to the Hartenbos Wastewater Treatment Works (WWTW), Mossel Bay. The environmental application, currently a Pre-Application phase, is being facilitated by Carla Swanepoel of Sharples Environmental Services cc (hereafter SES) who compiled a Screening Tool Report for the project (Swanepoel 2023). Because the proposed development footprint exceeds 5000 m² in extent, Section 38(1)(c)(i) of the National Heritage Resources Act (Act 25 of 1999, NHRA) is triggered, resulting in the requirement for a Notification of Intent to Develop (NID) application to Heritage Western Cape (HWC). Through SES, the applicant appointed this author to assist with the heritage process and NID application to HWC.

This document is not a Heritage Impact Assessment, but rather, is a scoping report that provides additional information in support of the NID application and motivates the recommendations made therein.

This Heritage Statement and the accompanying NID application form serve to inform HWC about the proposed development activity and to make recommendations regarding the potential impact on heritage resources and the requirement for any further specialist investigations. This report, the NID application form, and accompanying documentation should be read together as information is not always repeated.

The purpose of this Heritage Statement is to report the results of a site inspection and basic review of background information and previous heritage-related studies with the aim to:

- 1) assist HWC in their decision-making process to ensure that potentially significant heritage resources are investigated and not overlooked, and that unnecessary heritage studies are not undertaken, and
- 2) to assist the applicant with the heritage application process, to avoid expenses on unnecessary specialist studies, and to avoid or minimize later delays and costs resulting from the chance discovery of previously undetected and significant heritage resources.

For the above reasons, HWC recommends that NID applications should be prepared with the assistance of suitably qualified and accredited heritage professionals.

Based on information submitted here as well as its own sources and expertise, HWC will decide and advise on the way forward regarding the protection and management of heritage resources in accordance with the NHRA.

3. Site Location and Development Proposal

The proposed development footprint is a portion of RE/101/217, Farm Hartenbosch, and is situated on the same property and immediately north of the existing Hartenbos WWTW. RE/101/217 is bounded in the north by the residential development of Monte Christo, in the east and south by various subdivisions of Farm Hartenbosch 217, and in the west by Outeniquasbosch Park 428. The site is some 10 km NNW of central Mossel Bay in the Western Cape Province with the centre of the development footprint at 34° 6'21.31"S 22° 6'5.64"E (WGS 84, see Locality Map and Figures 1 through 4).



Locality Map. General location of the study area (yellow marker) NNW of Mossel Bay, Western Cape Province. Courtesy of Google Earth 2023. (A4 version below)



Figure 1. Enlarged from Locality Map showing RE/101/217 (green polygon) relative to Hartenbos and Mossel Bay, Western Cape. Courtesy of Cape Farm Mapper. (A4 version below)



Figure 2. Enlarged portion of 1:50 000 topographic map 3422 AA 1998 Mossel Bay showing study area (red star and red polygon in inset) relative to Hartenbos, WWTW and roads. Yellow marker represents approximate centre point of proposed development footprint. Courtesy of the Chief Directorate Surveys and Mapping, Mowbray and Google Earth 2023. (A4 version below)

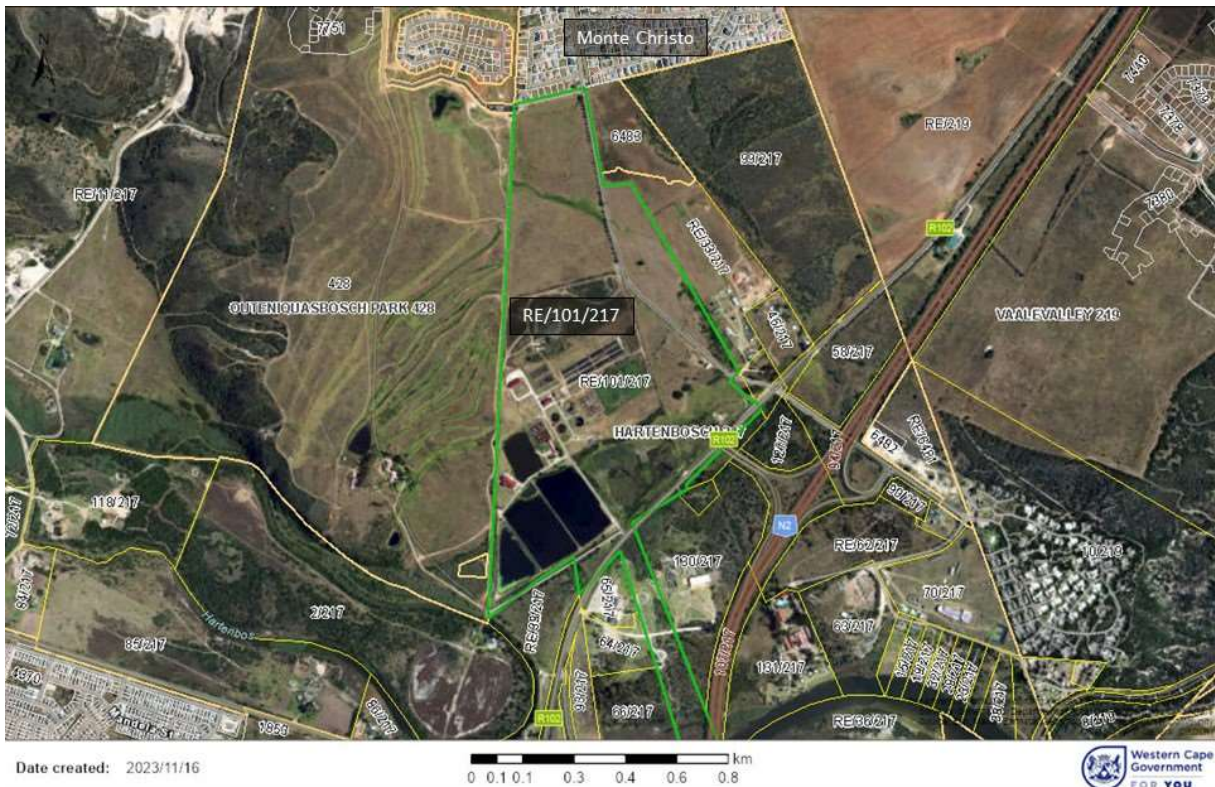


Figure 3. Enlarged from Figure 1 showing RE/101/217 (green polygon) with existing developments, surroundings properties, developments and roads. Courtesy of Cape Farm Mapper. (A4 version below)



Figure 4. Enlarged from Figure 3 showing the proposed and transformed / disturbed development footprint (red polygon) on RE/101/217 with existing disturbances and developments. Courtesy of Google Earth 2023. (A4 version below)



Figure 5. Preferred Site Development Plan. Courtesy of the applicant. (A4 version below)



Figure 6. Alternative Site Development Plan. Courtesy of the applicant.

The proposed development involves the construction of a Photovoltaic (PV) Solar Plant with a Battery Energy Storage System. The preferred option is shown in Figure 5 and the alternative option is shown in Figure 6.

The extent of RE/101/217 is 74,85 ha while the proposed development footprint is roughly 6,13 ha in extent and is registered to and managed by the Mossel Bay Municipality represented by Mr S. Naidoo (SA ID 6210245252084, Title Deed T42742/2004, SG Diagrams - see accompanying documents).

A detailed description of the development proposal is given in Section D of the accompanying HWC NID application form and is not repeated here. Of relevance to archaeological and palaeontological heritage resources are earthmoving activities. Earthworks will consist of excavations and levelling (cut and fill) to create a level area for the solar panels, and excavations or drilling for foundations. Foundations for structures and the mounting system may consist of conventional trenches or piles / plinths. Although depth of excavations is currently unknown and will be determined through geotechnical test excavations, it is not anticipated that any excavations will exceed 3 meters in depth. The only deep excavations will be those for piles/poles to support the mounting system and these excavations will be core or drill holes of limited spatial extent. Consequently, their impact will be limited to small surface areas. Considering that the existing “made ground” is likely a few meters thick and that surface sediments below “made ground” are already disturbed by a variety of agricultural and development activities, excavations are not anticipated to intercept significant *in situ* archaeological or palaeontological resources. Nevertheless, see further details in Section 5 below.

4. Study Area

The proposed activity is on a portion of RE/101/217 that is already transformed by the Hartenbos WWTW, transport infrastructure and agricultural activities. In addition, Google Earth historic imagery shows that the transformation of the proposed development footprint begins by at least 2005 with importing, dumping, and levelling of stockpiles of sediment likely originating from the Hartenbos WWTW (evident from vehicle tracks / roads), but possibly from elsewhere too. By 2019 this process has affected about 90% of the development footprint resulting in the vast bulk of the study area consisting of “made ground” with the original surface sediments now buried (Figures 7, 8 & 9).

Although it is difficult to capture by camera, the site is a raised area or “mound” that does not follow the slope of the surrounding topography. Although not accurate, the oblique Google Earth image shown in Figure 10 gives an impression of this raised area of “made ground”.



Figure 7. Some disturbance of study area by 2005 (top) and notable dumping and spreading of stockpiles in 2013. Note that the offset in the 2005 image is a Google Earth mapping error. Courtesy of Google Earth 2023.



Figure 8. Further evidence of dumping and spreading of stockpiles in 2016 and 2017. Courtesy of Google Earth 2023.



Figure 9. Evidence of continued dumping and spreading of stockpile sediments in 2018 and 2019 with the bulk of the study area now completely transformed and consisting of “made ground”. Courtesy of Google Earth 2023.



Figure 10. Oblique NNE view of the study area (red polygon) showing the raised “made ground” north of the Hartenbos WWTW. The residential development of Monte Christo is in the top right background. Courtesy of Google Earth 2023.

Views toward the study area and examples of the affected environment show that the surroundings and the proposed development footprint are substantially transformed and degraded (Figures 11 through 16). Directions of views are indicated on photographs with abbreviated compass bearing names such as NNW = North-North-West, SW = South-West, SE = South-East, and so on.



Figure 11a. View toward study area (white ellipse) from the N2 highway - eastbound (see enlarged view in Figure 11b).



Figure 11b. Enlarged from Figure 11a - view toward study area (white ellipse) from the N2 highway - eastbound.



Figure 12a. View toward study area (white ellipse) from the N2 highway - westbound (see enlarged view in Figure 12b).



Figure 12b. Enlarged from Figure 12a - view toward study area (white ellipse) from the N2 highway - westbound.



Figure 13. Panoramic views onto the property from the NE (top) and NW (bottom) corners. Note Monte Christo Road (top left) and road to nursery (top right) as well as raised ground (bottom).



Figure 14. Panoramic views onto the property from the SW (top) and SE (bottom) corners. Note modern structure (top) also shown in Figure 16.



Figure 15. Examples of the affected portion of RE/101/217 showing dense vegetation cover and trash heaps.



Figure 16. Examples of the affected portion of RE/101/217 showing made ground, trash, and modern structure.

5. Background Information, Previous Heritage Studies & Heritage Resources

Palaeontology

A DFFE screening tool report was obtained by SES as part of the initial stages of the environmental application process (Swanepoel 2023). The screening tool map shown in Figure 16 indicates that the study area is shaded red and thus attributed with a VERY HIGH palaeontological sensitivity in the tables.

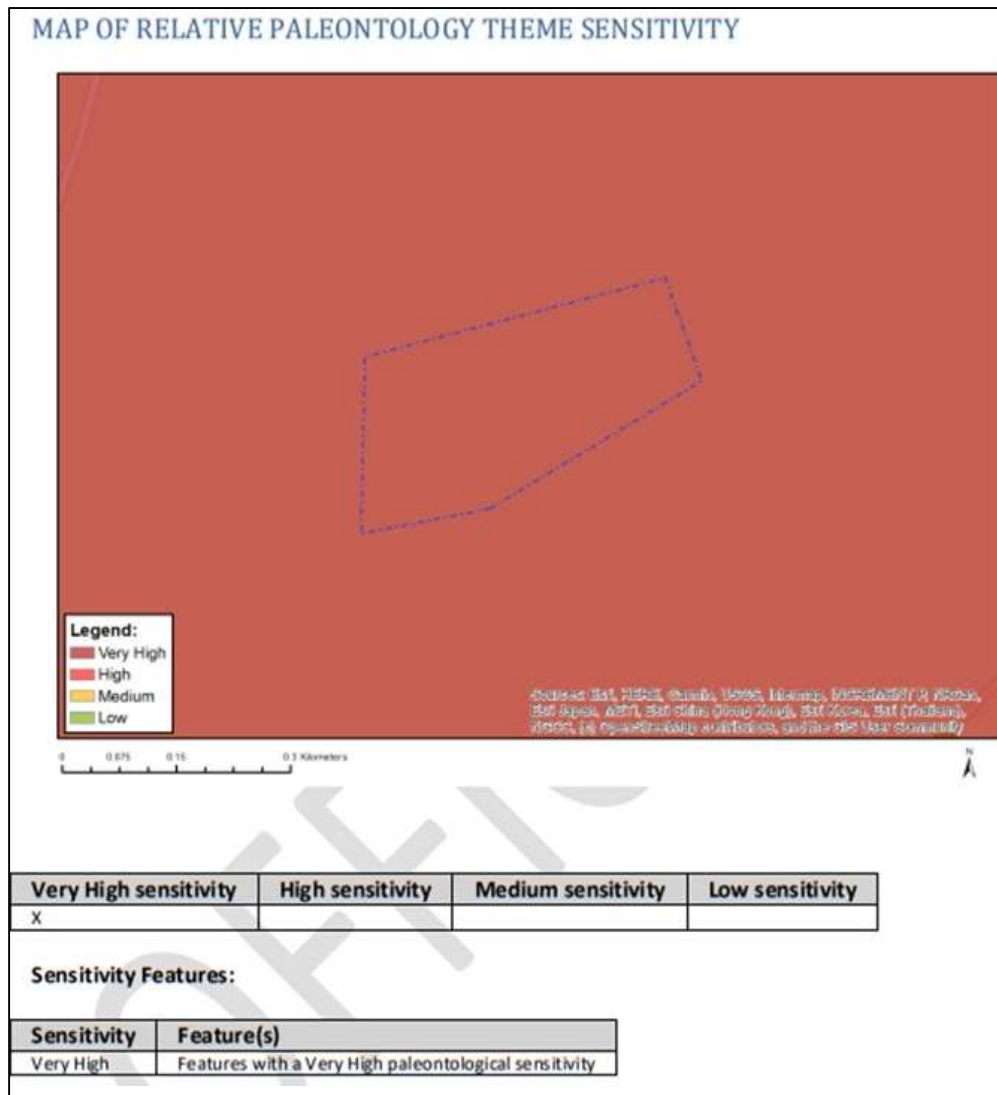


Figure 17. Map of relative palaeontology theme sensitivity from the DFFE screening tool report (Bennet & Swanepoel 2022). The development footprint is represented by the dashed blue line.

The SAHRIS PalaeoSensitivity map shows that the study area is shaded red, meaning that palaeontological sensitivity is VERY HIGH and that “field assessment and protocol for finds is required” (Figure 18). Even though the study area is transformed and consists of “made ground”, to err on the safe side palaeontologist, Prof John Pether was consulted for inputs.

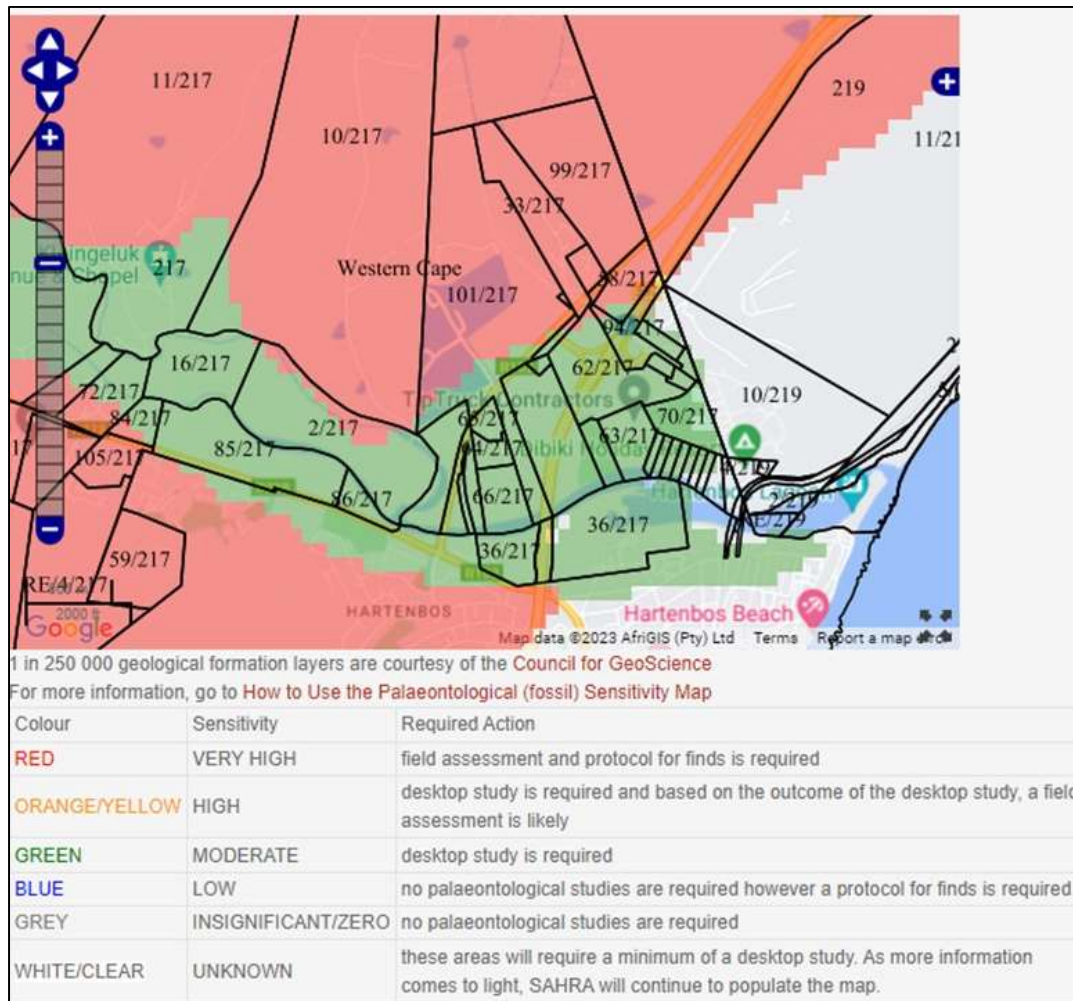


Figure 18. SAHRIS PalaeoSensitivity Map shows that the affected portion of RE/101/217 is shaded red (<http://www.sahra.org.za/>).

The below section is copied verbatim from Prof Pether’s report, which is submitted in full with this NID application. Figure numbers are changed to follow the sequence in this report.

Geological Context

The site is situated on the Hartenbos Formation of the Uitenhage Group (Figure 19) which is comprised of soft greyish sandstones, with thin conglomerate interbeds and crumbly greenish to reddish sandy mudstones. The depositional palaeoenvironments include fluvial, deltaic and estuarine settings of Early Cretaceous age (140-130 million years ago).

Palaeontology

The noticeable fossil material in the Hartenbos Fm. is an abundance of petrified (silicified) wood. Petrified logs of fossil wood are common overlying the Hartenbos Fm. outcrop areas on Farm Hartenbosch 217 (Viljoen & Malan, 1993). Evidently no fossil bones or fossil shells are reliably recorded. It is possible that groundwaters have destroyed such material relatively soon after deposition, while preserving the wood and plant fossils.

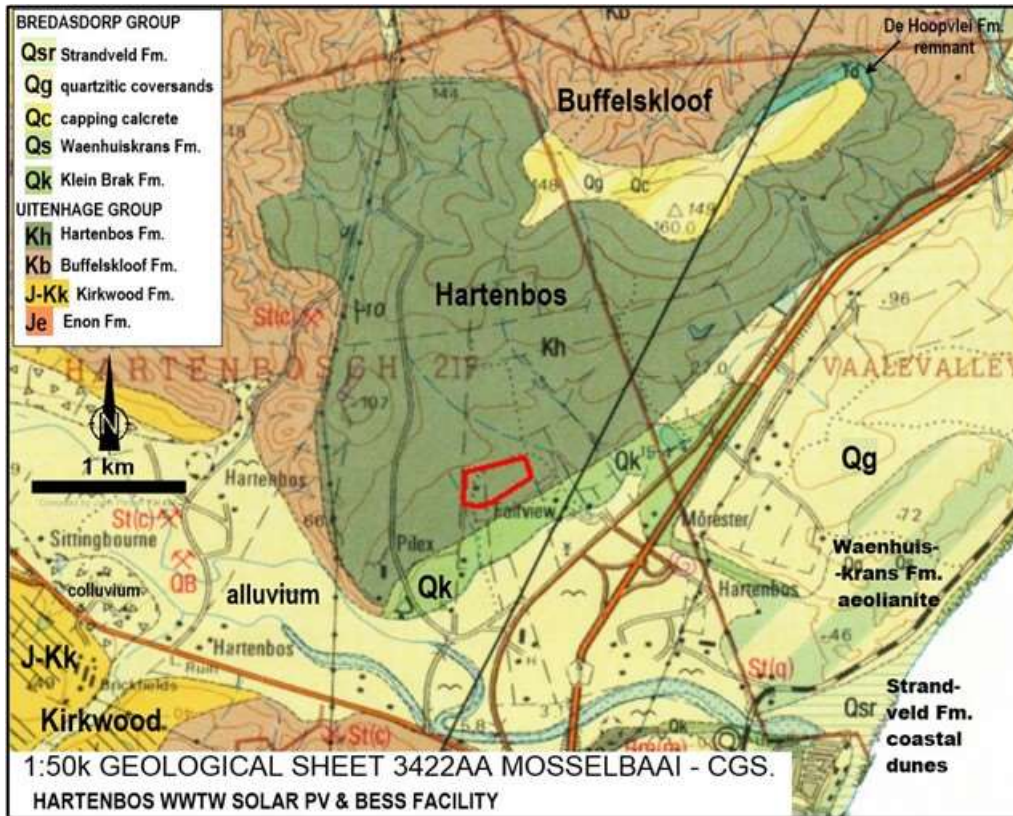


Figure 19. Location and geological context.

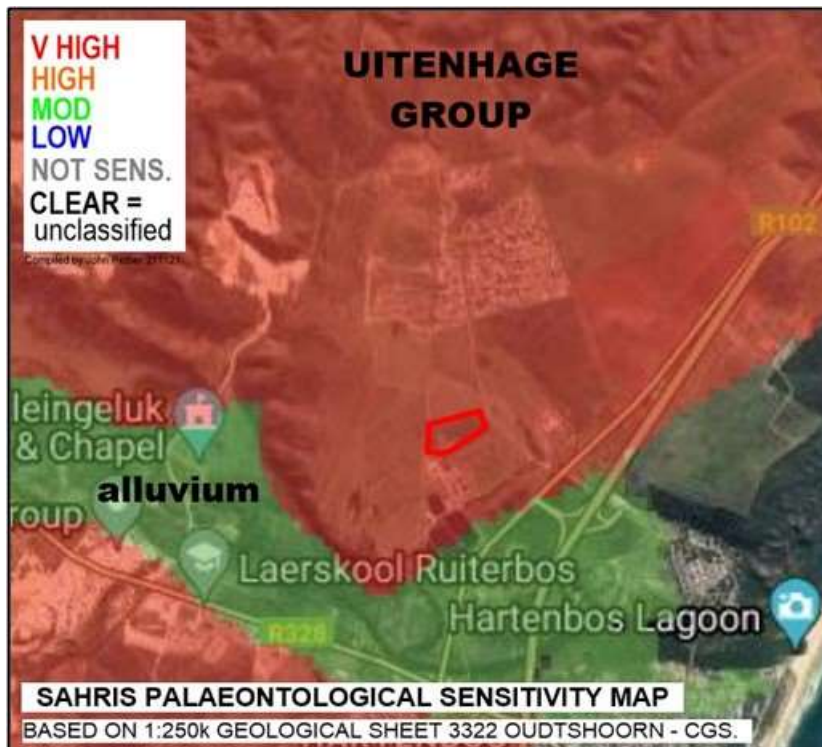


Figure 20. Palaeontological sensitivity.

Anticipated Impacts

The Hartenbos Formation is depicted to be of VERY HIGH palaeontological sensitivity on the SAHRIS Palaeo-Map (Figure 20), but this classification applies to the Uitenhage Group in general and not specifically to the Hartenbos Fm. This is the result of the various formations making up the Uitenhage Group, of differing sensitivity/fossil content, not being distinguished on the out-of-date 3322 OUDTSHOORN geological map on which the SAHRIS Palaeo-Map is based. In view of the weathered nature of the Hartenbos Fm. subsurface and the prevalence of petrified wood the palaeontological sensitivity of the formation is MODERATE.

However, the site has been extensively transformed, as seen in Google Earth images through time (Figures 7 through 10) and is evidently a landfill site. This has been confirmed by Dr Peter Nilssen (pers. comm.) who notes "The disturbance entails dumping and levelling and I have checked when driving past that the site does not follow the surrounding relatively gentle slopes towards the drainage line in the South and SW but is raised and "moundy". The topography appears interrupted and modified. My site inspection revealed that 90% of the development footprint is indeed 'made ground'".

Due to the extensive transformation of the site, and the prevalence of petrified fossil wood in the general area, a significant impact on the palaeontological resources of the Hartenbos Fm., due to construction of the SEF and BESS, is not anticipated.

Recommendation

Just in case *in situ* fossil wood is unearthed in the parts of the site which have not been covered by "made ground", such as from the shallow trenches made for the SEF cabling, an alert for the uncovering of fossil wood must be included in the Environmental Management Plan (EMP). A collection must be made of the finds of fossil wood, for later deposition at a museum, together with information of the find location. The fossil wood must be handed into the custody of the Environmental Control Officer (ECO) and/or the site manager, who must ensure its interim safe storage. On the completion of Construction Phase earthmoving activities, the fossil wood collection must be conveyed to a curatorial institution. The Albany Museum in Grahamstown (www.am.org.za) is an appropriate repository where palaeobotanist Dr Rosemary Prevec studies and curates the fossil plant collections, including Cretaceous plant fossils. A Collections Agreement exists with the Palaeosciences Centre, University of the Witwatersrand (Dr Marion Bamford), for petrified fossil wood specimens collected from the Maandagskop Quarry on Portion 12 of Farm Hartenbosch 217. As collaborating palaeobotanists Drs Bamford and Prevec must be consulted about the preferred repository for fossil wood specimens from the SEF site.

Archaeology

The DFFE screening tool map and table for the archaeological and cultural heritage theme sensitivity shown in Figure 21 indicates that the proposed development footprint falls within an area of LOW sensitivity (Swanepoel 2022). A Heritage Impact Assessment conducted for a property a few hundred meters to the north-east (Nilssen 2023) confirmed that the area is not archaeologically sensitive and given the transformed state of the current study area and the fact that it consists of "made ground", the proposed activity will have no to negligible impact on the archaeological or heritage value of the area. Consequently, the proposed development footprint area is of LOW sensitivity concerning the archaeological and cultural heritage theme.

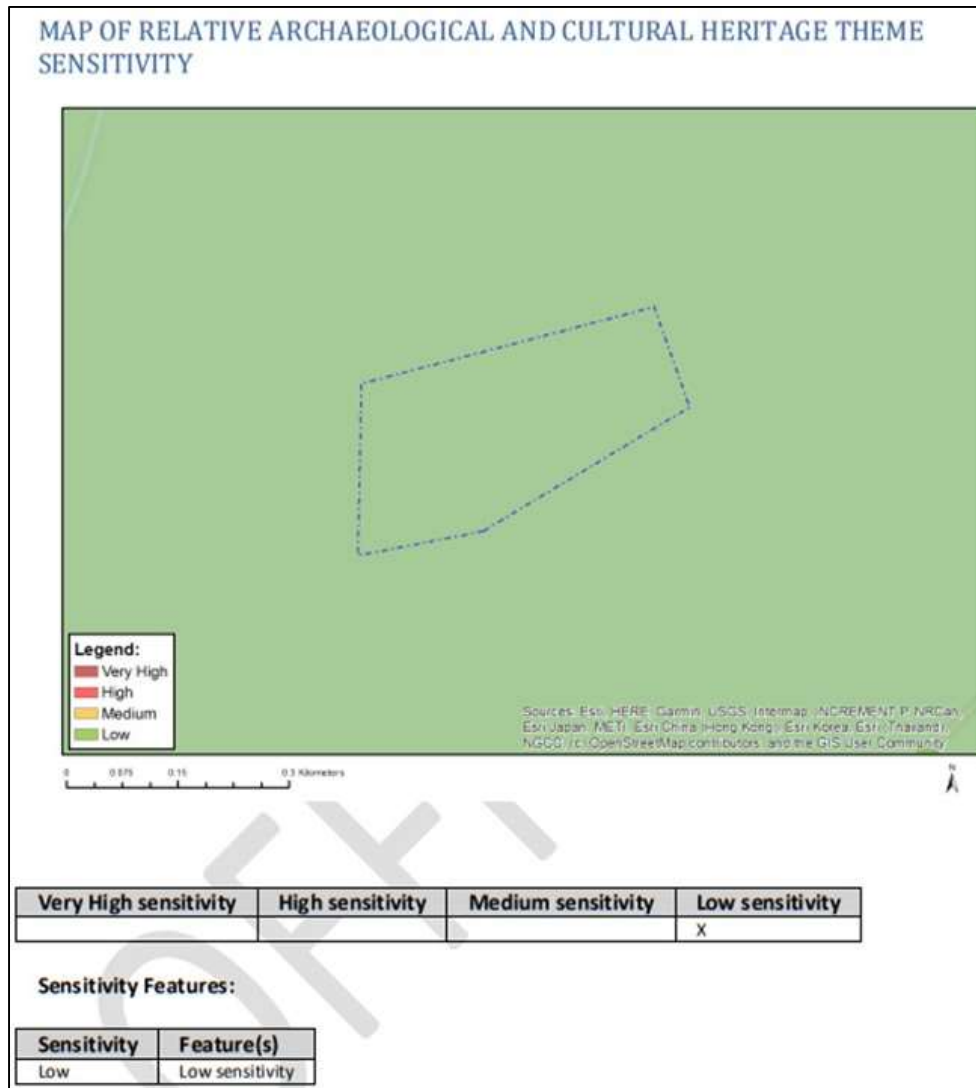


Figure 21. Map of relative archaeological and cultural heritage theme sensitivity from the DFFE screening tool report (Swanepoel 2023). The development footprint is represented by the dashed blue line.

A detailed desktop study and literature review is beyond the scope of this report but given that this author conducted a HIA for Erf 6483 some 300 m to the NNE and that the current study area is in the same spatial, environmental, and cultural setting, a revised version of the desktop study and literature review from that investigation is given below (Nilssen 2023, Pg., 47 to 51).

In addition to a few scientific publications and this author's work conducted in the surroundings of Mossel Bay, several reports of previous Cultural Resource Management (CRM; archaeological or heritage) studies in the area were downloaded from the SAHRIS website and these include MAPID or SAHRA numbers in the references section (<https://sahris.sahra.org.za/map/reports>). CRM reports cited below, but that are not in the SAHRIS database, were obtained through a desktop study and from colleagues.

In archaeological circles, and before significant discoveries were made at the Pinnacle Point Site Complex, Mossel Bay was perhaps best known for having hosted one of the earliest archaeological excavations in South Africa. The Provincial Heritage Site of Cape St. Blaize

Cave (CSBC) is situated about 11 km SE of RE/101/217 and beneath the lighthouse at The Point of Mossel Bay. The cave was first excavated by George Leith in 1888 and then again by Goodwin and Malan in 1932 (Leith 1898 and Goodwin & Malan 1935).

Leith's work in 1888 consisted primarily of collecting certain stone artefacts and excavating a few holes (Leith 1898). Collectively, the stone artefacts recovered by Goodwin, Malan and Leith, among others, were used to describe and define the MSA Industry from Cape St. Blaize Cave. As a result, the Mossel Bay region is well known in Stone Age studies because it lent its name to one of the first formally recognized stone tool industries in South Africa, namely, the Mossel Bay Industry.

The last archaeological excavations in CSBC by Goodwin and Malan in 1932 revealed that the upper deposits are badly disturbed, but that part of the lower MSA material, dating to around 60 000 years ago or earlier, is still intact (Goodwin & Malan 1935). No LSA material or microlithic stone artefacts dating to the last 20 000 years were found and the excavators do not mention the presence of pottery, which would indicate the presence of KhoeKhoen (KhoeKhoe) pastoralists during the last 2000 years. These early excavations used fairly coarse, and now outdated excavation techniques, and excavated material was sieved through coarse or large-grain sieves. Excavated material included stone artefacts, animal bones and a few fragments of human bone. Shellfish was not found in the MSA layers suggesting that when occupied in the MSA, the sea was a considerable distance from the cave. Due to large rock-falls from the cave ceiling, the excavations could not reach bedrock, but they suggest that earlier occupations are likely to be preserved in the cave. After these investigations, archaeological research in and around Mossel Bay effectively stopped until 2000.

Since the initial discovery of numerous Stone Age archaeological sites some 9 km west of Mossel Bay by Kaplan and Nilssen in 1997 (Kaplan 1997), Pinnacle Point has been under rigorous archaeological and palaeo-scientific research that began in 2000 (Marean & Nilssen 2002 and Marean *et al.* 2004). Dozens of research articles were published on the archaeological, geological and palaeo-environmental work undertaken at Pinnacle Point. Among the most significant discoveries contributing to our understanding of the origins of modern human behaviour are; 1) early evidence for the consumption of substantial quantities of marine foods, 2) early evidence for the use of ochre, and 3) early evidence for using heat as an engineering tool to improve the fracturing qualities of silcrete for stone tool production (Marean *et al.* 2007 and Brown *et al.* 2009). These finds are dated to between about 100 000 and 170 000 years ago and led to the declaration of the Pinnacle Point Site Complex as a Provincial Heritage Site in 2012. Along with other South African MSA sites, the Pinnacle Point Site Complex was nominated for World Heritage Site status with UNESCO in January 2023.

CRM excavations in mitigation have revealed that the most recent shell middens in the Pinnacle Point Site Complex date to the last 3000 years, including one midden containing Cape coastal pottery as evidence of pastoralists in the landscape from at least 1200 years ago (Rudner 1968 and McGrath *et al.* 2015). At the other extreme, archaeological monitoring during construction has identified the presence of numerous ESA implements in soft sediments above the cliffs. Some of these implements are reminiscent of the Oldowan or developed Oldowan type, suggesting that they may date from between about 2, 6 and 1, 7 million years ago, while others are of Acheulean type and may date to around 1, 5 and 1, 3 million years ago (Nilssen 2005c).

In addition to archaeological research and CRM work described above, much of the information gained about the archaeological record of the surroundings is from archaeological and heritage-related impact assessments conducted for a range of development proposals in terms

of the NHRA. The archaeological record has shown that indigenous societies and predecessors of modern humans have occupied the area for more than a million years since the Early Stone Age. The following is a chronological account of the types of archaeological resources documented in the area starting with the Early Stone Age and ending with the colonial period.

ESA stone implements are quite common in the landscape, and particularly in higher lying areas and away from the present shoreline (Hart 2005, Kaplan 2007, Nilssen 2005a, 2005c, 2006, 2009a, 2009b & 2022, Pelser 2021 and Thompson 2006). In the immediate surroundings of RE/101/217 ESA pieces are relatively common and are mostly made in quartzite. Artefacts include flaked cobbles, cores, flakes, hammer stones, hand axes and cleavers. Due to their low densities, open and disturbed contexts as well as the complete absence of associated cultural and organic remains, the ESA pieces are considered to be of low significance. There are no known ESA sites in this area that preserve any other cultural or organic remains in addition to stone artefacts.

Apart from *in situ* MSA deposits (including cultural and organic remains) preserved in sites like cave 13B in the Pinnacle Point Site Complex, the MSA in the area is most commonly represented by stone implements such as flakes, blades, cores, and points; often with faceted or prepared striking platforms, that most commonly occur *ex situ* in disturbed areas and in agricultural lands, and without any associated cultural or organic remains (Hart 2005, Kaplan 1997 & 2005, Nilssen 2005a, 2005b, 2005c, 2006, 2009a, 2009b & 2022, Pelser 2021, Thompson 2006). MSA pieces are mostly found in isolation or at best in low density scatters, but medium density scatters do occur (personal observations).

Isolated stone tools or low-density scatters of LSA stone implements have been identified, but are less common than ESA and MSA pieces in this area (Kaplan 1996, Nilssen 2005a, 2009c & 2022 and Orton 2021). In the absence of any known caves or rock shelters in the immediate surroundings, the most common LSA sites that preserve other cultural and food remains are shell middens (Kaplan 1996, McGrath *et al.* 2015 and Orton 2021). Shell middens are most commonly found in association with rocky intertidal zones and are usually situated close to the shoreline and rarely more than a few hundred meters inland of the high-water mark. It is not surprising, therefore, that shell middens have not been documented in the immediate surroundings or further inland from RE/101/217.

Although indigenous pastoralists, often referred to as Khoekhoe, were present in the area since about 2000 years ago, archaeological sites with definitive evidence of their presence - pottery and/or sheep/goat/cattle - in the surroundings are rare. Only a few sites, including shell middens that contain shards of pottery were recorded in the area (Kaplan 1996, McGrath *et al.* 2015 and Nilssen 2005a).

The colonial period was initiated in the Mossel Bay area by the landfall of Bartolomeu Dias in 1488. Mossel Bay was the place of first contact between European colonists and indigenous peoples, the place of the first recorded murder of an indigenous person perpetrated by Bartolomeu Dias, and the first place of Christian worship in South Africa (Schoeman 1987). Due to the sheltered bay, the presence of freshwater springs, and meat available from local pastoralists, the area was immediately attractive to early explorers and travellers.

Despite this early arrival of colonists, the Dutch Governor of the Cape Colony only planted a "possession stone" in 1734, and the Post House (Customs house) and granary, the first colonial buildings in Mossel Bay, were only built in 1783 and 1787 with the reconstructed granary situated at today's site of the Dias Museum (Schoeman 1987,

https://en.wikipedia.org/wiki/Mossel_Bay#History). As one of the few sheltered bays on South Africa's south-eastern coastline, Mossel Bay has served as a maritime port since the first shipment of wheat from the area sailed from Mossel Bay in 1788 (*ibid*). Numerous structures protected by the NHRA as well as colonial period Provincial Heritage Sites are scattered throughout the town. RE/101/217 formed part of the parent Farm Hartenbosch 217 that was first granted in around 1734 (De Kock 2021 & 2022).

Early colonists met indigenous societies comprised of pastoralists, foragers and people practicing a mixture of these two economies / lifestyles. A good overview of the social context, perceptions, relationships, and conflicts involving foragers (hunter-gatherers), pastoralists and colonists is given by Henshilwood & Yates (2001) and is not repeated here. While both pastoralists and colonists had a devastating impact on foraging societies (including government authorised and permitted genocide up to 1927), it is thought that smallpox was responsible for killing up to 90% of the Khoekhoe population in 1713, thus opening the land for easier colonial settlement (Henshilwood & Yates 2001).

The built environment – colonial period structures, homesteads, outbuildings, features, and transport infrastructure - is the most common evidence for the presence of colonists in the area from roughly the early to mid 18thC. While colonial period structures are common in Mossel Bay and smaller villages in the surrounding area, not many structures were recorded in previous heritage-related studies consulted for this project. Exceptions include the protected historic water furrow in Great Brak River (Kaplan 2008) and the Not Conservation Worthy colonial period ruins between the Hartenbos and Klein Brak rivers (Nilssen 2005a). Colonial period structures to the West and South of RE/101/217 are indicated on the 1880-1890 SG Mapping, 1863 SG Diagram and topographic map and are also visible on a 1939 aerial photograph.

Although cemeteries and burials are known to occur in the wider area, only one study refers to a "Bushman" burial that was excavated from the sands close to the mouth of the Great Brak River (Kaplan 1996). No other burials or graves are reported in the literature consulted for this project.

Three investigations reported that no archaeological resources were identified and that the affected areas were not archaeologically sensitive (Kaplan 2003, 2019 and Nilssen 2007a).

Based on the above findings, and particularly studies conducted in close proximity and with similar spatial and sedimentary contexts as that of RE/101/217, it is anticipated that the most likely archaeological resources to occur on the property are isolated Stone Age implements of mainly MSA and ESA origin with the occasional LSA piece, or at best, low to medium density scatters of the same materials (Hart 2005, Kaplan 2007, Nilssen 2005b & 2022 and Pelsler 2021). Due to their low densities, often disturbed contexts and the complete absence of associated cultural and organic remains, such finds are of low to no archaeological value and hence given Grade IIIC or Not Conservation Worthy status. Nevertheless, given the completely transformed state of the study area and the fact that it consists of "made ground", the study area is not expected to be sensitive from a palaeontological, archaeological and cultural heritage standpoint.

None of the Provincial Heritage Sites mentioned above, or any other known significant heritage sites will be impacted by the proposed development on RE/101/217.

6. SG Diagrams, Historic Aerial Photographs and Results of Site Inspection

In addition to Google Earth “historic” imagery, all available SG Diagrams and high resolution historic aerial photographs were obtained and carefully examined for indications and traces of heritage resources such as built structures, roads, features, and evidence for ploughing and human-related impacts.

The following includes information obtained from the available and relevant Surveyor General (SG) diagrams, title deeds and aerial photographs for RE/101/216, which was originally part of the larger farm Hartenbosch 217, Mossel Bay (Figure 22, see De Kock 2022).

“In 1734 Governor Jan de le Fontaine awarded freehold title of the farm Hartenbosch to Cape burger Esais Engelbrecht Meyer. The award was bestowed on Esias Meyer for the part he played in assisting the distressed Dutch East India ship t’ Huis te Marquette which had put into Mossel Bay for necessary storm damage repairs. It was recorded that Esais Meyer rode on horseback to Cape Town within a period of seven days in order to deliver letters to the Governor from the distressed ship’s official. In addition Esais provided much needed fresh meat and provisions to the ship’s crew” (De Kock 2022 pg. 9). The original farmstead on Hartenbosch 217 is indicated west of the Hartenbos River, at least 2 km west of the study area (De Kock 2022, Pg. 9).

The earliest diagram obtained for this study, SG Diagram 360/1863 of the farm Hartenbosch 217, “represents 3376 Morgen and 200 Square Roods [about 2892,7 ha] of Land, situated in the Division of Mossel Bay and Field Cornetcy of Brak River, being the Freehold Place of HARTENBOSCH (granted on the 7th Sept. 1734)” (Figure 22). A date of 26 August 1864 and the name “Nicolaas Meyer & another” appear in a stamp on the diagram, and although some letters are legible, they do not appear to represent survey points on the diagram, and therefore, it is not clear if this indicates ownership of the whole or part of Farm 217. Nevertheless, Nicolaas Meyer was the son of Esais Engelbrecht Meyer, to whom the farm Hartenbosch 217 was originally granted in 1734.

The nearest colonial period structure dating from at least 1863 is a house situated south of a spring and between 1 and 1,5 km west of the study area (Figures 23 & 24). The closest point of the original road between Mossel Bay and George is about 600 m to the SE of the affected portion of RE/101/217 and was in place by at least 1821 (Figures 23 & 24 and see De Kock 2022, Pg. 9).

Deduction from SG Diagram 360/1863 includes Portion No. 2 (including RE/101/217), which was deducted in 1865 (diagram 565/1865), and was 499 Morgen (427, 4933 ha) in extent. Note that diagram 565/1865 was not supplied by the time of this writing. The approximate position of the affected portion of RE/101/217 on Portion No.2 of Hartenbosch 217 is shown in Figure 23.

No colonial period structures or features are shown in the study area on the 1880-1890 SG Mapping, Mossel Bay (Figure 24). The more recent 2003 and latest 2019 SG Diagrams for RE/101/217 are shown in Figures 25 and 26.

It is clear from the early SG diagrams that no colonial period structures or infrastructure is directly associated with the affected portion of RE/101/217. Archival research has shown that several slaves lived on Hartenbosch 217 from at least the early 1800s, but there is no evidence linking this heritage theme directly to the affected portion of RE/101/217 (De Kock 2022).

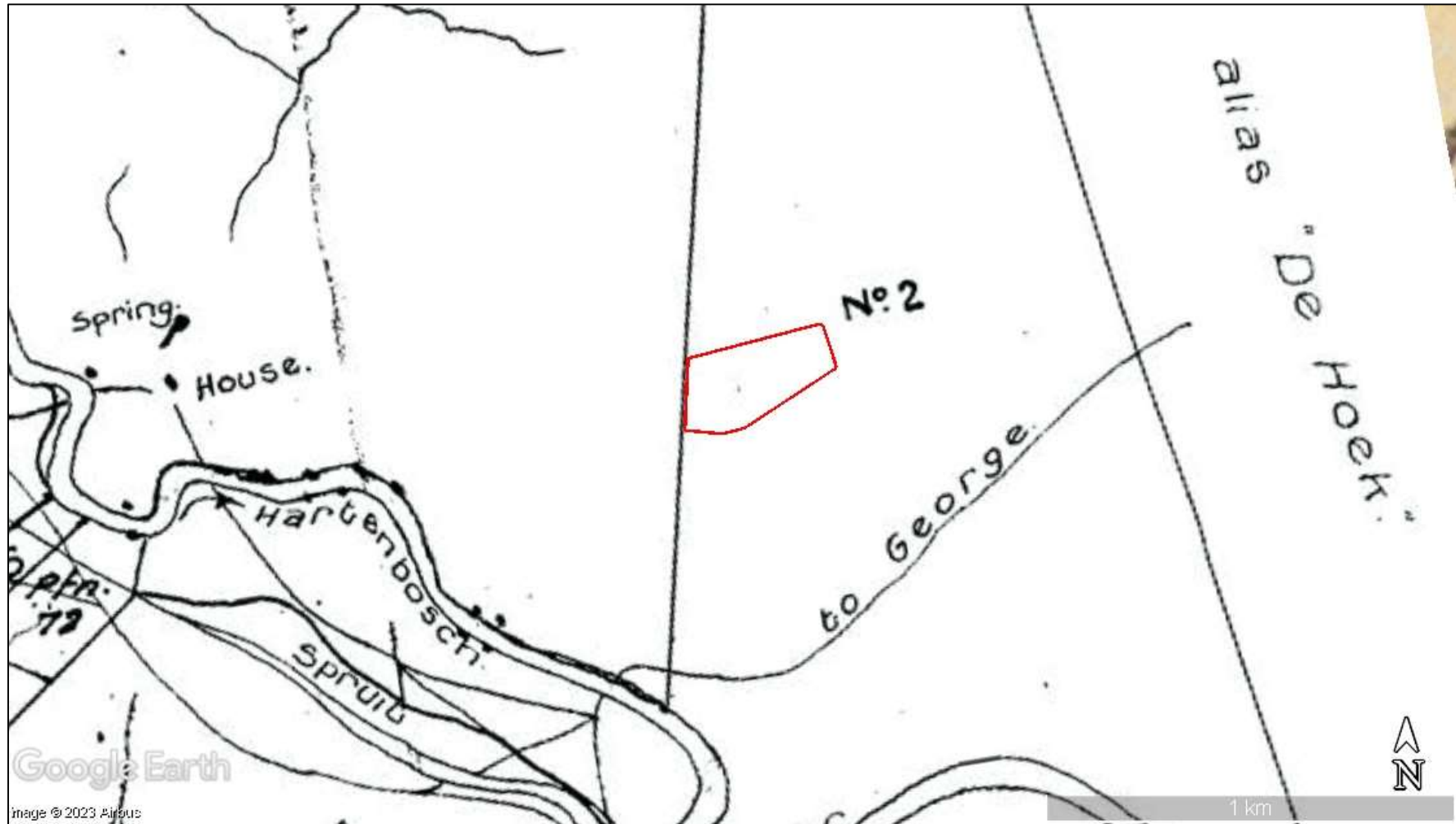


Figure 23. Enlarged portion of SG Diagram 360/1863 showing the approximate location of the affected portion of RE/101/217 (red polygon) relative to structures and features in the surrounding environment of the Farm Hartenbosch 217. Superimposed with Google Earth imagery.

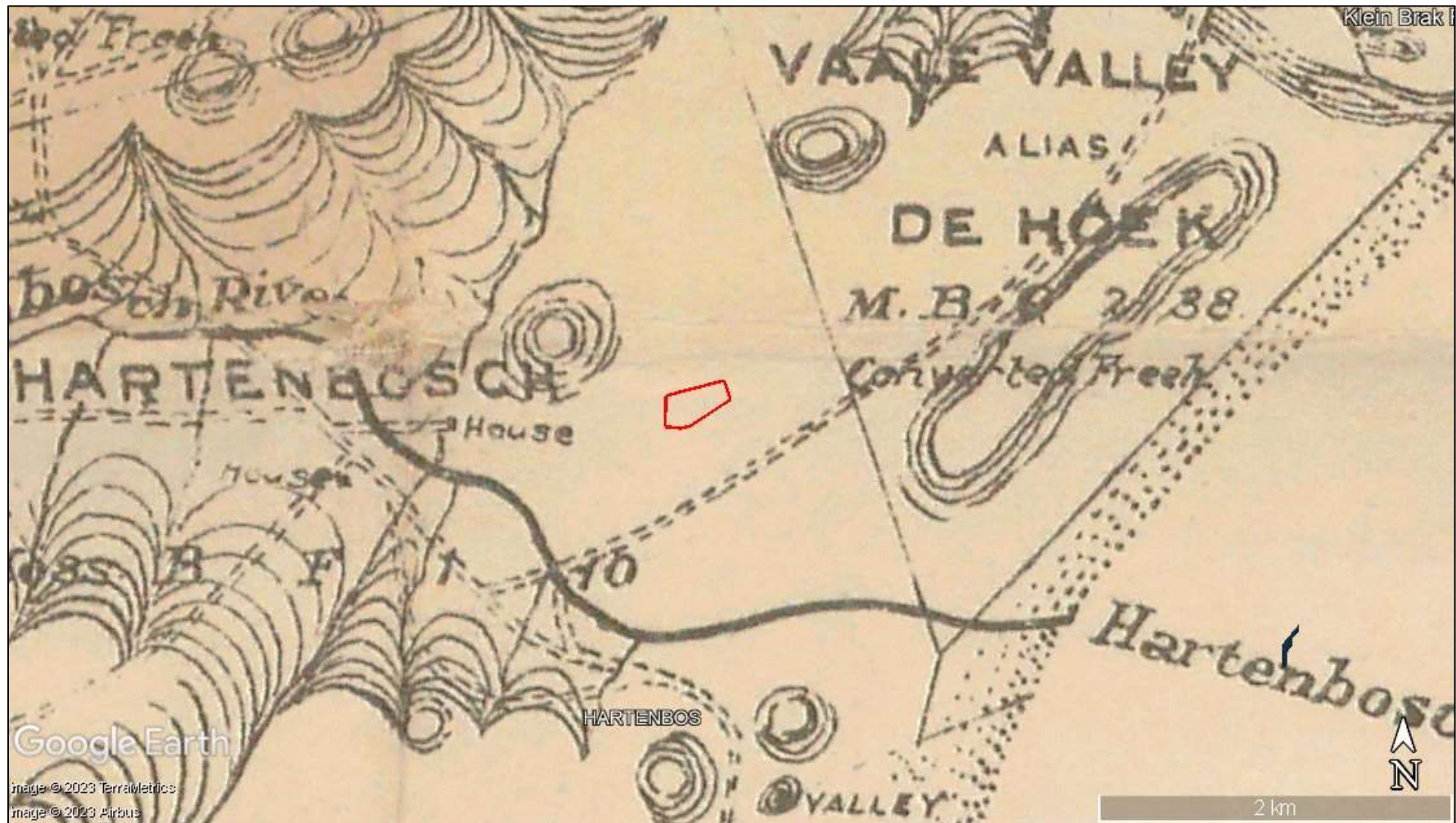


Figure 24. Enlarged portion of 1880-1890 SG Mapping Mossel Bay showing the approximate location of the affected portion of RE/101/217 (red polygon) relative to structures and features in the surrounding environment of the Farm Hartenbosch 217. Superimposed using Google Earth imagery.

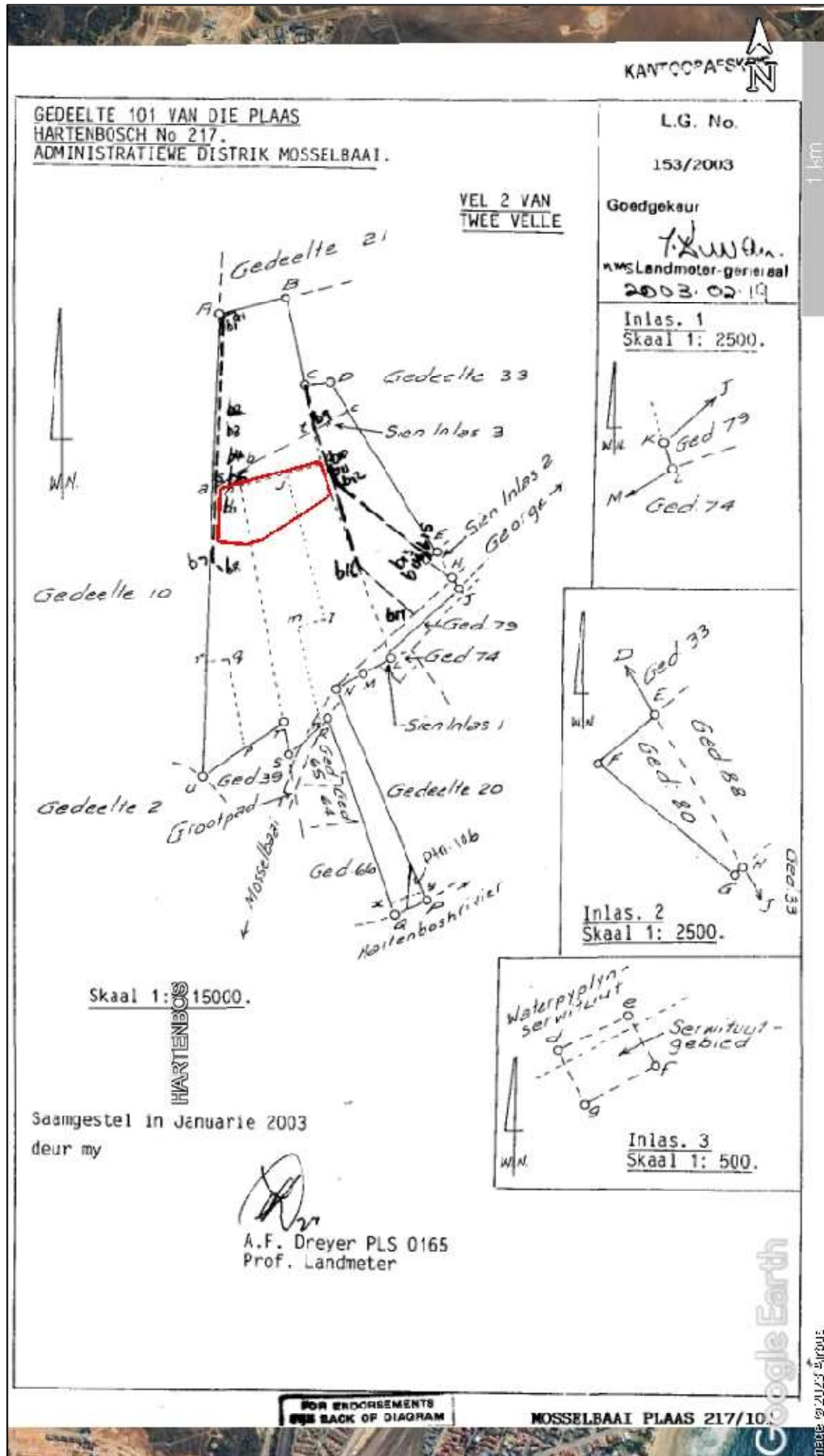


Figure 25. SG Diagram 153/2003 (annotated) showing the location of the proposed development footprint (red polygon) superimposed on RE/101/216 using Google Earth imagery.

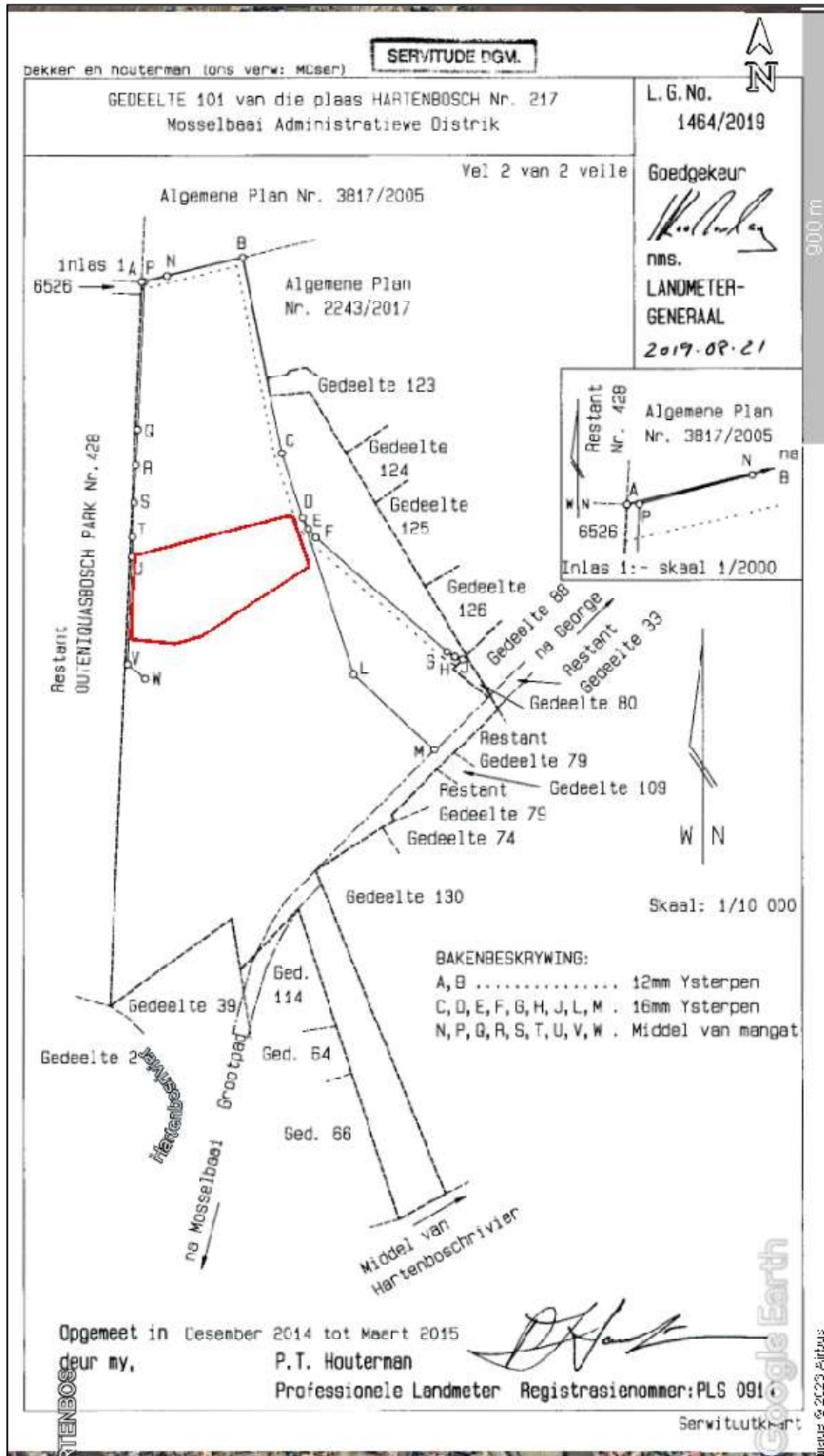


Figure 26. SG Diagram 1464/2019 (annotated) showing the location of the proposed development footprint (red polygon) superimposed on RE/101/216 using Google Earth imagery.

The earliest aerial photograph shows that the area was already cleared of indigenous vegetation for cultivation and grazing for domestic stock by 1939 (Figure 27). The current title deed for Erf 6483 includes clauses from earlier title deeds dating to at least 1914 that allow for servitudes across the properties for the watering of cattle and stock at a nearby spring. It is likely that vegetation clearing for farming purposes would have started soon after the arrival of colonists in the early 1700s and by the time the land was first granted in 1734 (Nilssen 2023).

The first structures in the immediate surroundings first appear on a 1939 photograph (Figure 27) and are situated about 250 m to the SE and will not be impacted by the proposed activity. In addition to cultivated fields, the 1957 image shows a vehicle track and possible small structure on the site, as well as a possible small structure outside the boundary, near the SW corner (Figure 28). Both these structures appear to have been demolished before 1963 (Figure 29). The small modern structure shown in Figures 14 and 16 above appears to be in place by 1989 at which what appears to be an earthen dam was built near the western boundary (Figure 30). Three structures are indicated in the 1998 topographic map (Figure 2). The linear features adjacent to the northern boundary in the eastern half of the site may be the first evidence of stockpiling of sediments (Figure 30). The WWTW to the south is in place by 1989 and is substantially enlarged by 1999 (Figure 31).

RE/101/217 was under cultivation and grazing until around 1999 whereafter it was used for dumping of sediments as shown in the above Google Earth imagery (Figures 7 through 10). No significant colonial period heritage resources or themes were identified in the affected area.

The basic historic overview and documents presented above and below show that no colonial period heritage resources of significance occur on or in the immediate vicinity of the affected portion of RE/101/217.



Figure 27. 1939 aerial photograph with proposed development footprint (red polygon) superimposed via Google Earth.



Figure 28. 1957 aerial photograph with proposed development footprint (red polygon) superimposed via Google Earth.



Figure 29. 1963 aerial photograph with proposed development footprint (red polygon) superimposed via Google Earth.



Figure 30. 1989 aerial photograph with proposed development footprint (red polygon) superimposed via Google Earth.



Figure 31. 1999 aerial photograph with proposed development footprint (red polygon) superimposed via Google Earth.

An independent site inspection of the affected portion of RE/101/217 was conducted on 16 November 2023 by means of a foot and vehicle survey that covered a representative portion of the proposed development footprint. Due to the transformed, artificial nature of surface sediments, being “made ground”, and dense vegetation cover, a more detailed foot survey was not warranted. Nevertheless, a representative sample of the area was covered and inspected

along and adjacent to vehicle tracks as well as exposed surfaces. Archaeological visibility was poor, but adequate for the purpose of this baseline assessment. Examples of the studied area are shown above in Figures 13 through 16.

Survey tracks and observations were fixed with a handheld Garmin Etrex 30x GPS to record the investigated area (Figure 32). A high quality, comprehensive digital photographic record was made with a DooGee S86 mobile phone, including location data for photographs. All GPS and photographic data are available on request.

The property was examined with a focus on the potential impact of the proposed development on heritage related resources of both colonial and pre-colonial origin. Heritage resources listed in Section E of the NID application form were considered but are not listed here unless they are present on or in the immediate vicinity of the development footprint, or if they are anticipated to occur on or in the immediate vicinity of the property.

Due to the radically transformed nature of the study area, the fact that the vast bulk of surface sediments are imported, ongoing human-related activities, a previous HIA for a nearby property, as well as inspection of the development footprint and exposed surfaces, adequate observations and information are available for input to the HWC NID application process.

Notwithstanding the substantially transformed status of the development footprint, the approach was:

- to evaluate the visual / aesthetic sensitivity of the study area from the scenic route of the N2 highway, and
- to inspect the development footprint to gain an understanding of its archaeological content and context by accessing a representative portion of the affected area.



Figure 32: Study area (red polygon) with GPS-fixed survey tracks (green lines). (A4 version below)

As was evident from Google Earth imagery, the study area is clearly raised, “made ground” and has a “mound-like” appearance that is not congruent with the gentle, south-sloping topography of the surrounding landscape, which is also partially transformed. Consequently,

the heritage context of the site is significantly compromised, and any archaeological or palaeontological resources are disturbed and buried by human-related activities and imported sediments. No archaeological or heritage resources of colonial or pre-colonial origin were identified within the studied area or in its immediate vicinity. No fossil-bearing sediments were seen.

Being a field of solar panels, the proposed PV solar plant will have a relatively low vertical aspect and will be partially screened by existing vegetation and developments. Nevertheless, on heritage grounds, due to the transformed nature of the site and the absence of heritage resources or themes in and around the affected portion of RE/101/217rf 116, the proposed solar facility and battery energy storage system will have a negligible to zero impact on the visual or aesthetic heritage value of the area. The former rural landscape is already transformed into a mixed agricultural, urban and residential cultural landscape with associated infrastructure. Consequently, the proposed solar plant will have negligible to zero visual impact on the aesthetic value of the area.

Given the transformed context of the area, existing and approved developments, and the absence of significant heritage and archaeological resources, the proposed activity will have negligible to no impact on the already altered cultural landscape nor the heritage value of the area. For the same reason there will be negligible to no cumulative impact on the heritage value of the area.

7. Conclusions and Recommendations

The following conclusions and recommendations are arrived at after reviewing information obtained through:

- previous heritage studies and HWC applications in the vicinity of the development footprint,
- SAHRIS PalaeoSensitivity map and inputs from palaeontologist Prof John Pether,
- previous archaeological and heritage related studies in the surrounding area,
- SG Diagrams,
- historic and Google Earth aerial photographs, and
- a site inspection (archaeological walk-through).

The SAHRIS PalaeoSensitivity map shows that the study area is shaded red, meaning that palaeontological sensitivity is VERY HIGH and that “field assessment and protocol for finds is required” (Figure 18). Even though the study area is transformed and consists of “made ground”, to err on the safe side palaeontologist, Prof John Pether was consulted for inputs.

Prof Pether concludes as follows “Due to the extensive transformation of the site, and the prevalence of petrified fossil wood in the general area, a significant impact on the palaeontological resources of the Hartenbos Fm., due to construction of the SEF and BESS, is not anticipated” (Pether 2023, Pg. 3).

“Just in case *in situ* fossil wood is unearthed in the parts of the site which have not been covered by “made ground”, such as from the shallow trenches made for the SEF cabling, an alert for the uncovering of fossil wood must be included in the Environmental Management Plan (EMP). A collection must be made of the finds of fossil wood, for later deposition at a museum, together with information of the find location. The fossil wood must be handed into the custody of the Environmental Control Officer (ECO) and/or the site manager, who must

ensure its interim safe storage. On the completion of Construction Phase earthmoving activities, the fossil wood collection must be conveyed to a curatorial institution. The Albany Museum in Grahamstown (www.am.org.za) is an appropriate repository where palaeobotanist Dr Rosemary Prevec studies and curates the fossil plant collections, including Cretaceous plant fossils. A Collections Agreement exists with the Palaeosciences Centre, University of the Witwatersrand (Dr Marion Bamford), for petrified fossil wood specimens collected from the Maandagskop Quarry on Portion 12 of Farm Hartenbosch 217. As collaborating palaeobotanists Drs Bamford and Prevec must be consulted about the preferred repository for fossil wood specimens from the SEF site" (Pether 2023, Pg. 3).

The development footprint is significantly transformed and consists of "made ground", and no colonial or pre-colonial heritage resources of significance were identified in the study area. If present in buried sediments, then Stone Age implements are expected to be of low significance and Not Conservation Worthy. No caves or rock shelters occur in the development footprint. No heritage resources in the surroundings will be impacted by the proposed activity.

Because there are no significant heritage resources associated with the development footprint, it does not meaningfully contribute to the already altered cultural landscape of the area. For the same reason there will be negligible to no cumulative impact on the heritage value of the area.

Being a field of solar panels, the proposed PV solar plant will have a relatively low vertical aspect and will be partially screened by existing vegetation and developments. Nevertheless, on heritage grounds, due to the transformed nature of the site and the absence of heritage resources or themes in and around the affected portion of RE/101/217rf 116, the proposed solar facility and battery energy storage system will have a negligible to zero impact on the visual or aesthetic heritage value of the area. The former rural landscape is already transformed into an urban and residential cultural landscape with associated infrastructure. Consequently, the proposed solar plant will have negligible to zero visual impact on the aesthetic value of the area.

The positive socio-economic impact, including short-, medium- and long-term jobs as well as the urgent need for increasing the supply of electricity outweigh the negligible to zero negative impacts this project may have on heritage resources.

Because of the above, and because there is no reason to believe that significant heritage resources will be impacted by the proposed activity, it is recommended that the proposed activity be approved in full, and that a Heritage Impact Assessment is not warranted for the project.

Nevertheless, it is recommended that Heritage Western Cape consider and/or require that the following be included in the Environmental Authorisation / Environmental Management Program, if the project is approved:

- although not requiring further Palaeontological investigation, an alert for the uncovering of fossil wood must be included in the Environmental Authorisation and/or the Environmental Management Program (EMP) for the construction phase of project,
- due to the disturbed and transformed nature of the development footprint, as well as the findings of this and previous archaeological studies, archaeological monitoring is NOT recommended, but,
- if any human remains or significant archaeological materials are exposed during construction activities, then the find should be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be

notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned, and completed before construction continues in the affected area and will be at the expense of the developer.

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Locality Map. General location of the study area (yellow marker) NNW of Mossel Bay, Western Cape Province. Courtesy of Google Earth 2023.



Figure 1. Enlarged from Locality Map showing RE/101/217 (green polygon) relative to Hartenbos and Mossel Bay, Western Cape. Courtesy of Cape Farm Mapper.



Figure 2. Enlarged portion of 1:50 000 topographic map 3422 AA 1998 Mossel Bay showing study area (red star and red polygon in inset) relative to Hartenbos, WWTW and roads. Yellow marker represents approximate centre point of proposed development footprint. Courtesy of the Chief Directorate Surveys and Mapping, Mowbray and Google Earth 2023.



Figure 4. Enlarged from Figure 3 showing the proposed and transformed / disturbed development footprint (red polygon) on RE/101/217 with existing disturbances and developments. Courtesy of Google Earth 2023.



Figure 5. Preferred Site Development Plan. Courtesy of the applicant.

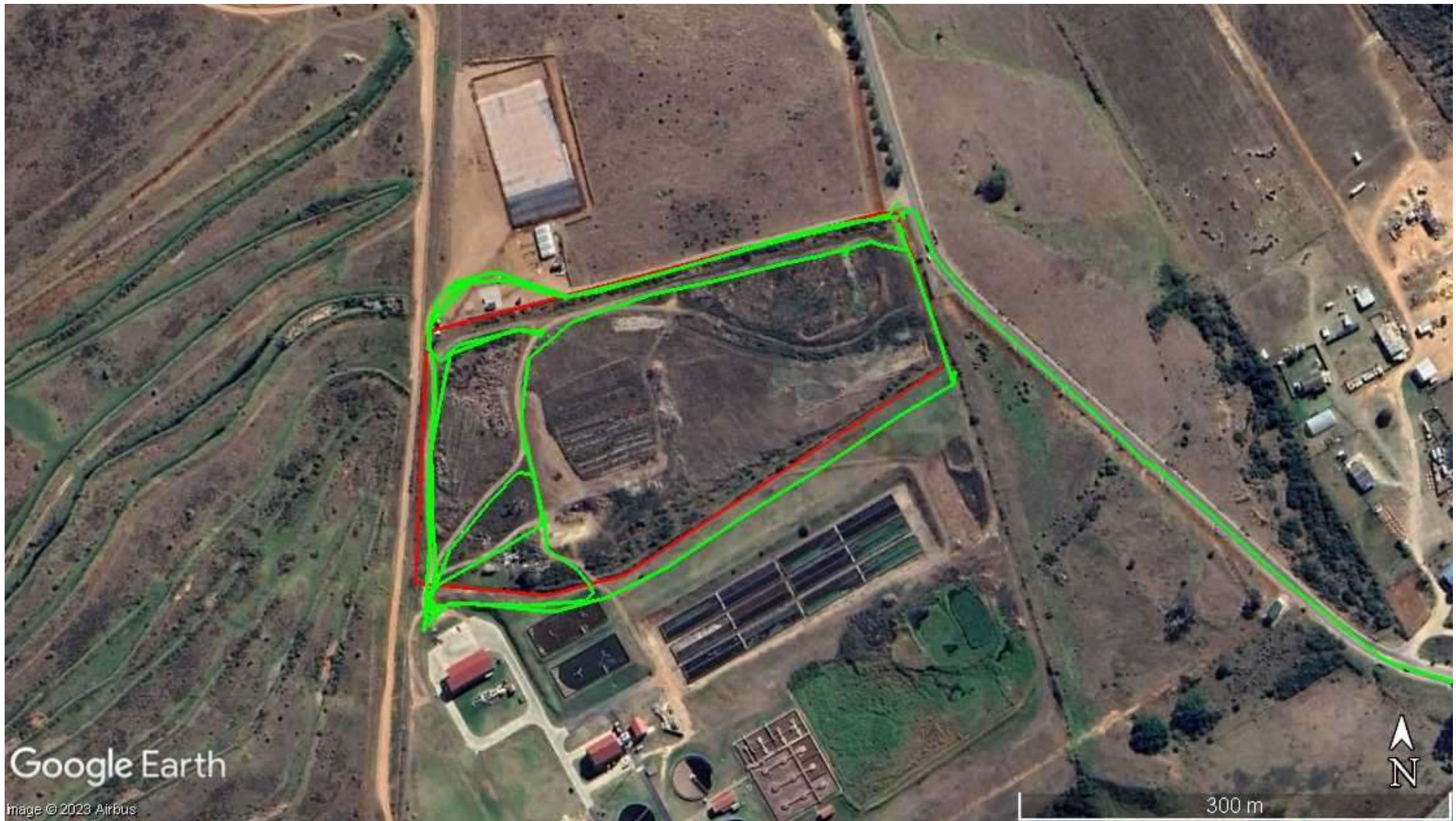


Figure ??: Study area (red polygon) with GPS-fixed survey tracks (green lines).