

Heritage Impact Assessment

FURTHER REQUIREMENTS
HWC Case 20072309SB0729E

Proposed Construction of a Single Dwelling & Access Road on Portions of the Farm Misgunst Aan De Gouritz Rivier 257/19 (Fransmanshoek Peninsula), Mossel Bay, Western Cape Province

Conducted in terms of Section 38(8) of the National Heritage Resource Act (No. 25 of 1999)
and the Western Cape Provincial Gazette 6061, Notice 298 of 2003

prepared for

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Executive Summary

Site Name

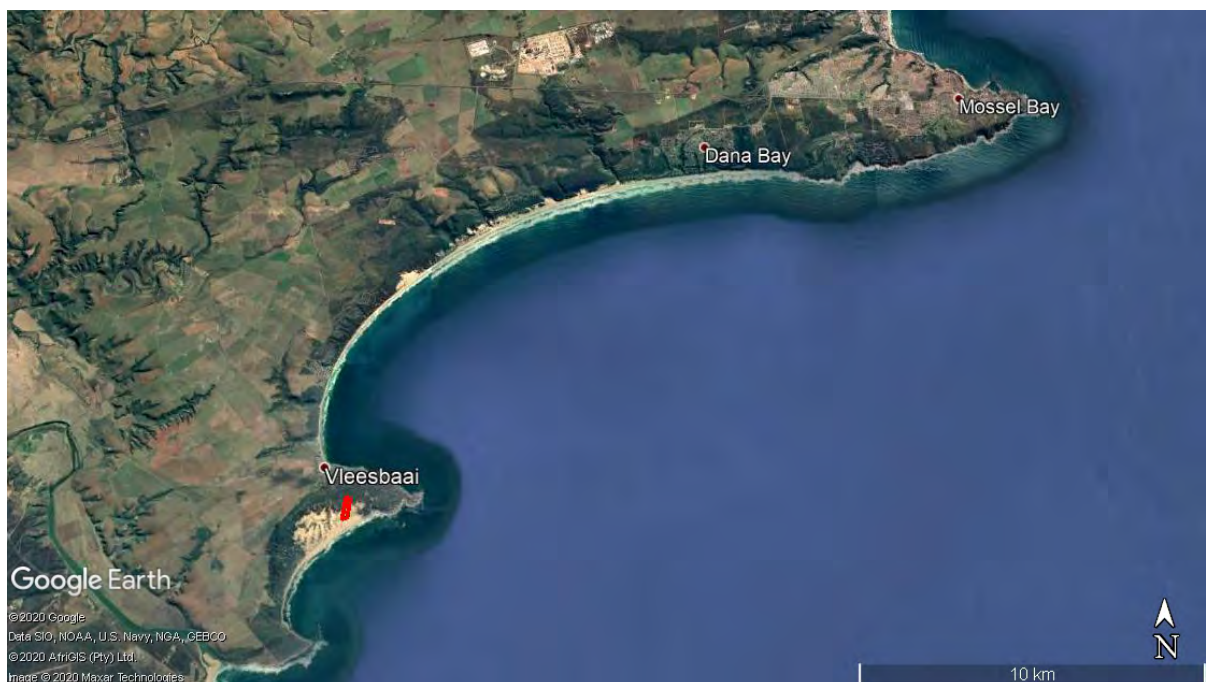
No known or registered heritage site.

Location

Off gravel road (OP4979) between Vleesbaai and the Fransmanshoek Peninsula, Portion 19 of Farm 257 Misgunst Aan De Gouritz Rivier, Mossel Bay Municipality, Western Cape Province.

The approximate centre point of the property is at 34° 18'11.52" S 21°55'20.10" E.

Locality Plan



Red polygon represents the affected property, Farm Misgunst aan de Gouritz Rivier 257/19 (Fransmanshoek Peninsula), Mossel Bay, Western Cape Province. (A4 version on page 46)

Description of Proposed Development

The proposal is for the establishment of a primary dwelling (< 500m²) and an access road and associated engineering services and infrastructure.

Identified Heritage Resources

No heritage resources or issues were identified during the preliminary investigation for the NID submission. No archaeological resources were identified during the archaeological foot survey. Although the presence of archaeological resources in sub-surface sediments cannot be ruled out entirely, it is not anticipated that significant archaeological resources are present in the affected area.

The shallow excavations entailed in the proposed construction of the dwelling, access track, biogas digester and artificial wetland will only affect the upper loose dune sands of the Strandveld Formation. Calcrete outcrops and deflated areas with exposed palaeosurfaces are not present and no palaeontological resources were seen in the study area.

The fossil potential of the Strandveld Formation sands is poor overall and any animal bones and marine shells included in these latest Quaternary dunes, mainly deposited during the last 12 thousand years, are expected to be “sub-fossils” in an archaeological context.

Excavations into the dunes of the Strandveld Formation entailed in the construction of the dwelling and supporting infrastructure are not expected to have an impact on fossil heritage resources due to the low to marginal palaeontological sensitivity of these modern dune sands.

Anticipated Impacts on Heritage Resources

No heritage resources or concerns were identified and hence there are no anticipated impacts to heritage resources.

Recommendations

- There are no fatal flaws or objections to the full authorisation of the proposed development on grounds of the heritage study.
- No further heritage or archaeological work is needed for this project.
- In case of the unexpected uncovering of sub-fossil bones in the dune sands, it is recommended that a protocol for finds of potential sub-fossil material, the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project.
- If any human remains or archaeological materials are exposed during development 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.
- While the MUCH unit considers it highly unlikely that shipwreck material will be disturbed during the proposed development, there is always the potential for historical material to be uncovered during the works. Should any maritime and underwater cultural heritage resources be exposed during the proposed project, work must cease immediately and the MUCH unit at SAHRA must be informed of its discovery without delay. In this event, work may not commence until feedback has been received from SAHRA.
- The above recommendations must be implemented by the applicant and/or must be included in an Environmental Management Program (EMPr) if an EMPr is developed for the project.

Author(s) / Contributor(s) and Date

Archaeological specialist study: Peter Nilssen, September 2020
Palaeontological input: John Pether, February 2022
Historic - Archival and Deeds study: Stefan De Kock, July 2020

Glossary

Historic: period comprising the last few hundred years in South Africa (from around the year 1488) of colonial (mostly western European people) occupation

Hominin: Any member of the tribe Hominini, the evolutionary group that includes modern humans and now-extinct bipedal relatives

Stone Age: period of hominin occupation with stone implements being the dominant and often only surviving technology, spanning the period between approximately 3 million years ago and 2 thousand years ago

Abbreviations

ASAPA: Association of Southern African Professional Archaeologists	LSA: Later Stone Age
BA: Basic Assessment	MSA: Middle Stone Age
CRM: Cultural Resources Management	NCW: Not Conservation Worthy
DEA&DP: Department of Environmental Affairs and Development Planning	NEMA: National Environmental Management Act (Act No. 107 of 1998)
EMPr: Environmental Management Program	NHRA: National Heritage Resources Act (Act No. 25 of 1999)
ESA: Early Stone Age	NID: Notification of Intent to Develop
GPS: global positioning system	PPP: Public Participation Process which includes Community Consultation
HIA: Heritage Impact Assessment	SAHRA: South African Heritage Resources Agency
HWC: Heritage Western Cape	SAHRIS: South African Heritage Resources Information System

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1. Introduction

Concerning an environmental application for the construction of a dwelling and access road on Portion 19 of the farm Misgunst aan de Gouritz Rivier 257, Mr Gerhard Steenekamp on behalf of Aquifer Resource Management (Pty) Ltd appointed Perception Planning to submit to Heritage Western Cape (HWC) a Notice of Intent to Develop (NID) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (NHRA, Act 25 of 1999). The NID and Background Information Document (BID) prepared by Perception Planning are the main sources for the background and historical information presented here.

In response to the above-mentioned NID submission, HWC requested the submission of a Heritage Impact Assessment (HIA) in terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape Provincial Gazette 6061, Notice 298 of 2003. The HIA should satisfy the provisions of section 38(3) of the NHRA, must have specific reference to an archaeological foot survey, comments from Interested & Affected Parties including the South African Heritage Resources Agency (SAHRA) Maritime and Underwater Cultural Heritage (MUCH) unit, and must contain an integrated set of recommendations. In further correspondence with the applicant, HWC confirmed that the archaeological foot survey must focus only on the proposed development footprints.

On behalf of Aquifer Resource Management (Pty) Ltd, Mr Gerhard Steenekamp appointed this author to conduct the required archaeological foot survey and to submit to HWC a HIA focused on the results of an archaeological foot survey and public consultation process.

In a letter dated 9 December 2021, HWC asked for “further requirements” after a meeting of the HWC APM Committee on 3 November 2021. Their request is as follows: “The HIA does not comply with the requirements of Section 38(8) as it does not adequately address the potential significance of palaeontology and archaeology and potential impacts.” To comply with HWC’s request, and at this author’s expense, this report is a revision of the HIA.

The affected property, Portion 19 of the farm Misgunst aan de Gouritz Rivier 257, is 8,6201 ha in extent and is registered to Aquifer Resource Management (Pty) Ltd, held under Title Deed 16036/2019 and situated within the jurisdiction of the Mossel Bay District and Municipality, Western Cape (see Locality Plan above and Figure 1).

HWC is in possession of the following documentation, which was previously submitted to HWC in digital format along with the original HIA report submission:

- Appendix A - NID Form - Misgunst aan de Gouritz Rivier 257 19
- Appendix B - Final BID - Misgunst 257-19- July 2020a
- Appendix C - Section 38(8) Response to NID Interim ptn 19 257
- Appendix D - Title Deed
- Appendix E – Power of Attorney for HIA 09-2020
- Appendix F – Proof of Payment



Figure 1. Location of Portion 19 of the farm Misgunst aan de Gouritz Rivier 257 (red polygon) on the Fransmanshoek peninsula and relative to Vleesbaai, Western Cape Province. The current access road is shown in yellow. Courtesy of Google Earth 2020. (A4 version on page 47)

1.1. Background to the Proposed Project

1.1.1. Project Description

The following section – in quotation marks - is copied verbatim unless specified otherwise (in ***bold-italics***), but Annexures and references cited below are not included with this submission, but are available from this author on request.

“According to the conceptual site development plan made available (Charles van Wyk Architecture, ***Drawing No. T576-SDP2 dated 24/11/2021***) (Annexure 3 – ***Figure 2 in this report***) the proposal is for the establishment of a primary dwelling (< 500m²) and an access road and associated engineering services and infrastructure:

- Water supply is proposed to be sourced via a borehole and harvesting/ storage of rain water;
- Electricity supply is proposed to be sourced via solar and wind energy technology with battery storage;
- Sewage is proposed to be dealt with via a bio-gas digester whilst grey water from waste water would be treated in an artificial wetland (±100m²) and used for irrigation purposes.

According to the civil engineering report (Annexure 4), 10% of internal roads presently restricted to 4x4 vehicles would have to be formalised through one of four possible construction methods whilst areas, “currently accessible with a normal 4 x 2 vehicle could be covered with wood chips harvested from the removal of alien vegetation. This is a non-official way of increasing the driving ability of roads in heavy sandy areas.” (Louw, 2020: 7,8). According to a specialist coastal engineering report (Annexure 5), the “access roads are to

be structurally designed and the road verges stabilised. This will prevent further deterioration through slumping and uncontrolled stormwater management and wind erosion. Maintenance will be limited to pro-active management to prevent deterioration. The unused tracks within the relic dune field will be rehabilitated using indigenous vegetation.” (Barwell, 2020:22).

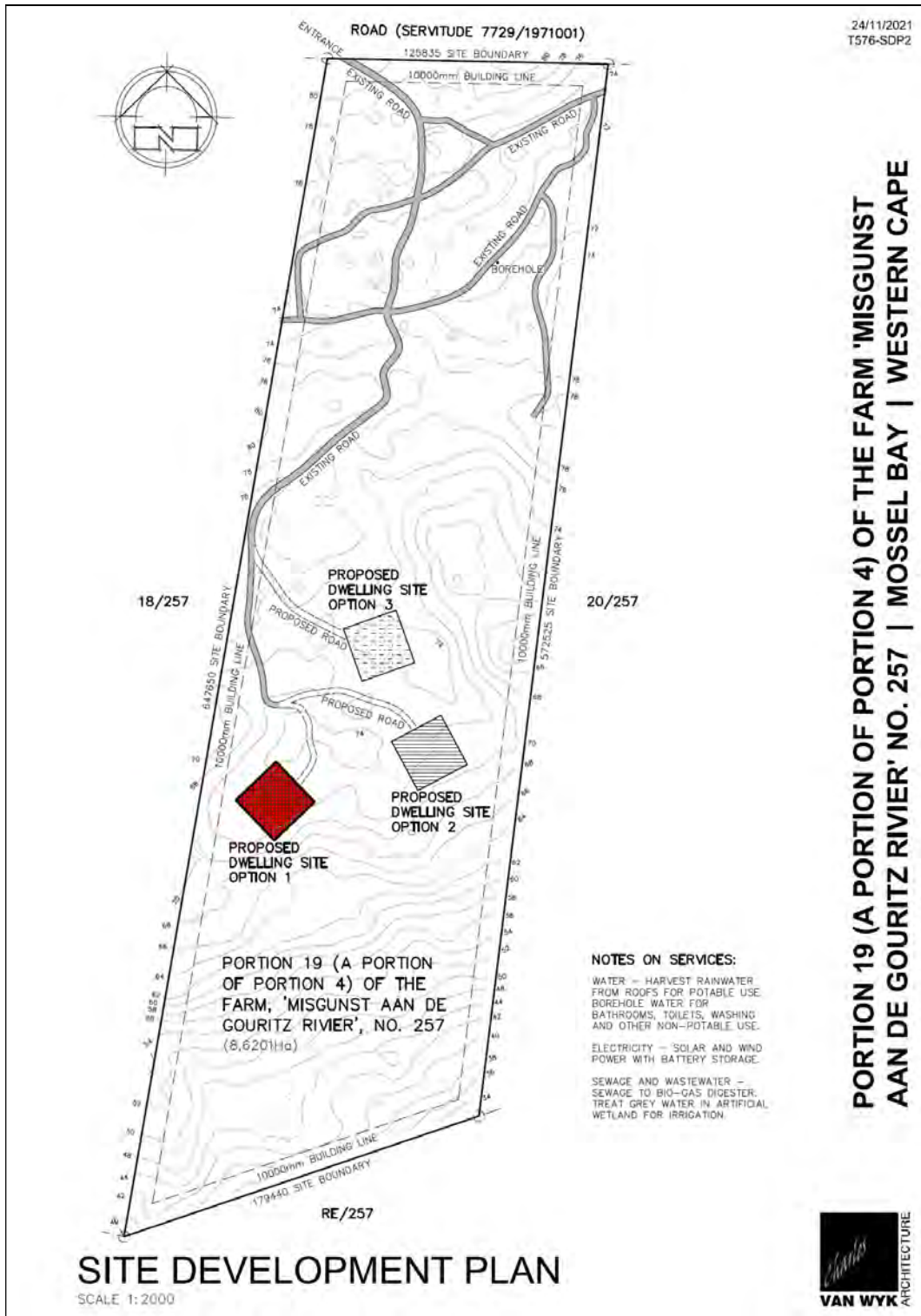


Figure 2. Conceptual development plan for Portion 19 of the farm Misgunst aan de Gouritz Rivier 257. Courtesy of Charles van Wyk Architecture and the applicant.

Note that establishment of a primary dwelling on the currently-vacant property is consistent with land use rights inferred through the present zoning of the property, being “Agricultural Zone I”. **The property is situated within the Fransmanshoek Conservancy and the proposed development would therefore be undertaken and managed in terms of the principles prescribed by the conservancy**” (De Kock 2020, pg 5).

1.1.2. Identification of Alternatives

Three alternative localities were considered for the location of the dwelling. Given the less undulating nature of dune sands in the Option 1 building footprint, it is likely that this option will involve less excavation into previously undisturbed subsurface sediments. Given this, and because this area appears to be less visible from the surrounding landscape than the other building footprint options, Option 1 and its associated access road is preferred from a heritage and archaeological perspective.

Option 1 has also been identified by the Botanical Specialist and the Coastal Engineer as being the preferred option.

1.1.3. Aspects of the Project Relevant to the Heritage Study

Because the proposed development involves vegetation clearing, earthmoving activities, and construction, it has the potential to damage or disturb tangible heritage resources in both buried and above-ground contexts (archaeological and palaeontological) as well as intangible heritage resources such as the aesthetic or visual value (sense of place) of the area or any heritage resources that may be present in the affected area. Impact on the aesthetic or visual value (sense of place) of the area is not applicable as the property is not visible from a scenic route.

1.2. Terms of Reference

This author was appointed to compile a Heritage Impact Assessment (HIA) that meets the requirements of Heritage Western Cape (HWC) and that is focused on a desktop study and an archaeological foot survey. The overall purpose of a HIA is to identify heritage resources in the affected area, to assess their significance and sensitivity, to determine the potential impacts on such resources, and to make recommendations to avoid and/or minimize such impacts by means of management and/or mitigation measures. This study was undertaken according to best practice principles and meets standards required by the heritage authorities in terms of the National Heritage Resources Act, No. 25 of 1999.

Summary objectives of a HIA:

- To identify and assess the nature, sensitivity and significance of heritage resources in the receiving environment;
- To identify the impact of the proposed development on such resources as well as options for mitigation and/or management in order to minimize potential negative impacts, and to recommend measures for mitigation / management where necessary; and
- To identify heritage resources and issues that may require further investigation.

After submission of the original HIA report, further correspondence from HWC on 9 December 2021 was as follows:

FURTHER REQUIREMENTS:
In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape Provincial Gazette 6061, Notice 298 of 2003

HERITAGE IMPACT ASSESSMENT: PROPOSED DEVELOPMENT OF PRIMARY DWELLING ON PTN 19 OF FARM 257 MISGUNT AAN DE GOURITZ RIVER, HESSEQUA, SUBMITTED IN TERMS OF SECTION 38(1) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

CASE NUMBER: 20072309SB0729E

The matter above has reference.

This matter was discussed at the Archaeology, Palaeontology and Meteorites Committee (APM) meeting held on 3 November 2021.

FURTHER REQUIREMENTS

The HIA does not comply with the requirements of Section 38(8) as it does not adequately address the potential significance of palaeontology and archaeology and potential impacts.

1.3. Scope and Purpose of the Report

“A Heritage Impact Assessment (HIA) must provide insight into the impact of the proposed development on heritage resources and provide mitigation measures to limit the effect of that impact. The HIA must provide the heritage authority with sufficient information to properly assess the significance of resources on and around a site and to understand the short, medium- and long-term consequences of the proposed development on heritage resources so that the heritage authority can make an informed comment or decision on the impacts of a proposed development” (Heritage Western Cape 2021, pg. 2).

The purpose of a HIA is to identify significant heritage resources prior to development so that such resources can be protected and/or managed without detrimental and unnecessary negative impacts resulting from development activities. This HIA aims to fulfil the requirements of the heritage authorities so that they can issue a comment for consideration by the Department of Environmental Affairs and Development Planning (DEA&DP) who will review the Application and Basic Assessment Report (BAR) for the approval or denial of authorisation. Where necessary, a HIA provides management and/or mitigation requirements that must be complied with and included in the conditions of authorisation in the event that a project is approved.

1.4. The Author

Dr Peter Nilssen holds a PhD in archaeology (University of Cape Town, 2000), and is 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). He is 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. He has worked as a professional archaeologist in Cultural Resource Management since 1989 and has completed more than 240 heritage-related impact assessments and mitigation projects as Principal Investigator

Peter co-initiated and co-directed archaeological research into Middle Stone Age cave sites at the Provincial Heritage Site of the Pinnacle Point Site Complex near Mossel Bay, which he identified with Jonathan Kaplan in 1997. An abridged CV is provided in Appendix A.

1.5. Declaration of independence

As the appointed independent specialist (professional archaeologist and specialist heritage practitioner) for this project, I 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.

2. Legislative Context

2.1. National Heritage Resources Act (NHRA), Act No. 25 of 1999

The NHRA protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: prehistoric and historical material (including ruins) more than 100 years old as well as military remains more than 75 years old, palaeontological material and meteorites;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “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”;
- Place (falling under structures): b) “a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure”; c) “a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures”; d) “an open space, including a public square, street or park”; and e) “in relation to the management of a place, includes the immediate surroundings of a place”;
- Palaeontological material: “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”;
- Archaeological material: a) “material 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”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;
- Meteorite: “any naturally-occurring object of extraterrestrial origin”;
- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

Section 3(2) describes the types of heritage resources that should be considered to form part of the National Estate. These are as follows:

- (a) “places, buildings, structures and equipment of cultural significance”;
- (b) “places to which oral traditions are attached or which are associated with living heritage”;
- (c) “historical settlements and townscapes”;
- (d) “landscapes and natural features of cultural significance”;
- (e) “geological sites of scientific or cultural importance”;
- (f) “archaeological and palaeontological sites”;
- (g) “graves and burial grounds, including” (i) “ancestral graves”; (ii) “royal graves and graves of traditional leaders”; (iii) “graves of victims of conflict”; (iv) “graves of individuals designated by the Minister by notice in the Gazette”; (v) “historical graves and cemeteries”;

and (vi) “other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983)”;

(h) “sites of significance relating to the history of slavery in South Africa”;

(i) “movable objects, including” (i) “objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens”; (ii) “objects to which oral traditions are attached or which are associated with living heritage”; (iii) “ethnographic art and objects”; (iv) “military objects”; (v) “objects of decorative or fine art”; (vi) “objects of scientific or technological interest”; and (vii) “books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)”.

Section 3(3) describes the types of cultural significance that a place or object might have in order to be considered part of the National Estate. These are as follows:

- a) “its importance in the community, or pattern of South Africa’s history”;
- b) its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- c) “its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage”;
- d) “its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects”;
- e) “its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group”;
- f) “its importance in demonstrating a high degree of creative or technical achievement at a particular period”;
- g) “its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons”;
- h) “its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa”; and
- i) “sites of significance relating to the history of slavery in South Africa”.

Although cultural landscapes do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c), (d) and (e) list “historical settlements and townscapes”, “landscapes and natural features of cultural significance”, and “geological sites of scientific or cultural importance” as part of the National Estate. All the points in Section 3(3) with the exception of (f) and (i) make direct reference to cultural landscapes.

Human occupation and use of the landscape and its features results in a visually more or less evident modification of that landscape. Human use of the environment, however, may have no visually detectible altering effect at all, but nevertheless, this imprinting of human behaviour on the environment, and the relationship between people and the landscape is what is implied by the term “cultural landscape” (see UNESCO 2008 for definitions, significance and preservation of cultural landscapes).

Cultural landscapes are defined and informed by several elements including, but not limited to; natural landscape features, geology, biomes, palaeontology, archaeology / anthropology, oral histories, public memory, the built environment and social and written histories. The value of cultural landscapes are determined through professional interpretation and opinion, community and public values, as well as environmental and heritage legislation.

The requirements of an impact assessment report concerning heritage resources (Heritage Impact Assessment [HIA]) are given as follows in the NHRA:

Section 38(3) states that, “the responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included”:

- (a) “The identification and mapping of all heritage resources in the area affected”;
- (b) “an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7”;
- (c) “an assessment of the impact of the development on such heritage resources”;
- (d) “an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development”;
- (e) “the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources”;
- (f) “if heritage resources will be adversely affected by the proposed development, the consideration of alternatives”; and
- (g) “plans for mitigation of any adverse effects during and after the completion of the proposed development”.

Section 38(8) of the NHRA states that if an impact assessment is required by any other legislation, then it must include a heritage component that satisfies the requirements of Section.38(3). The comments of the relevant heritage authority must be sought and considered by the consenting authority prior to the issuing of a decision. Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to a Basic Assessment (BA). The report presented here provides the heritage component. HWC are required to provide comment on the proposed project in order to facilitate final decision making by the DEA&DP.

2.2. National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended

The following table presents NEMA requirements for specialist reports and where those requirements are covered in this report.

NEMA requirements for Specialist Reports		
Appendix 6	Specialist Report content as required by the NEMA 2014 EIA Regulations, as amended	Section
1 (1)(a)	(i) the specialist who prepared the report; and	Title page & Section 1.4 and Appendix A
	(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	
(b)	a declaration that the specialist is independent in a form as may be specified by the competent authority;	Section 1.5
(c)	an indication of the scope of, and the purpose for which, the report was prepared;	Section 1.2 & 1.3
(cA)	an indication of the quality and age of the base data used for the specialist report;	desktop study up to 2022 and fieldwork data obtained in September 2020; see Sections 4 & 5
(cB)	a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 6
(d)	the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 4
(e)	a description of the methodology adopted in preparing the report or carrying out the specialised process, inclusive of equipment and modelling used;	Section 4
(f)	details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 6
(g)	an identification of any areas to be avoided, including buffers;	Sections 5, 6 & 7
(h)	a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 5 and associated Figures
(i)	a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 4.6
(j)	a description of the findings and potential implications of such findings on the impact of the proposed activity, or activities;	Section 5
(k)	any mitigation measures for inclusion in the EMPr;	Sections 5, 6 & 7
(l)	any conditions for inclusion in the environmental authorisation;	Section 7
(m)	any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 7
(n)	a reasoned opinion-	Sections 7 & 9.1
	(i) whether the proposed activity or portions thereof should be authorised; and	
	(iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	
(o)	a description of any consultation process that was undertaken during the course of preparing the specialist report;	Sections 4.5 & 8
(p)	a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Section 8
(q)	any other information requested by the competent authority.	Further requirements included in this report
2	Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 1, 2 & 4

2.3. Application Timeline

The application to DEA&DP under NEMA is currently in the application phase with submission to be no later than 4 February 2022.

3. Physical Environmental Context

3.1. Site Context

Portion 19 of the farm Misgunst aan de Gouritz Rivier 257 is part of a smallholding complex on the Fransmanshoek peninsula some 34 km southwest of Mossel Bay and about 1,9 km southeast of Vleesbaai in the Western Cape Province (see Locality Plan and Figure 1).

The study area is readily accessed by vehicle via sandy single vehicle tracks stemming from the main gravel road between Vleesbaai and the point of the Fransmanshoek peninsula (Figure 1). Several of these single vehicle tracks occur in the immediate surroundings. Zoned "Agricultural Zone I", the smallholdings have a primary right for the construction of a primary dwelling with no restriction in terms of placement or size of built footprint (De Kock 2020). The landscape contains several holiday houses or cottages on surrounding smallholdings (see De Kock 2020). None of the properties in the immediate surroundings are used for agricultural purposes, for which they are zoned ("Agricultural Zone I", De Kock 2020).

3.2. Site Description

The property is situated in a partially transformed coastal landscape consisting of unconsolidated and undulating aeolian dune sands (Strandveld Formation of the Bredasdorp Group) that are variably vegetated by a mixture of exotic and indigenous coastal species. While the northern half of the property is densely overgrown by mostly indigenous coastal shrubs, the southern half comprises exposed dunes that are partly vegetated by coastal grasses. Areas strewn with dead exotic vegetation (mainly Rooikrans / Rooipitjie) indicate that a certain amount of alien clearing has already taken place. Examples of the affected environment are shown in Figures 3 through 7.

Apart from vehicle tracks and a borehole, the property is vacant (Figure 7). Wooden survey pegs mark the corners of the three options for the building footprints for the primary dwelling, while metal fence droppers mark the corners of the footprint of the cottage (Figure 7). Note that the cottage has been removed from the plans.



Figure 3. Examples of the receiving environment showing start of access road (top left), topography, vegetation cover, exposed dune sands, single vehicle access tracks (top right and bottom left) and areas strewn with cut and dead alien vegetation (bottom images). (A4 version on page 48)



Figure 4. Examples of the affected environment showing topography, vegetation cover and exposed undulating dune sands. The top right and bottom images are of Option 3, including a wooden survey peg (bottom left). (A4 version on page 49)



Figure 5. Examples of the affected environment showing topography, vegetation cover and exposed undulating dune sands. The top and bottom left images are of Option 2, while the bottom right image is of Option 1. (A4 version on page 50)

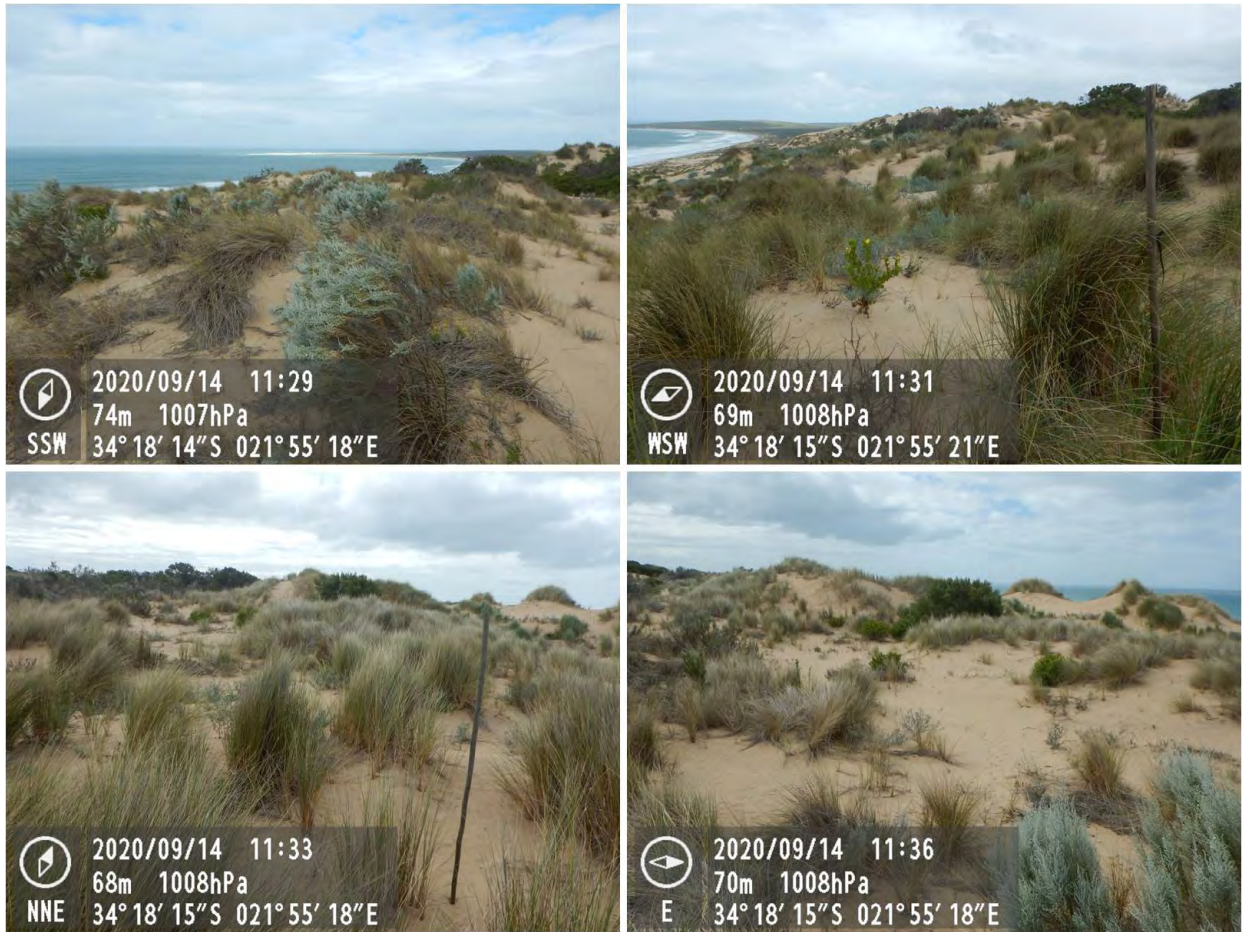


Figure 6. Examples of the affected environment at building footprint Option 1 showing topography, vegetation cover and exposed undulating dune sands. Note wooden survey pegs marking the footprint boundary points. (A4 version on page 51)



Figure 7. Examples of the affected environment along the access road and at the building footprint of the cottage (removed from plans) showing topography, vegetation cover and exposed dune sands. Metal fence droppers mark the footprint boundary points. The existing borehole is shown in the bottom right image. (A4 version on page 52)

3.3. History and Evolution of the Site and Context

The following section – in quotation marks - is copied verbatim unless specified otherwise using *italics*, but Annexures, some figures, references and footnotes are not included with this submission. The complete NID & supporting documentation are available from this author on request.

“Colonial agriculturists settled in the Gouritz region from as early as the 1730’s. Un-surveyed loan farms in this region were granted to colonists by the Dutch East India Company (DEIC) for the purpose of providing meat, butter and wheat to Cape Town. In 1743 the DEIC established a magisterial seat in Swellendam in order to govern and control the activities of the frontier settlers. Quitrent rentals were paid annually to the Government over a period of twenty years, after which the property was deemed paid for. The quitrent system of ‘loaning to own’ replaced the previous DEIC loan farm agreements, which were renewed every five years (Schulz, 2010).

From a colonial perspective the subject property forms part of the early farm Misgunst aan de Gouritz Rivier first surveyed in 1814 by surveyor Sgt. Petersen (Petersen also compiled early layout for the town of George). A note on the 1814 diagram describes land

use at the time as “weyland” (grazing purposes). A later (1863) redrawn diagram shows the farm divided into 9 lots, the subject property forming part of land then known “Lot B” (Figure 7). Later 1880-1890 SG mapping for the area shows the extent of the farm together with access routes and important structures (Figure 8). “Lot B” of the farm was subdivided in 1952 to create the smallholding complex as it exists in present day.

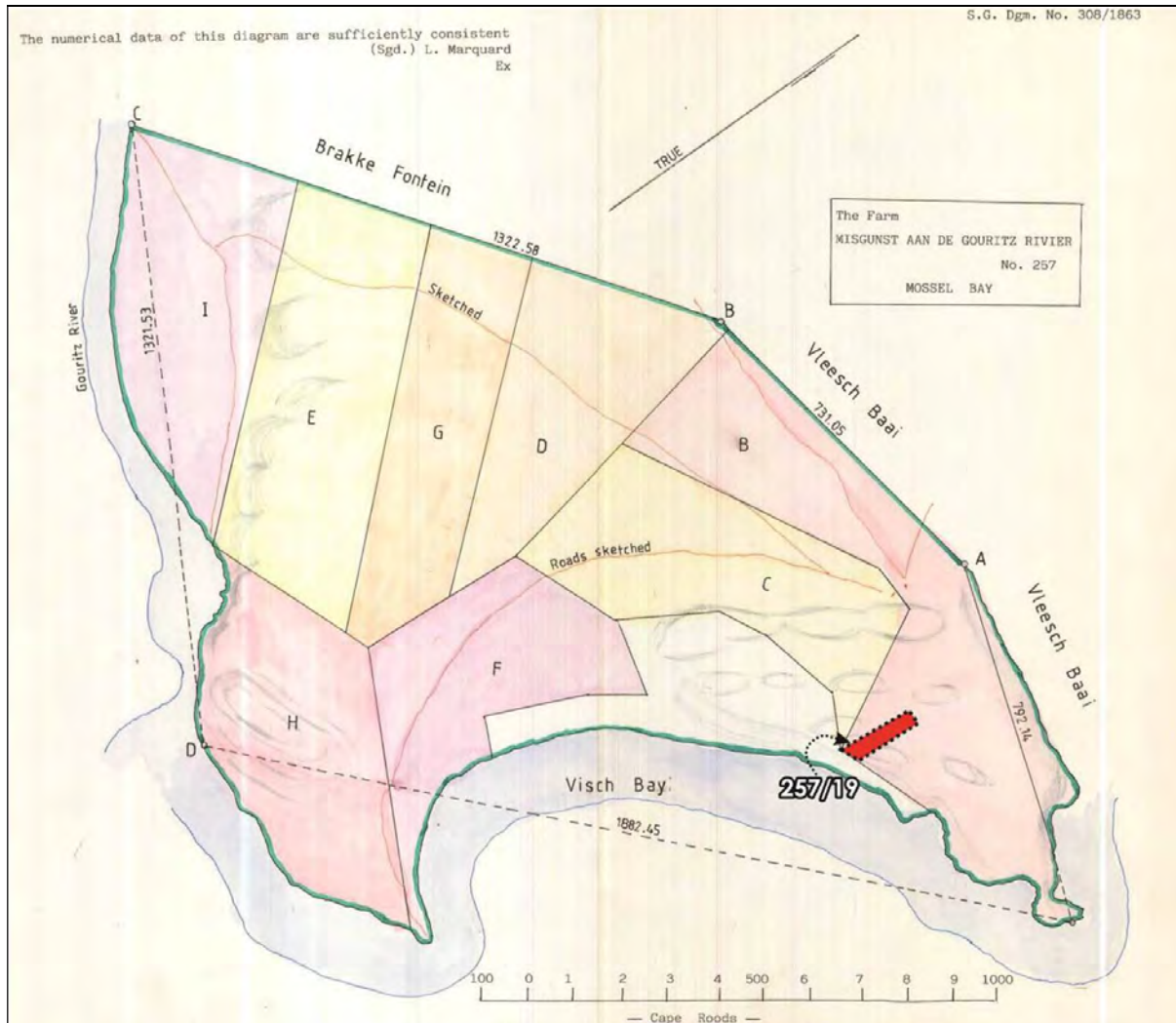


Figure 7. Location of the subject property in relation to “Lot B” as recorded in a redrawn version of the 1836 diagram for the farm Misgunst aan de Gouritz Rivier (SG Diagram 308/1836; De Kock 2020 Figure 4).

The Janse van Rensburg first immigrant settler (stam vader) arrived in the Cape before 1708, the recorded year that he married Alletta van der Merwe, widow of Marthinus van Staden. Members of the Janse van Rensburg family acquired ownership of the following farms when the system of purchase by means of Quitrent was made available by the British Governors of the Cape of Good Hope from 1813 onwards:

- Brakkefontein, situated directly north of the farm Fleesch Baai, granted in 1814 to Hendrik Christoffel Janse van Rensburg.
- Misgunst aan de Gouritz granted in 1818 to Hendrik Christoffel Janse van Rensburg.
- Vleesch Baai granted in 1816 to Nicolaas Janse van Rensburg.

Several (DEIC) household inventories for early inhabitants of the area confirm that the farm Misgunst aan de Gouritz Rivier was used for cultivation and keeping livestock. For example, a household inventory dated 3rd July 1786 for Maria Magdalena Botha (wife of “Johannes Janse van Rensburg”) records, inter alia, 151 cattle, 33 “trek ossen”, 120 sheep and 7 horses. Significantly, the inventory also records 3 slaves:

- 1 young male named “Leij van Ceylon”;
- 1 young male named “November van Mosambique”;
- 1 young woman named “Sylvia van Mosambique” with a two month old child named “Padra van de Caab”.

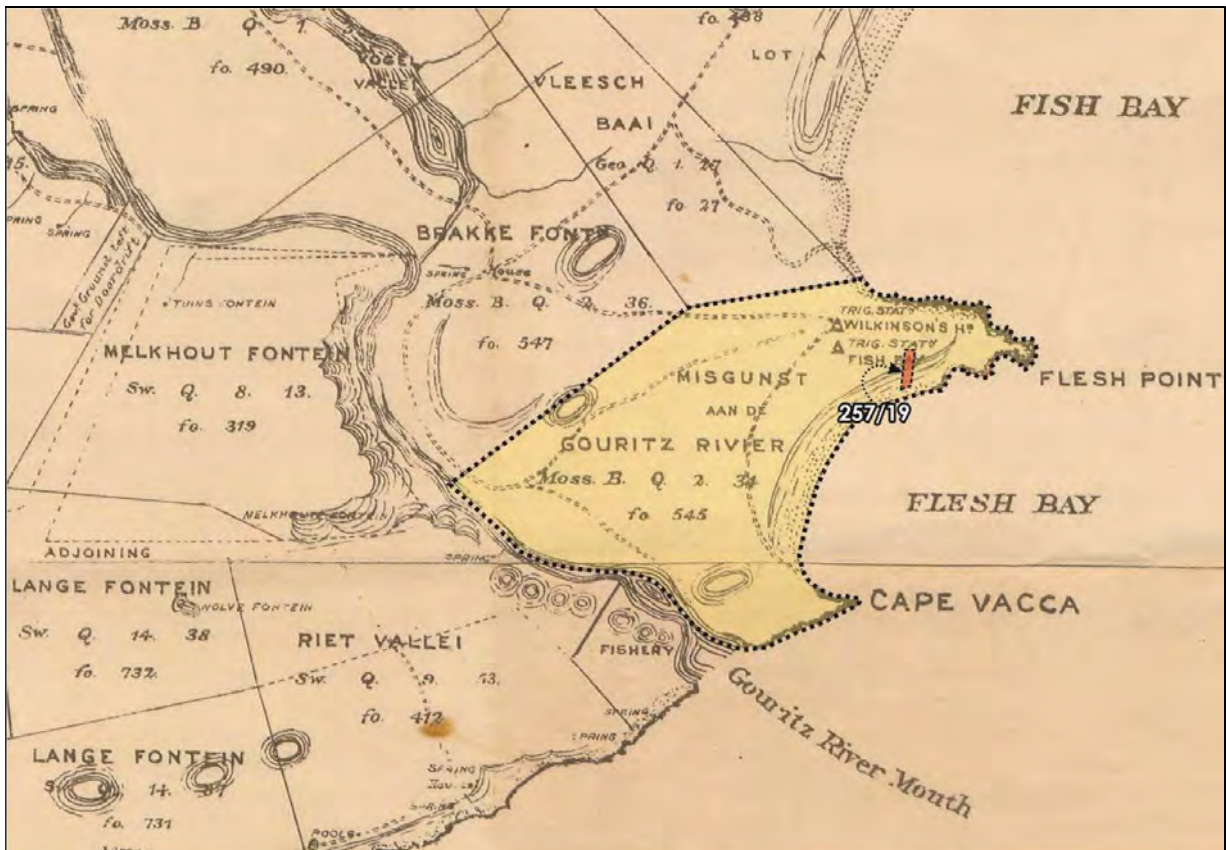


Figure 8. Location of property in relation to early farm Misgunst aan de Gouritz Rivier as transposed onto (±1880) SG mapping of the area (NGSI; De Kock 2020 Figure 5).

Historically, three shipwrecks are known to have taken place in Fleesch Bay. The exact position of the wrecks has not been established. The ship names are listed below:

- Le Fortune 1763
- D’ Elefant 1750
- Thomas Nickenson 1871

While a comprehensive deed search could not be undertaken as part of this study, the following more recent ownership timeline for the property could be obtained via the Deeds Office digital archive:

Transfer Date/ No.	Transferred From:	Transferred To:
T11279/1960	Unknown	Harry Goss
T3373/1993	Harry Goss	Contibree International Enterprises CC
T13857/2005	Contibree International Enterprises CC	Dianne Frik Family Trust
T95013/2007	Dianne Frik Family Trust	Hiline Dunes CC
T16036/2019	Hiline Dunes CC	Aquifer Resource Management (Pty) Ltd

Basic historical background research did not identify significant heritage-related aspects or themes that would have been impacted by the proposed development.

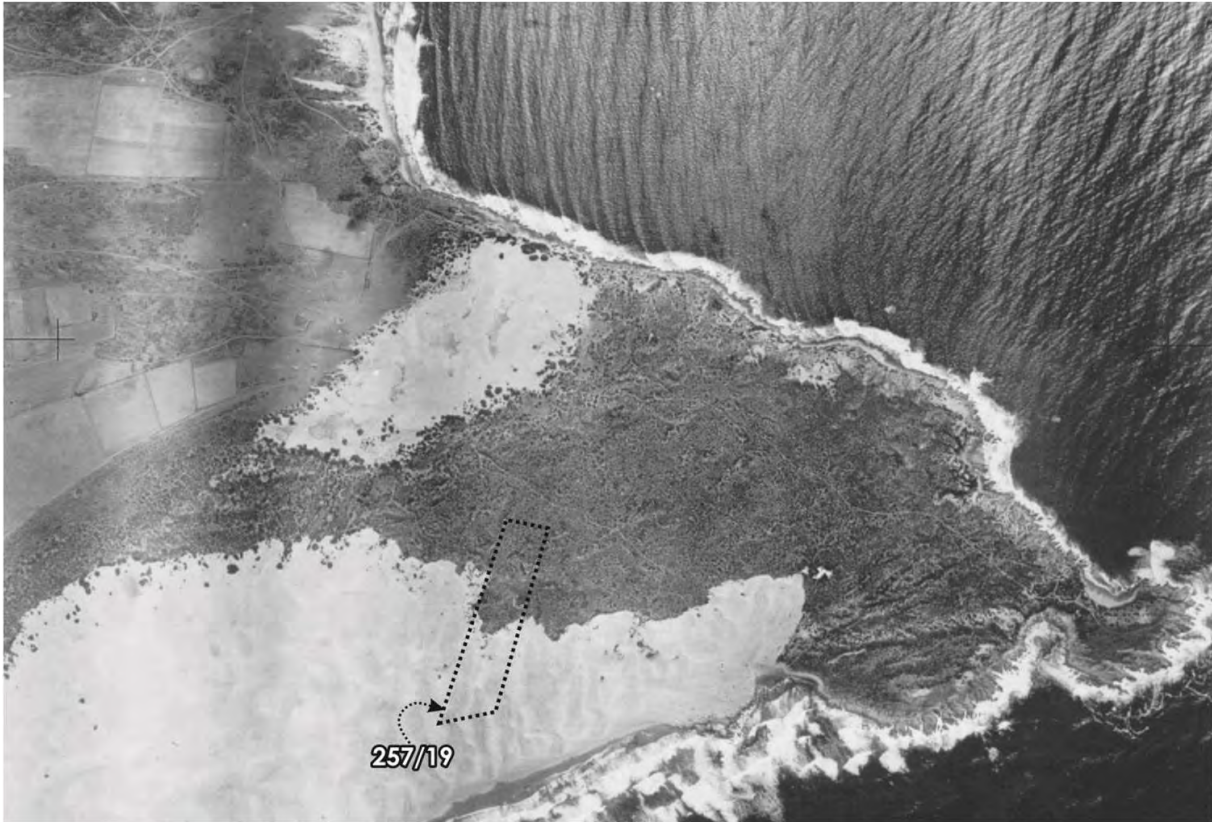


Figure 9. Location of property within context of 1944 aerial imagery for the area. (Aerial survey 171, Flight Strip 14, Image 6035, NGSi; De Kock 2020 Figure 6). (A4 version on page 53)

Analysis of early aerial imagery contributes to building an understanding of evolution of the landscape through identification of traditional (i.e. Pre-Modern) landscape patterns as read within the context of present landscape character and land use. Landscape patterns evident from the earlier aerial photography of the study area may be described as follows:

- Earliest available (1942) aerial imagery shows the Fransmanshoek peninsula undeveloped (save for a few cottages close to the easternmost point) whilst the hinterland, further west, had been transformed through agriculture/ cultivation. The pattern of indigenous vegetation/ dune field legible within the context of the cadastral boundaries of the subject property appears very similar to that in present day. No structures are visible on the property or its direct environs (*Figure 9*);
- Comparison of earlier GoogleEarth© imagery dated 9th February 2019 and 15th February 2020 shows the outline of access roads on and within the direct proximity of the property (*Figure 7*). The impact of existing and proposed access roads on potential archaeological resources is not known.

The proposal to construct a primary dwelling is consistent with existing land use rights inferred in terms of the relevant zoning scheme, which places no constraint in terms of its maximum size or location should relevant building lines be adhered to. While many smallholdings within the complex remain vacant, several have been developed – presumably mostly for holiday accommodation (*Figure 10*)” (De Kock 2020, pg 5-9).



Figure 10. Examples of existing cottages situated on smallholdings along the Fransmanshoek peninsula (De Kock 2020, Images 1, 2).

4. Methods

4.1. Literature Review & Information Sources

A desktop study and literature review was conducted to gain an understanding of the overall landscape and heritage context of the site proposed for development. The focus of the desktop study and literature review was on previous work done in the immediate surroundings with the aim of identifying the types of heritage resources and concerns already documented in earlier studies, and how these inform the assessment being conducted here. In addition to this author's own work experience in the area and assistance from colleagues, information sources are listed in Table 1.

Table 1: Information sources.

Data / Information	Source	Date	Type	Description
Maps & Aerial Photographs	Chief Directorate: National Geo-Spatial Information http://www.cdngiportal.co.za/cdngiportal/	Historic & Current	Spatial	Maps of various type and scale, and aerial images
Aerial Photographs and for Superimposing Spatial Data	Google Earth Software Application or https://earth.google.com/web/	Historic & Current	Spatial	Aerial images and overlays of SDPs, GPS data, Surveyor General Diagrams and aerial images
Cadastral Data	CapeFarmMapper https://gis.elsenburg.com/apps/cfm/#	Current	Spatial	Cadastral boundaries and extents
Cadastral Data	Chief Directorate: National Geo-Spatial Information http://www.cdngiportal.co.za/cdngiportal/	Various	Survey Diagrams	Historical & current diagrams, survey data and registration dates
Cadastral Data	Chief Surveyor-General http://csg.dla.gov.za/dta.htm	Current & Historic	Survey Diagrams	Historical & current diagrams, survey data and registration dates
Background Information	South African Heritage Resources Information	Current	Reports and Spatial	Previous impact assessments for

	System (SAHRIS) https://sahris.sahra.org.za/map/reports			developments in the immediate surroundings area
Palaeontological Sensitivity	South African Heritage Resources Information System (SAHRIS) https://sahris.sahra.org.za/map/palaeo	Current	Spatial	Map showing palaeontological sensitivity and required actions based on the sensitivity.
Title Deeds	Deeds Office https://www.deeds.gov.za/index.php	Historic & Current	Ownership	Registration of property ownership

For the purpose of familiarisation and to obtain and present background information about the project and processes, this author consulted the NID and BID documents and annexures submitted to HWC by Perception Planning with the NID application. Correspondence between the environmental consultant, applicant and HWC was obtained and reviewed. Coordinate data for access roads and proposed development options as well as permission to access the affected property was obtained from Mr Gerhard Steenekamp on behalf of Aquifer Resource Management (Pty) Ltd.

4.2. Field Survey

The purpose of the archaeological foot survey was; to determine whether any archaeological or tangible heritage resources occur on the surface of exposed sediments, to assess the sensitivity of archaeological resources if present in the affected area, to determine the potential impacts on such resources if present, and to avoid and/or minimize such impacts by means of management and/or mitigation measures. Note that the archaeological study presented here considered archaeological materials of prehistoric and historic origin (including potential remains from shipwrecks). The archaeological foot survey focused on the proposed access roads, cottage (removed from the plans) and the three options for the building footprint for the primary dwelling as requested by HWC. This study was undertaken according to best practice principles and meets standards required by the heritage authorities in terms of the National Heritage Resources Act, No. 25 of 1999.

Archaeological survey tracks were fixed with a hand held Garmin X30 GPS (map datum WGS84) unit to record the search area (Figure 11, gpx tracking file is available from author). Digital audio notes, video and a comprehensive, high quality digital photographic record were made with a Nikon Coolpix AW130 camera. Photo localities and directions of views were fixed by the camera's on-board GPS and compass respectively, which are indicated in photographs with data stamps (Figures 3 through 7). All coordinate, photographic and video data are available on request.

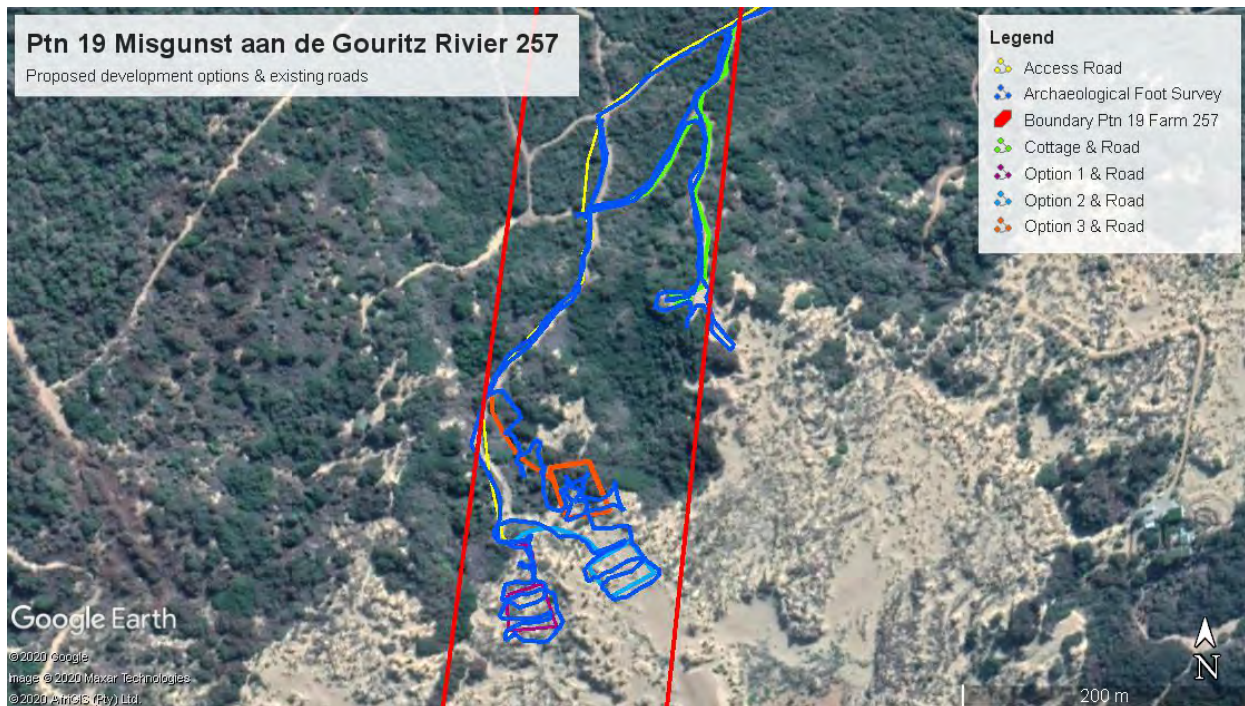


Figure 11. Archaeological foot survey tracks (dark blue) overlain on the proposed access roads, cottage (removed from plans) and three building footprint options for the primary dwelling on Portion 19 of Misgunst aan de Gouritz Rivier 257. Courtesy of the applicant and Google Earth 2020. (see A4 version on page 54)

4.3. Specialist Studies

The archaeological foot survey requested by HWC was conducted by this author and is incorporated into this HIA. No further specialist studies were requested by HWC, but John Pether kindly produced, free of charge, a brief PIA at the request of this author (Appendix C).

4.4. Grading

According to Section 7(1) of the NHRA, heritage resources are graded according to their National (Grade I), Provincial (Grade II) or Local (Grade III) significance. Grading facilitates the identification of the suitable level of management for a heritage resource. SAHRA (national heritage authority) manages Grade I, HWC (or other provincial heritage authority) manages Grade II, and a local planning authority manages Grade III heritage resources. Although these authorities are responsible for grading, anyone may recommend grading.

Although not completed, Section 7(2) of the NHRA intends for provincial heritage authorities to formulate a more detailed grading system for heritage resources of local significance (Grade III). HWC distinguishes between heritage resources of high (Grade IIIA), medium (Grade IIIB) and low (Grade IIIC) local significance, while Not Conservation Worthy (NCW) describes those of low or no significance that require no further management or mitigation measures (Heritage Western Cape 2016).

4.5. Community Consultation

Public Participation in terms of NEMA has not yet formally commenced due to a series of delays in determining the process to be followed based on discussions between the coastal engineer and the DEA&DP. This matter has finally been resolved and a Basic Assessment process will be continuing.

The Public Consultation process for the HIA was going to be conducted as part of the EIA PPP, but due to the unsettled debate referred to above, this author has included the focused Public Consultation process undertaken in the interim. In the event that a full PPP is undertaken as part of the environmental application, then the provisions of section 38(3)(e), of the NHRA, will be included in that process.

The first draft of this HIA along with a notice of the proposed development activity as well as supporting documentation was submitted via email to Interested & Affected Parties (I&APs) on 30 September 2020 as required by HWC in their response to the NID application (Section 1.2)1. Registered I&APs including Heritage Mossel Bay, the Simon van der Stel Foundation, Stillbaai Heritage Conservation Trust, Mossel Bay Municipality and the SAHRA MUCH unit responded within the 30 day commenting period. Responses and comments received from the registered conservation bodies; interested and affected parties; and the Mossel Bay Municipality are included in Section 8 below.

4.6. Assumptions and Limitations

This assessment assumes that all background information and development layout plans provided by the project team are correct and current. This assessment is for the planned development activity on the property and excludes any future plans.

The assessment is limited to heritage resources exposed at the surface or that have an above-ground component. Wherever soft surface sediments are present, it cannot be ruled out entirely that archaeological and palaeontological resources may be buried beneath the surface.

Overall, there are no assumptions, limitations or gaps in knowledge that have an influence on this study, assessment, or the recommendations made here.

5. Findings of the Heritage Study

This section documents the identification and assessment of the significance of all heritage resources as set out in Sections 3 (2), 3 (3) and/or prescribed under Sections 6 (2) and 7 of the NHRA as per the heritage assessment criteria. Where applicable, identified heritage resources are mapped and tabulated. Also included here are the details and summary of findings of specialist reports requested by HWC

5.1. Palaeontology

In conclusion to the assessment conducted for the NID submission to HWC, De Kock writes the following: "According to SAHRIS Paleo-sensitivity mapping the property is situated within an area earmarked as being of "No Significance" palaeontological sensitivity where,

“no palaeontological studies are required” (De Kock 2020, Pg 9). It was pointed out during the HWC APM meeting on 3 November 2021, however, that the study area actually falls within a clear or white area, indicating that a desktop palaeontological study is required (Figure 12). Looking at Figure 12 it is easy to see how De Kock perceived the shading as grey, which is actually the shading of the underlying map, and hence concluded that the area is palaeontologically insignificant and requires no further palaeontological investigation.

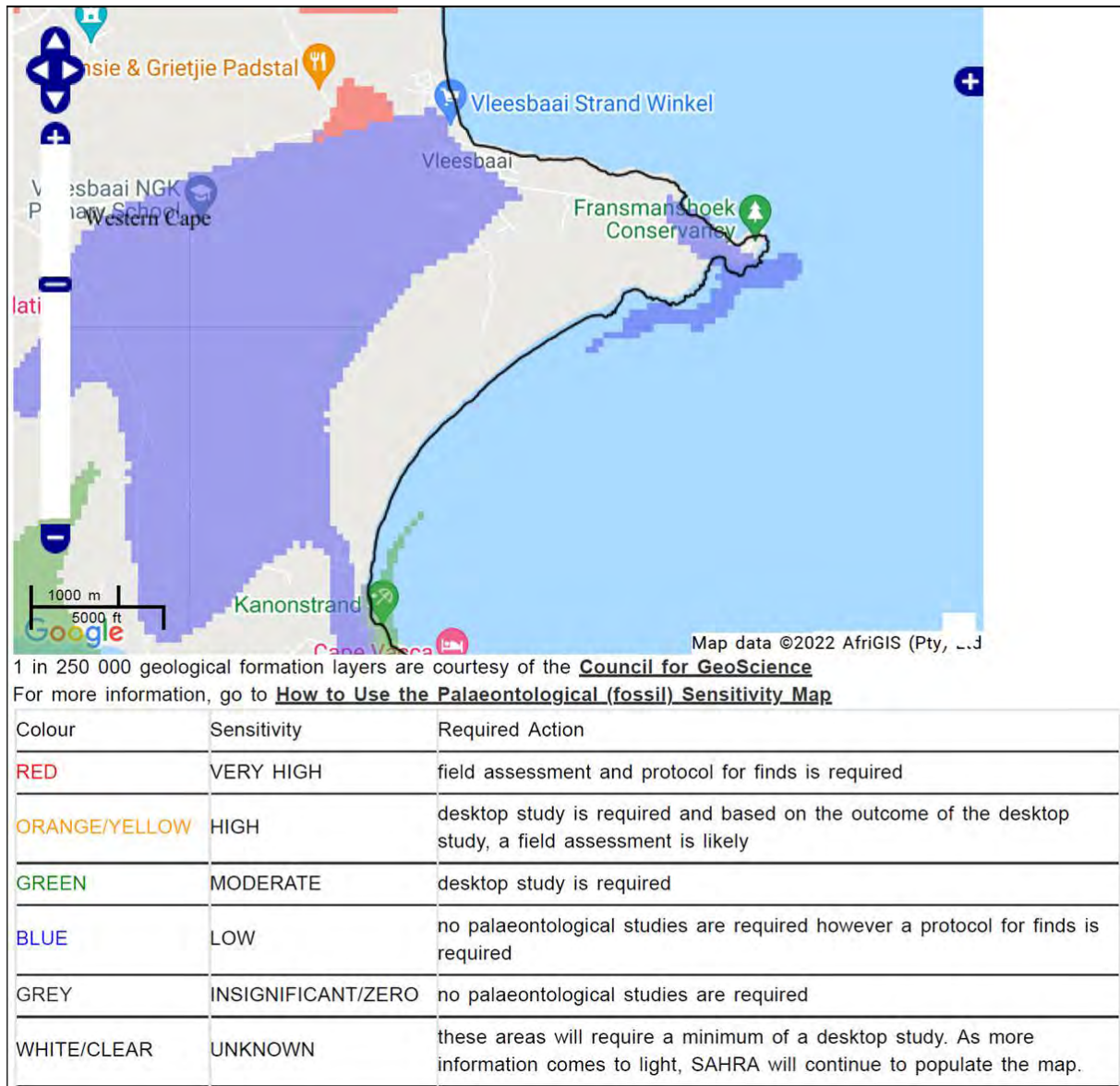


Figure 12. SAHRIS palaeo-sensitivity map showing that the study area is actually clear (unknown) and hence requires a desktop study (<https://sahris.sahra.org.za/map/palaeo>). The notable offset seen in the map (purple shading in ocean) is as it appears on the website.

The brief Palaeontological Impact Assessment conducted by John Pether concludes as follows: “Excavations into the dunes of the Strandveld Formation entailed in the construction of the dwelling and supporting infrastructure on Portion 19 of Farm 257 are not expected to have an impact on fossil heritage resources due to the low to marginal palaeontological sensitivity of these modern dune sands” (Appendix C – Pether 2022).

“The shallow excavations entailed in the proposed construction of the dwelling, access track, biogas digester and artificial wetland will only affect the upper loose dune sands of the Strandveld Formation. The palaeontological sensitivity of the Strandveld Formation dune sands is not rated on the SAHRIS Palaeo-Map (Figure 4) and it differs between dune fields depending on the extents of exposures of underlying palaeosurfaces. The fossil potential of the Strandveld Formation sands is poor overall and animal bones and marine shells included in these latest Quaternary dunes, mainly deposited during the last 12 thousand years, are expected to be in an archaeological context. Nevertheless, the fossil bones of large mammals are very occasionally found in dune-sand mines, such as elephant, hippopotamus, rhino and antelopes, the large bones being more easily seen. These finds in young dunes are often referred to as “subfossils”. Some finds are interesting in that they record the presence of fauna that has been lost in historical times. However, the relatively small scale of the excavated subsurface volume entailed in the proposed development renders the likelihood of intersecting the very sparsely distributed fossil bones improbable and such finds would very likely be the remains of species living today. Consequently the palaeontological sensitivity of the Strandveld Fm. sands in the vicinity of the development footprint is considered to be LOW to MARGINAL (Appendix 1)” (Appendix C – Pether 2022).

5.2. Archaeology

This author has considerable experience with the archaeology of the coastal regions of the Western and Eastern Cape provinces. In general, the coastal strip is rich in archaeological remains due to predictable and reliable food sources in the intertidal zone as well as an abundance of fresh water sources such as rivers, streams, seeps and springs. Archaeological sites occur either in the open or in caves, rock shelters and overhangs. The latter contexts provide the best opportunities for the accumulation and preservation of remains, while open sites are generally more dispersed and prone to disturbance, erosion and poor preservation of organic remains.

In descending age, the archaeological record in the area includes: Early Stone Age (ESA) stone implements such as hammer stones, cores, flakes and core tools (hand axes, cleavers, etc), but at this time no ESA sites with associated organic remains are known to occur in this area; Middle Stone Age (MSA) sites with stone artefacts, cultural and food remains are found in caves, such as those in the Provincial Heritage Site of the Pinnacle Point Site Complex west of Mossel Bay, but when they occur in the open, they are normally lacking in organic remains; Later Stone Age (LSA) sites with artefacts, cultural and food remains are also present in some of the fore-mentioned caves as well as open sites such as shell middens normally associated with rocky intertidal zones; pastoralist or herder (pottery period) sites may occur in caves or in the open and pottery and the remains of sheep are also commonly found in shell middens; and historic period sites include ship wrecks, structures, transport infrastructure, middens, burials and cemeteries among others. Prehistoric human burials, usually of LSA or more recent age, may occur anywhere in the landscape where soft sediments are present, and are sometimes at or near sites of human occupation both in the open and in caves or rock shelters.

The approximate dates for these phases of hominin and human occupation of the coastal and near coastal zone of the Western and Eastern Cape provinces is as follows: ESA = 2 million years ago till about 300 000 years ago; MSA = 300 000 years ago till between about 40 000 and 20 000 years ago; LSA = from between about 40 000 and 20 000 years ago till about 2000 years ago; pastoralist or herder = 2000 years ago till present or arrival of

colonists; historic period = from late 15th Century (1488 landfall of the seafarer Bartolomeu Dias at Mossel Bay) till present.

5.2.1. Desktop Study

Of the several projects indicated in the surroundings of the study area on the SAHRIS Cases and Reports Map (<https://sahris.sahra.org.za/map/reports>), only three reports were available for download (Figure 13). Three of the linear projects indicated on the SAHRIS map do not include archaeological or heritage specialist studies or reports on the SAHRIS website.

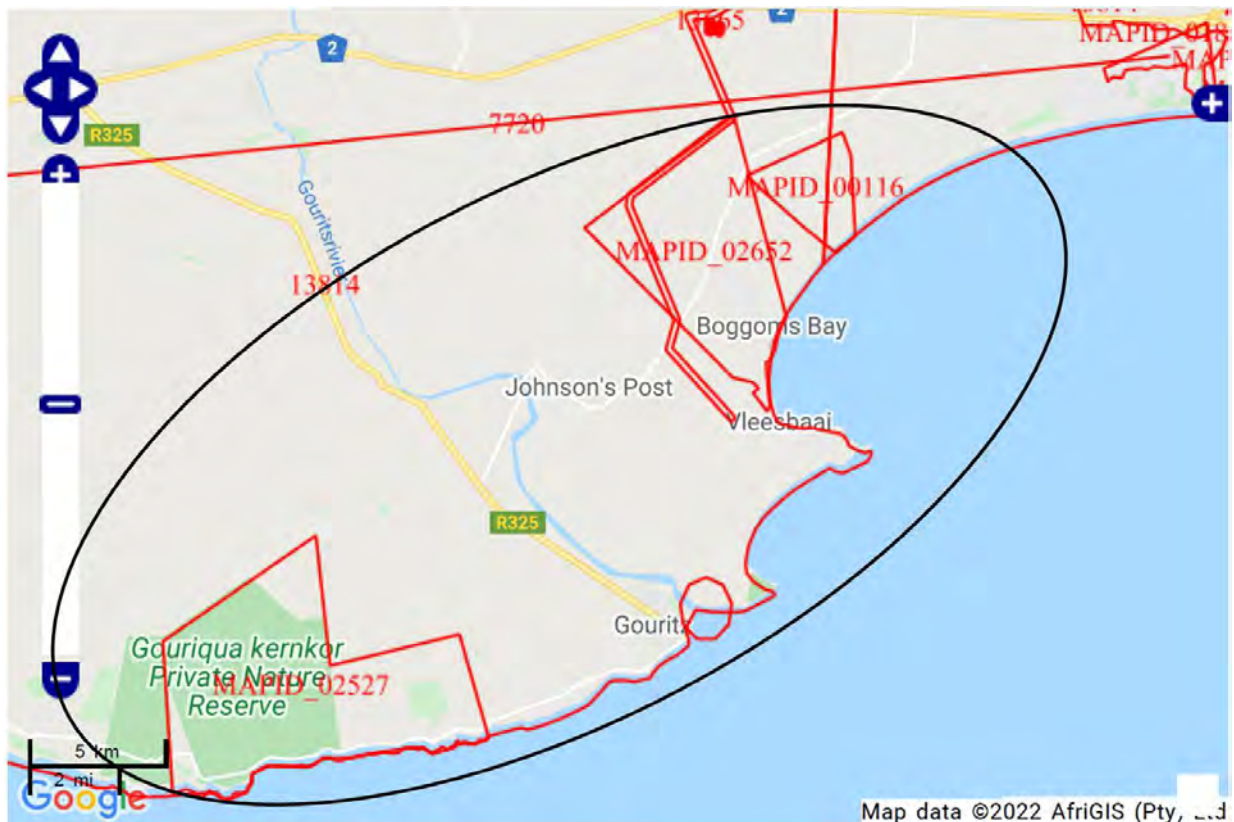


Figure 13: SAHRIS Cases and Reports Map for the surroundings of the study area indicated with the black ellipse (<https://sahris.sahra.org.za/map/reports>).

The earliest available study was conducted near the mouth of the Gouritz River on a property that includes the eastern bank of the river and situated approximately 5,5 km SW of the current study area (Halkett and Hart 1996). Apart from a near continuous low density background scatter of ESA and MSA stone artefacts, five sites were recorded and mapped.

One site is described as a scatter of stone implements representative of all three Stone Age periods (ESA, MSA and LSA) that includes a lot of cores and waste pieces that are scattered over a wide area. The dominant raw material is quartzite, but pieces in finer grained silcrete were also recorded. The site is disturbed by erosion and ploughing and rated to be of low significance.

Two sites occur in close proximity to two separate small natural pans where a mixture of ESA and MSA stone implements are in a disturbed state as a result of ploughing. One of

the sites includes some stone implements of LSA origin as well as marine shell, and it is suggested that the shell is more likely of LSA age. No bone is preserved at either site and the dominant raw material for stone tools is quartzite. A few artefacts in finer raw material were noted. Both sites are considered to be of low significance.

A fourth site is a single lens of *in situ* shell midden exposed in the profile of an erosion gully that truncates a vegetated dune. The site is thought to be of LSA origin and contains some cores and flakes. No formal tools or pottery were seen here or at any of the other sites. Due to the contextual integrity, the site is considered to be of medium significance and it is recommended that it should be protected and conserved.

A small rock shelter obscured by dense vegetation was identified, but no archaeological remains were seen. It is thought that the shelter may contain archaeological remains in buried deposits. The shelter is rated to be of medium significance and it is recommended that it remains hidden and protected behind vegetation.

Another archaeological investigation available from the SAHRIS website involves two coastal properties situated 8 km and 13 km NNW of the current study area between Vleesbaai and Danabaai (Figure 13). Only one of these properties, MAPID 00116, is indicated in Figure 13. The second coastal property is located further to the east, but west of Danabaai, roughly at the eastern extent of the black ellipse in Figure 13. A property located between the two referred to above has undergone authorised residential development without an archaeological or heritage investigation (Kaplan 2004). This latter, “sandwiched” property is discussed in more detail further below.

Notable numbers of ESA and MSA stone implements were seen in old agricultural lands, roads, ditches, and on eroded slopes further inland.

Twenty two (22) archaeological sites were documented on the two large coastal properties referred to above and it is anticipated that several more sites are either obscured by vegetation or buried in aeolian dune sands (Kaplan 2004). Nineteen (19) sites were identified among the primary dunes in the shoreline area. For the most part, these sites comprise extensive scatters of mainly LSA tools, but also mixed with MSA pieces as well as shellfish, and in some cases include fragments of ostrich egg shell (OES) and pottery. Most of the middens are dominated by white mussel (*Donax serra*), but in some cases brown mussel (*Perna perna*) is also present. Several sites include a mix of LSA and MSA stone implements and the materials are often deflated (and mixed) onto old compacted red sands or palaeosols, while some sites are situated atop exposed calcrete surfaces. Stone artefacts are mainly in quartzite, but pieces in silcrete are also present. Stone artefact types include large and smaller flakes, chunks, blades, cores, split and/or flaked cobbles, manuports and hammer stones. Formal or retouched tools are rare.

Unusual sites include: a white mussel midden with LSA stone implements, pottery, modern glass and plastic, as well as evidence for modern “braais”; and one site has several thousand pieces of OES as well as a thin scatter of stone artefacts in fine-grained quartzite and silcrete.

In addition to an isolated historic period burial, a small family cemetery occurs near a ruined homestead and outbuildings. Many of the historic farmsteads and outbuildings (older than 60 years) and cemetery are protected under the NHRA. One of the homesteads is of Late Victorian style and in good condition. Any renovation or work on this structure will require a permit from HWC.

It is noted that archaeological sites are likely to be impacted indirectly by increased human activity and pedestrian traffic. Some of the sites are rated as highly significant and warrant sampling. Recommended actions for mitigating impacts include detailed surveying, mapping, and collection of archaeological remains. Monitoring of bulk earthworks for infrastructure and excavations by a professional archaeologist is also recommended.

Kaplan suggests that an archaeological investigation should be done for the “sandwiched” property referred to above as numerous sites are located there. These include well preserved, highly visible and fragile shell middens with bone, pottery, ash and charcoal, ostrich egg shell and stone tools. These sites occur in the large wind deflated dunes and on the steep primary dunes adjacent to the shoreline. Scatters of stone tools, shellfish remains and terrestrial mammal bones also occur on wide sandy slopes both east and west of the main parking area at the beach (Kaplan 2004). Kaplan makes reference to the late Professor Hilary Deacon’s (1989) study for the Moss gas pipeline, which includes the abovementioned “sandwiched” property, where Deacon recorded shell middens and other finds. Deacon (1989:1; from Kaplan 2004) describes a well-preserved shell midden close to the parking area, with stone tools, surface bone, pottery, ostrich egg shell and ground ochre. Deacon recommended systematic archaeological excavation of the parking area shell midden, but according to Kaplan this was never done.

The third study obtained from the SAHRIS website is that of the Gourikwa (formerly Rein’s) Nature Reserve located about 16 km WSW of the current study area along mostly rocky shoreline (Figure 13, Kaplan 1995). The property is rich in archaeological sites that are dominated by an extensive series of well preserved open air shell middens along the frontal dune system that cover nearly the entire length of the 7.5 km long coastal strip. A number of stone walled tidal fish traps (*viswywers*) were observed and are readily visible on Google Earth aerial imagery at the time of this writing. Further inland, an assemblage of much earlier stone implements of ESA and MSA origin were found in a disturbed deflation basin and on the exposed lower ridges of Buffelskop overlooking Gourikwa.

Shell middens are variable and may include stone artefacts, fauna, pottery, ochre and OES. Stone implements in quartzite are dominant, but pieces in silcrete also occur. Limpets are dominant with notably lower numbers of periwinkle and abalone, but mussels are conspicuously absent. Sites are disturbed by extensive and intense mole activity. Formal tools in silcrete include adzes and scrapers while some quartzite flakes are also modified. Grind stones and hammer stones are fairly common. One midden with a high concentration of quartzite pieces appears to be a knapping station or stone artefact production workshop. Some of the middens are disturbed by roads and structures.

A stone artefact scatter is located in a deflated area about 500 m inland behind the lighthouse and includes stone implements of MSA and ESA origin. Artefact types, all in quartzite, include unmodified flakes (some with prepared or faceted platforms), cleavers, hand axes, hammer stones, and one possible grind stone. This site is disturbed by mole activity and human activities associated with erosion control.

A second stone artefact scatter is located among quartzitic rocks on the mountain ridge overlooking Gourikwa and includes ESA flakes and an irregular core.

Several historic period ruins occur on the property, but most are Not Conservation Worthy (NCW). Kaplan proposes that two ruins should be conserved and need to be restored under a permit from the heritage authorities (Kaplan 1995).

Kaplan cautions against potential negative impacts to sub-surface archaeology and prehistoric burials, recommends that an archaeological component should be included in the planned education centre, and that some shell middens could be incorporated into the tourism initiatives and hiking trail planned for the nature reserve (Kaplan 1995).

It is noted from the above studies that when archaeological remains are found in exposed, open contexts, they are often temporally mixed and disturbed, lacking in organic remains, and occur on older land surfaces (palaeosols). The lack of *in situ* context, therefore, renders these archaeological sites compromised and of questionable scientific value. With a few exceptions, shell middens are usually fairly close to the shoreline and mostly associated with rocky intertidal zones. In other words, shellfish are most commonly processed and consumed close to the point of collection. The current study area does not fall into the type of location normally expected to contain shell midden deposits, and therefore, the finding of the field survey was not surprising.

5.2.2. Field Investigation

On 14 and 23 September 2020 this author conducted an archaeological foot survey of the access roads and three building footprint options for the primary dwelling as well as the cottage (Figures 3 through 7 and 11). Note that the cottage has subsequently been removed from the plans. As is evident from the photographs, dune sands are exposed across the bulk of the affected areas making for good archaeological visibility (Figures 3 through 7). Even though surface sediments are disturbed by vehicle tracks, not a single trace of historic or prehistoric archaeological material was seen during the foot survey.

Given the open, mostly sandy setting, as well as the distance and elevation from the rocky intertidal zone (about 60 m above sea level), there are many more appealing places for prehistoric foragers or pastoralists to occupy in the immediate surroundings as is evidenced by the findings of studies in the surrounding environment (personal observations and experience; also see Halkett and Hart 1996, Deacon 1989, Kaplan 1995 & 2004). It was not surprising, therefore, to find no evidence of prehistoric occupation of the studied area.

Although it cannot be ruled out entirely, it is not anticipated that significant archaeological resources are buried in the dune sands beneath the access roads and proposed development footprints.

5.3. Graves

No historic graves or burials were identified during the foot survey, but it cannot be ruled out entirely that unmarked prehistoric human burials are in subsurface dune sands.

5.4. Historical Aspects and the Built Environment

5.4.1. Desktop Study

This section is dealt with above in Section 3.3.

In conclusion to the assessment conducted for the NID submission to HWC, De Kock writes the following: "While of high local socio-historic cultural significance the historic

themes outlined in Section 4 of this report relates to the early farm Misgunst aan de Gouritz Rivier and not directly to the subject property. Having regard to the findings following from above preliminary assessment, it is our view that, with the exception of the potential impact of engineering infrastructure on possible archaeological resources the proposal would not impact on any heritage resource of cultural significance” (De Kock 2020, pg 9).

5.4.2. Field Investigation

No traces of historical archaeological remains, including shipwreck material were identified during the archaeological foot survey.

5.5. Cultural Landscapes and Scenic Routes

5.5.1. Landscape Development

While the surroundings of the study area were inhabited during historic and prehistoric times, there is no evidence of significant archaeological sites on the property, and therefore, there is no clear component to the cultural landscape. Consequently, the proposed development will not impact the cultural landscape.

5.5.2. Scenic Route

The affected property is not visible from a scenic.

5.6. Statement of Significance and Provisional Grading

Section 38(3)(b) of the NHRA requires an assessment of the significance of all identified heritage resources. In terms of Section 2(vi), “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. The reasons that a place may have cultural significance are outlined in Section 3(3) of the NHRA (see Section 2 above).

The shallow excavations entailed in the proposed construction of the dwelling, access track, biogas digester and artificial wetland will only affect the upper loose dune sands of the Strandveld Formation. The relatively small scale of the excavated subsurface volume entailed in the proposed development renders the likelihood of intersecting the very sparsely distributed fossil bones improbable and such finds would very likely be the remains of species living today. Consequently the palaeontological sensitivity of the Strandveld Fm. sands in the vicinity of the development footprint is considered to be LOW to MARGINAL

Since no archaeological resources were identified in the study area, there is no statement of significance or provisional grading for this project.

In the event of the chance discovery of human remains, these will be considered to be of high significance at the local level (Grade IIIA).

The cultural landscape of the surroundings will not be impacted by the proposed development, and since there are no components of the cultural landscape on the affected property, there is no statement of significance or provisional grading.

5.7. Summary of Heritage Indicators

The significance of potentially buried palaeontological resources is unknown, but indications are that they should be treated as of low significance.

- Indicator: Significant palaeontological resources must not be damaged or destroyed without a permit from HWC.

The significance of potentially buried archaeological resources is unknown, but indications are that they should be treated as of low significance.

- Indicator: Significant archaeological resources must not be damaged or destroyed without a permit from HWC.

If unmarked human burials or human remains lie buried beneath surface sediments, then they are regarded to be of high local significance.

- Indicator: Human remains may not be disturbed without a permit from the relevant heritage authorities.

6. Assessment of Impacts

The attached palaeontological study has determined that impacts to palaeontology are likely to be of low significance, primarily due to the very limited probability of impacts actually occurring.

Vegetation clearing and earthmoving activities associated with the construction phase of development have potential to impact archaeological resources if they were present in the affected area. Given the absence of historic (including remains from shipwrecks) and prehistoric archaeological resources on surface sediments, there is no identified threat or impact to such resources. Given the context, setting and elevation of the development footprints, it is not anticipated that significant archaeological resources are present in subsurface sediments. Since no tangible heritage resources were identified in the study area, there can be no assessment of impacts. Based on the archaeological foot survey, it is this author's opinion that no further mitigation or management measures are required with respect to tangible heritage resources.

6.1. Construction / Operational Phase

6.1.1. Impacts to Palaeontological Resources

It is not anticipated that significant palaeontological resources will be uncovered during construction, but the nature and content of sub-surface sediments are unknown. Nevertheless, there are no fatal flaws regarding impacts to palaeontological resources.

6.1.2. Impacts to Archaeological Resources

No archaeological resources were identified in the study area and therefore there will be no known impact to archaeological resources. It is not anticipated that significant archaeological resources will be uncovered during construction, but the nature and content of sub-surface sediments are unknown. Nevertheless, there are no fatal flaws regarding impacts to archaeological resources.

6.1.3. Impacts to the Cultural Landscape

The proposed development will have no impact on the cultural landscape and hence there are no fatal flaws in terms of the cultural landscape.

6.2. Evaluation of Impacts Relative to Sustainable Social and Economic Benefits

Section 38(3)(d) of the NHRA requires an evaluation of the impacts on heritage resources relative to the sustainable social and economic benefits to be derived from the development.

Given the absence of historic and prehistoric heritage resources on the affected property, there are no anticipated direct negative impacts to the heritage of indigenous societies or to the heritage value of the area. The impact to the cultural landscape is anticipated to be none to negligible. As a result, the negative impacts of the proposed development on heritage resources will be negligible, while the proposed residential development will provide some contribution to the local economy and community of Vleesbaai and Mossel Bay during the construction and operational phases of the project. Albeit small, the benefits of the proposed development to sustainable social and economic development outweigh its impacts on heritage resources, which are not anticipated.

6.3. Existing Impacts to Heritage Resources

Since no known heritage resources were identified on the affected property, there are no known and existing impacts to heritage resources. The presence of several single vehicle tracks and the absence of archaeological and palaeontological remains in these disturbed sediments suggest that no heritage resources have been impacted in the study area. If they were to occur in the area, then natural processes like weathering, decay, bioturbation and erosion will have a continual negative impact on exposed and buried archaeological and palaeontological resources.

6.4. The No-Go Alternative

If the development does not proceed, then the site will remain as is with continued impacts of natural processes. Considering that the socio-economic benefits from the proposed development outweigh its negative impacts on heritage resources, it can be argued that the proposed development is preferable to the No-Go option.

6.5. Cumulative Impacts

We do not know whether or not infrastructural and residential developments in the surrounding area have impacted negatively on heritage resources. Most of the existing developments in the immediate surroundings did not undergo heritage impact assessments, and hence it is possible that some anthropogenic materials were lost to development. Given the locality and small scale of the proposed development, as well as the absence of heritage resources, it will have negligible additional cumulative impact on heritage resources, especially since this study has considered the heritage context and sensitivity of the affected area. The cumulative impact to the cultural landscape is also considered to be negligible and the development site is not visible from a scenic route. Overall, the proposed development is not considered as a concern with respect to cumulative impacts on heritage resources.

6.6. Levels of Acceptable Change

No negative impacts to tangible heritage resources should occur until such resources are evaluated and then studied, sampled or conserved as deemed necessary in accordance with their cultural significance. There will be no anticipated change to the heritage value of the area since no tangible heritage resources were identified.

Impacts of developments on cultural landscapes and scenic routes should not be permitted if they significantly alter or diminish the aesthetic appeal and value of a landscape as seen from commonly used viewpoints such as public transportation routes.

Due to the location, size and secluded nature of the property and proposed development, impacts on the landscape are considered to be negligible and within acceptable levels of change. Furthermore, the proposed development is in keeping with existing single residential developments on the surrounding smallholdings.

6.7. Consideration of Alternatives and Plans for Mitigation

Because no archaeological resources were identified, none of the access roads or proposed building footprints for the primary dwelling and cottage (removed from the plans) will, or are likely to, have a negative impact on such resources. Three alternative localities were considered for the location of the primary dwelling. Given the less undulating nature of dune sands in the Option 1 building footprint, it is likely that this option will involve less excavation into previously undisturbed subsurface sediments. Given this, and because this area appears to be less visible from the surrounding landscape than the other building footprint options, Option 1 and its associated access road is preferred from a heritage and archaeological perspective.

The proposed development will have no known or anticipated negative impacts on heritage resources and hence there are no plans for mitigation.

7. Input to the Environmental Management Program

If an Environmental Management Program (EMPr) is applicable to the project, then it should make provision for the following:

- Palaeontology – In case of the unexpected uncovering of sub-fossil bones in the dune sands, it is recommended that a protocol for finds of potential sub-fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project, basically “If bones are uncovered during excavations for foundations and other installations, stop work at that spot and report to Heritage Western Cape”. The basic FFP and the HWC Recording Form are provided in Appendix 2 of the attached Brief Palaeontological Assessment (Appendix C).
- If any human remains or archaeological materials are exposed during development 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.
- While the MUCH unit considers it highly unlikely that shipwreck material will be disturbed during the proposed development, there is always the potential for historical material to be uncovered during the works. Should any maritime and underwater cultural heritage resources be exposed during the proposed project, work must cease immediately and the MUCH unit at SAHRA must be informed of its discovery without delay. In this event, work may not commence until feedback has been received from SAHRA.
- If an EMP is not developed for the project, then the above recommendations must be implemented by the applicant or developer.

8. Consultation with Heritage Conservation Bodies

On 30 September 2020 the first draft of this HIA along with a notice of the proposed development activity as well as supporting documentation was submitted via email to the following Interested & Affected Parties (I&APs): Heritage Mossel Bay, the Simon van der Stel Foundation, Stillbaai Heritage Conservation Trust, Mossel Bay Municipality and the SAHRA MUCH unit. Proof of requests for comment is presented in Appendix B. All parties responded within the 30 day commenting period.

Responses and comments received from the registered conservation bodies and the Mossel Bay Municipality are included in the comments and responses table below. All correspondence and official letters received from some of the I&APs are available from this author on request.

The content of the comments/response table below is a summary of correspondence received from I&APs. The public consultation process yielded no objections to the proposed activity on Portion 19 of the farm Misgunst aan de Gouritz Rivier 257, nor was comment requiring heritage-related responses received. Consequently, there is no further need for public consultation in terms of Section 38(3)(e) of the NHRA.

Nevertheless, while they had no objection to the proposed activity, a recommendation received from the SAHRA Maritime and Underwater Cultural Heritage (MUCH) unit is included in the recommendations.

Table 2 Comments and responses from the community consultation process

I&AP	Comment	Response
1. Simon Van Der Stel Foundation, Southern Cape: Mr IP (Nati) De Swardt, 044 889 0047 / 083 752 9340, natiedes@telkomsa.net	Your preliminary investigation for the NID submission identified no heritage issues. The Simon van der Stel Foundation: Southern Cape therefore has no objections to the construction of two structures, access roads and supporting infrastructure (wetland, etc).	None required
2. Heritage Mossel Bay: Mrs Carina Wiggill, 044 691 2347 / 082 687 9744, heritage@visitmosselbay.co.za	The application to construct two residential properties together with the necessary access roads on the farm Misgunst aan de Gouritz River 257, off the Mees Bay Road, Fransmanshoek is not objected to. Heritage Mossel Bay supports the recommendation by Dr P Nilssen that "if any human remains or archaeological materials are exposed during development 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".	None required
3. Stillbaai Heritage Conservation Trust: Mr George Sabbagha, george.sabbagha@gmail.com	Die gebied val egter buite die jurisdiksie van die Trust (sien aangehegte kaart). Die Trust sal dus geen kommentaar lewer nie.	None required
4. Mossel Bay Municipality Planning Department: Mr Raimo Fernandez (Olga Louw on maternity leave), 044 606 5073, rfernandez@mosselbay.gov.za	a. Comments received from Mr Fernandez had no bearing on heritage resources or the NHRA. Details of comments available from this author on request. See opposite response from this author (b) and reply below (c). c. The Planning Department has no additional comment with regard to the subject matter.	b. None of the below seem to pertain to heritage related issues. Does your department have any objections or comments on heritage grounds?
5. SAHRA MUCH Unit: Lesa la Grange, llagrange@sahra.org.za, Briega Williams, bwilliams@sahra.org.za	We have read the documents provided concerning the above project and determined that issuing a formal comment in terms of Section 38 of the National Heritage Resources Act, No. 25 of 1999, is not necessary for the SAHRA MUCH unit due to the reasons stated in the letter. (The said letter is available from this author on request)	The recommendation provided in the letter referred to by the MUCH unit is included in the integrated recommendations

9. Conclusions

Overall, from a heritage and archaeological standpoint, there are no fatal flaws associated with the proposed development activities. There is no indication that development activities will have any negative impact on the heritage and archaeological value of the area.

The public consultation process yielded no objections to the proposed activity on Portion 19 of the farm Misgunst aan de Gouritz Rivier 257, nor was comment requiring responses received. Consequently, there is no further need for public consultation in terms

of Section 38(3)(e) of the NHRA. Nevertheless, while they had no objection to the proposed activity, a recommendation received from the SAHRA Maritime and Underwater Cultural Heritage (MUCH) unit is included in the integrated recommendations.

Table 3 lists the heritage indicators and how they will be responded to as necessary.

Table 3: Heritage indicators and project responses.

Indicator	Project Response
Palaeontological resources may be exposed during construction and may not be damaged or destroyed without a permit in terms of the NHRA.	The Fossil Finds Procedure should be included in the conditions of authorisation and/or EMPr if applicable.
Archaeological resources (including shipwreck remains) or human remains may be exposed during construction and may not be damaged or destroyed without a permit in terms of the NHRA.	Recommendations should be included in the conditions of authorisation and/or EMPr if applicable.

From a heritage standpoint there are no further concerns associated with the proposed development.

9.1. Reasoned Opinion of the Specialist

Based on results from this study, there are no fatal flaws and there is no indication that development activities will have any negative impact on the heritage and archaeological value of the area. Consequently, it is this author’s opinion that the proposed development on Portion 19 of Farm 257, Misgunst aan de Gouritz, should be authorized in full.

10. Recommendations

- There are no fatal flaws or objections to the full authorisation of the proposed development on grounds of this heritage study.
- No further heritage or archaeological work is needed for this project.
- In case of the unexpected uncovering of sub-fossil bones in the dune sands, it is recommended that a protocol for finds of potential sub-fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project (see details in Appendix C).
- If any human remains or archaeological materials are exposed during development 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.
- While the MUCH unit considers it highly unlikely that shipwreck material will be disturbed during the proposed development, there is always the potential for historical material to be uncovered during the works. Should any maritime and underwater cultural heritage

resources be exposed during the proposed project, work must cease immediately and the MUCH unit at SAHRA must be informed of its discovery without delay. In this event, work may not commence until feedback has been received from SAHRA.

- The above recommendations must be implemented by the applicant and/or must be included in an Environmental Management Program (EMPr) if an EMPr is developed for the project.

11. References

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Pether J. 2021. Palaeontological Assessment Proposed Residential Development on Portion 126 of Farm Matjesfontein 304, Keurboomstrand, Plettenberg Bay Bitou Municipality, Knysna Magisterial District, Western Cape.

Pether, J. 2020. Palaeontological Impact Assessment (Desktop Study) Proposed L'agulhas Lifestyle and Retirement Estate on Erfs 678, 679 And 680, Cape Agulhas Municipality, Bredasdorp District, Western Cape.

SAHRA APM, 2007. Guidelines: Minimum Standards for Archaeological & Palaeontological Components of Impact Assessment Reports.

SAHRA APM, 2012. Compliance to SAHRA Minimum Standards for Phase 1 Archaeological Impact Assessments.

SAHRA, 2017. Minutes of the Heritage Impact Assessment Workshop Held on the 23 October 2017 from 09h00 -17h00, at The Castle Of Good Hope Boardroom, Cape Town.

SAHRA APM, 2018. Compliance to SAHRA Minimum Standards, SAHRIS Requirements and Section 38 of the NHRA.

UNESCO, 2008. Operational guidelines for the implementation of the World Heritage Convention, 2008.

Winter, S. & Oberholzer, B. 2013. Heritage and Scenic Resources: Inventory and Policy Framework for the Western Cape. Report prepared for the Provincial Government of the Western Cape Department of Environmental Affairs and Development Planning. Sarah Winter Heritage Planner, and Bernard Oberholzer Landscape Architect / Environmental Planner, in association with Setplan.

12. "A4" Size Figures



Red polygon represents the affected property, Farm Misgunst Aan De Gouritz Rivier 257/19 (Fransmanshoek Peninsula), Mossel Bay.



Figure 1. Location of Portion 19 of the farm Misgunst aan de Gouritz Rivier 257 (red polygon) on the Fransmanshoek peninsula and relative to Vleesbaai, Western Cape Province. The current access road is shown in yellow. Courtesy of Google Earth 2020.



Figure 3. Examples of the receiving environment showing start of access road (top left), topography, vegetation cover, exposed dune sands, single vehicle access tracks (top right and bottom left) and areas strewn with cut and dead alien vegetation (bottom images).



Figure 4. Examples of the affected environment showing topography, vegetation cover and exposed undulating dune sands. The top right and bottom images are of Option 3, including a wooden survey peg (bottom left).



Figure 5. Examples of the affected environment showing topography, vegetation cover and exposed undulating dune sands. The top and bottom left images are of Option 2, while the bottom right image is of Option 1.



Figure 6. Examples of the affected environment at building footprint Option 1 showing topography, vegetation cover and exposed undulating dune sands. Note wooden survey pegs marking the footprint boundary points.



Figure 7. Examples of the affected environment along the access road and at the building footprint of the cottage (removed from the plans) showing topography, vegetation cover and exposed dune sands. Metal fence droppers mark the footprint boundary points. The existing borehole is shown in the bottom right image

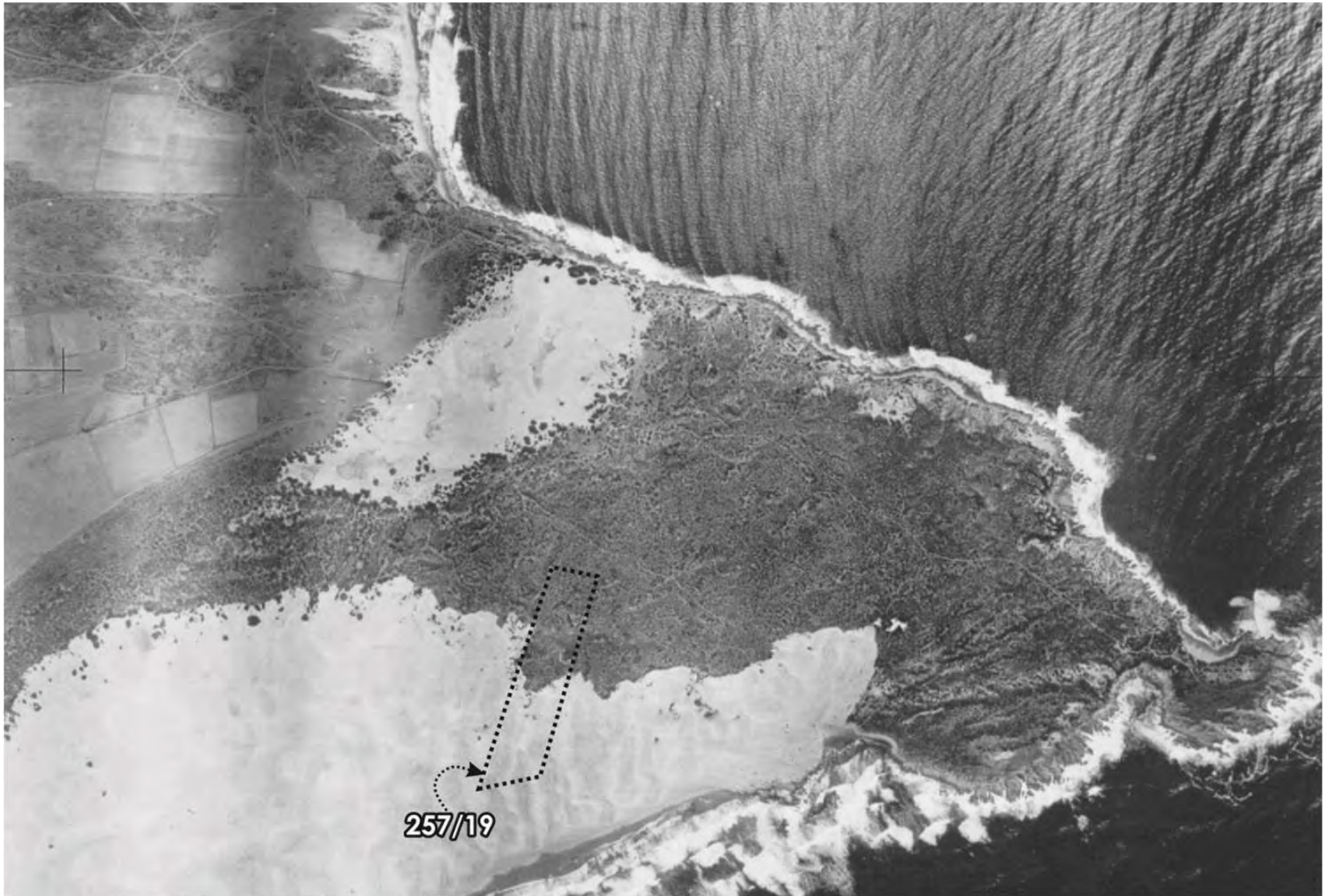


Figure 9. Location of property within context of 1944 aerial imagery for the area. (Aerial survey 171, Flight Strip 14, Image 6035, NGSi; De Kock 2020 Fig. 6).

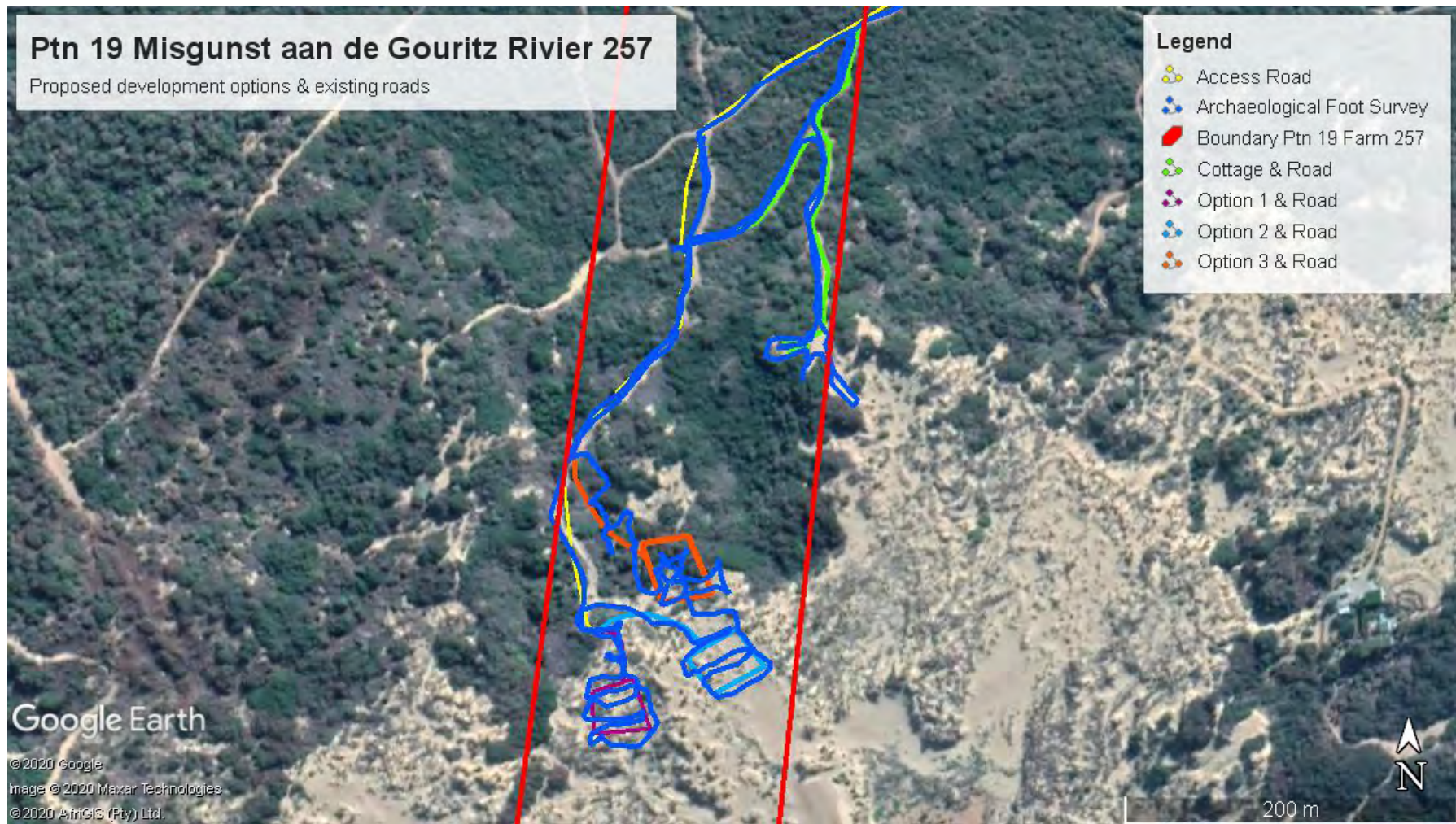


Figure 11. Archaeological foot survey tracks (dark blue) overlain on the proposed access roads, cottage (removed from plans) and three building footprint options for the primary dwelling on Portion 19 of Misgunst aan de Gouritz Rivier 257. Courtesy of the applicant and Google Earth 2020.

Appendix A: Curriculum vitae

BIOGRAPHICS:

Names & Surname: Peter John Nilssen
Address: 41, 21st Avenue
Mossel Bay
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South Africa
Postal Address: P.O. Box 2635
Mossel Bay
6500
South Africa
Telephone/Contact: Cellular phone: (27) 082 783 5896
E-mail: peter@carm.co.za
Identity Number: 641214 5081 080
Nationality: South African
Family Status: Married with two children
Drivers Licence: Code 02, 11/02/1987
Code 08, 15/12/1982
Health: Excellent
Languages: English
Afrikaans

EDUCATION

School: Rondebosch Boys High School, 1978 - 1982
School Certificate: Cape Senior Certificate, Full Matriculation
Exemption
University: University of Cape Town (UCT), South Africa
Degrees: Ph.D. in archaeology (2000), BA (HONS) 1989,
and BA (archaeology) 1988

PROFESSIONAL ACCREDITATION & AFFILIATION

Professional member of the Association of Southern African Professional Archaeologists (ASAPA) since 1989, including the Cultural Resource Management section of the same association (ASAPA professional member # 097).

Accreditation:

- Principal Investigator for archaeozoology (specialist analysis), coastal & shell midden archaeology and Stone Age archaeology;
- Field Director for Colonial Period;
- Field Supervisor for Iron Age and Rock Art.

Affiliation:

Honorary Research Associate of Iziko – South African Museum, Cape Town

PROFESSIONAL EMPLOYMENT

<u>Date</u>	<u>Employer</u>	<u>Description</u>
1989 - 1994	Prof. J.E. Parkington, UCT	Research Assistant
1990 – 1992	Prof. J.E. Parkington, UCT	Tutor for excavations
1991 & 1992	Dept. Archaeology, UCT	Tutor - Archaeology

1995 & 1996	Prof. A. Sillen, UCT	Research Assistant
1993 - 1999	Various scientists	Faunal analysis
1991 - 1999	Archaeology Contracts Office (UCT) Agency for CRM (J Kaplan)	Cultural Resource Management
1999 - 2004	Prof. C.W. Marean, State University of New York, Stony Brook, USA	Contracted researcher and Faunal analyst
2000 - 2001	Dr. C.S. Henshilwood, IZIKO	Faunal analysis, Blombos Cave
2003	Prof. Judith C. Sealy, UCT	Faunal analysis
2004 - 2006	Institute of Human Origins (IHO) Arizona State University, Tempe, USA	Co- Director & researcher, Pinnacle Point Site Complex Mossel Bay
2007 to present	self employed	Archaeological & Heritage Consultant
2013 to present	Point of Human Origins	Founder and owner – archaeo-tourism PPSC

EXPERIENCE:

Considerable fieldwork (survey, recording, mapping & excavation) and project experience in both archaeological research (Western Cape Province) and cultural resource management (CRM - Western, Eastern and Northern Cape Provinces of South Africa as well as Lesotho) spanning much of the Southern African prehistoric (Stone Age and Pastoralist) and historic (Colonial) periods.

CRM Project types include:

- Notification of Intent to Develop & accompanying Heritage Statements
- Archaeological specialist studies
- Heritage Impact Assessments
- Research & CRM archaeological excavations in Historic and Prehistoric sites

Development types:

- Single and complex residential & industrial
- Golf course
- Nature reserve / game farm
- Solar and wind facilities
- Roads, walkways, pipelines, cables, powerlines
- Dams
- Mines

PUBLICATIONS & REPORTS

Book:

- Nilssen, Peter. 2011. Hunting or Scavenging in the Early and Middle Stone Ages of Africa – Experimental archaeology and reconstructing hominid strategies of carcass acquisition and butchery in the Upper Pleistocene and Plio-Pleistocene. VDM Verlag Dr. Muller GmbH & Co. KG (ISBN 978-3-639-37474-2)

Peer Reviewed Publications:

- Nilssen, Peter and Craig Foster. 2017. The key to our future is buried in the past – philosophical thoughts on saving us from ourselves. The Digging Stick Vol 34, 1

- Antonieta Jerardino, Jonathan Kaplan, Rene Navarro and Peter Nilssen. 2016. Filling in the gaps and testing past scenarios on the Central West Coast: Hunter-gatherer subsistence and mobility at 'Deurspring 16' Shell Midden, Lamberts Bay, South Africa. *The South African Archaeological Bulletin* June 2016.
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- Yoshiko Abe, Curtis W. Marean, Peter J. Nilssen, Zelalem Assefa, and Elizabeth Stone 2002. “The analysis of cut marks on archaeofauna: a review and critique of quantification procedures, and a new image-analysis GIS approach.” *American Antiquity* 67:
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More than 240 reports completed to date

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Appendix B: Proof of request to comment

Peter Nilssen

From: Peter Nilssen [peter@carm.co.za]
Sent: Wednesday, 30 September 2020 9:10 AM
To: 'heritage@visitmosselbay.co.za'
Cc: 'Melissa Mackay'
Subject: Public Consultation in terms of Section 38(3)(e) of the the NHRA (Act 25 of 1999) - Misgunst aan de Gouritz Rivier 257/19
Attachments: NOTICE.PDF; HIA - Misgunst aan de Gouritz Rivier 257-19 - HWC Case 20072309SB0729E - Nilssen.pdf; Appendix A - NID Form - Misgunst aan de Gouritz Rivier 257 19.pdf; Appendix B - Final BID - Misgunst 257-19- July 2020a.pdf; Appendix C - Section 38(8) Response to NID Interim ptn 19 257.pdf; Appendix D - Title Deed.pdf; Appendix E - Power of Attorney for HIA 09-2020.pdf

Dear Carina (Heritage Mossel Bay),

Trusting this finds you well!

As an Interested & Affected Party / registered conservation body, please find below information for your attention. Documents that will be submitted to Heritage Western Cape for this project are attached.

Please confirm receipt of this email and attachments.

Please note that this development also requires a Basic Assessment process in terms of the National Environmental Management Act (Act 107 of 1998). As an I&AP for the HWC application, you have also been registered for the Basic Assessment process and will receive all related documentation directly from the EAP facilitating that process in due course.

Thanks and best wishes
Peter Nilssen

NOTICE

APPLICATION IN TERMS OF THE NATIONAL HERITAGE RESOURCES ACT, 1999, ACT 25 OF 1999 (THE NHRA)

Please note that an application is being made in terms of Section 38(8) of the NHRA regarding the following property:

ERF/FARM PORTION Portion 19 Misgunst aan de Gouritz Rivier 257 SUBURB/FARM Misgunst aan de Gouritz Rivier 257

TOWN Mossel Bay LOCAL/ DISTRICT MUNICIPALITY Mossel Bay

STREET ADDRESS Off Vlees Bay Road, Fransmanshoek peninsula (via N2)

Short Description of the work to be done: Alterations/Demolition Proposed Construction of Two Dwellings & Access Roads

A copy of the application can be obtained from:

Name: Dr Peter Nilssen

e-mail: peter@carm.co.za

Telephone: 082 783 5896

Postal Address: PO Box 2635, Mossel Bay, 6500

Any person wishing to object or comment **on heritage grounds** to the application must make such comment /objection in writing to the above address on or before 1 November 2020. (or 30 days from the date of publication).

Kindly note that objections or comments that are not made on heritage grounds will not be considered.

Peter Nilssen

From: Peter Nilssen [peter@carm.co.za]
Sent: Wednesday, 30 September 2020 9:15 AM
To: 'rfernandez@mosselbay.gov.za'
Cc: 'Melissa Mackay'
Subject: Public Consultation in terms of Section 38(3)(e) of the the NHRA (Act 25 of 1999) - Misgunst aan de Gouritz Rivier 257/19
Attachments: NOTICE.PDF; HIA - Misgunst aan de Gouritz Rivier 257-19 - HWC Case 20072309SB0729E - Nilssen.pdf; Appendix A - NID Form - Misgunst aan de Gouritz Rivier 257 19.pdf; Appendix B - Final BID - Misgunst 257-19- July 2020a.pdf; Appendix C - Section 38(8) Response to NID Interim ptn 19 257.pdf; Appendix D - Title Deed.pdf; Appendix E - Power of Attorney for HIA 09-2020.pdf

Dear Mr. Raimo Fernandez (Planning Department, Mossel Bay Municipality),

Trusting this finds you well!

As an Interested & Affected Party / registered conservation body, please find below information for your attention. Documents that will be submitted to Heritage Western Cape for this project are attached.

Please confirm receipt of this email and attachments.

Please note that this development also requires a Basic Assessment process in terms of the National Environmental Management Act (Act 107 of 1998). As an I&AP for the HWC application, you have also been registered for the Basic Assessment process and will receive all related documentation directly from the EAP facilitating that process in due course.

Thanks and best wishes
Peter Nilssen

NOTICE

APPLICATION IN TERMS OF THE NATIONAL HERITAGE RESOURCES ACT, 1999, ACT 25 OF 1999 (THE NHRA)

Please note that an application is being made in terms of Section 38(8) of the NHRA regarding the following property:
ERF/FARM PORTION Portion 19 Misgunst aan de Gouritz Rivier 257 SUBURB/FARM Misgunst aan de Gouritz Rivier 257
TOWN Mossel Bay LOCAL/ DISTRICT MUNICIPALITY Mossel Bay
STREET ADDRESS Off Vlees Bay Road, Fransmanshoek peninsula (via N2)
Short Description of the work to be done: Alterations/Demolition Proposed Construction of Two Dwellings & Access Roads

A copy of the application can be obtained from:

Name: Dr Peter Nilssen
e-mail: peter@carm.co.za
Telephone: 082 783 5896
Postal Address: PO Box 2635, Mossel Bay, 6500

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Kindly note that objections or comments that are not made on heritage grounds will not be considered.

Peter Nilssen

From: Peter Nilssen [peter@carm.co.za]
Sent: Wednesday, 30 September 2020 9:15 AM
To: 'lagrange@sahra.org.za'; 'bwilliams@sahra.org.za'
Cc: 'Melissa Mackay'
Subject: Public Consultation in terms of Section 38(3)(e) of the the NHRA (Act 25 of 1999) - Misgunst aan de Gouritz Rivier 257/19
Attachments: NOTICE.PDF; HIA - Misgunst aan de Gouritz Rivier 257-19 - HWC Case 20072309SB0729E - Nilssen.pdf; Appendix A - NID Form - Misgunst aan de Gouritz Rivier 257 19.pdf; Appendix B - Final BID - Misgunst 257-19- July 2020a.pdf; Appendix C - Section 38(8) Response to NID Interim ptn 19 257.pdf; Appendix D - Title Deed.pdf; Appendix E - Power of Attorney for HIA 09-2020.pdf

Dear Lesa and Briega (SAHRA MUCH Unit),

Trusting this finds you well!

As an Interested & Affected Party / registered conservation body, please find below information for your attention. Documents that will be submitted to Heritage Western Cape for this project are attached.

Please confirm receipt of this email and attachments.

Please note that this development also requires a Basic Assessment process in terms of the National Environmental Management Act (Act 107 of 1998). As an I&AP for the HWC application, you have also been registered for the Basic Assessment process and will receive all related documentation directly from the EAP facilitating that process in due course.

Thanks and best wishes
Peter Nilssen

NOTICE

APPLICATION IN TERMS OF THE NATIONAL HERITAGE RESOURCES ACT, 1999, ACT 25 OF 1999 (THE NHRA)

Please note that an application is being made in terms of Section 38(8) of the NHRA regarding the following property:

ERF/FARM PORTION Portion 19 Misgunst aan de Gouritz Rivier 257 SUBURB/FARM Misgunst aan de Gouritz Rivier 257

TOWN Mossel Bay LOCAL/ DISTRICT MUNICIPALITY Mossel Bay

STREET ADDRESS Off Vlees Bay Road, Fransmanshoek peninsula (via N2)

Short Description of the work to be done: Alterations/Demolition Proposed Construction of Two Dwellings & Access Roads

A copy of the application can be obtained from:

Name: Dr Peter Nilssen

e-mail: peter@carm.co.za

Telephone: 082 783 5896

Postal Address: PO Box 2635, Mossel Bay, 6500

Any person wishing to object or comment **on heritage grounds** to the application must make such comment /objection in writing to the above address on or before 1 November 2020. (or 30 days from the date of publication).

Kindly note that objections or comments that are not made on heritage grounds will not be considered.

Peter Nilssen

From: Peter Nilssen [peter@carm.co.za]
Sent: Wednesday, 30 September 2020 9:08 AM
To: 'natiedes@telkomsa.net'
Cc: 'Melissa Mackay'
Subject: Public Consultation in terms of Section 38(3)(e) of the the NHRA (Act 25 of 1999) - Misgunst aan de Gouritz Rivier 257/19
Attachments: NOTICE.pdf; HIA - Misgunst aan de Gouritz Rivier 257-19 - HWC Case 20072309SB0729E - Nilssen.pdf; Appendix A - NID Form - Misgunst aan de Gouritz Rivier 257 19.pdf; Appendix B - Final BID - Misgunst 257-19- July 2020a.pdf; Appendix C - Section 38(8) Response to NID Interim ptn 19 257.pdf; Appendix D - Title Deed.pdf; Appendix E - Power of Attorney for HIA 09-2020.pdf

Dear Mr. De Swardt (Simon Van Der Stel Foundation, Southern Cape),

Trusting this finds you well!

As an Interested & Affected Party / registered conservation body, please find below information for your attention. Documents that will be submitted to Heritage Western Cape for this project are attached.

Please confirm receipt of this email and attachments.

Please note that this development also requires a Basic Assessment process in terms of the National Environmental Management Act (Act 107 of 1998). As an I&AP for the HWC application, you have also been registered for the Basic Assessment process and will receive all related documentation directly from the EAP facilitating that process in due course.

Thanks and best wishes
Peter Nilssen

NOTICE

APPLICATION IN TERMS OF THE NATIONAL HERITAGE RESOURCES ACT, 1999, ACT 25 OF 1999 (THE NHRA)

Please note that an application is being made in terms of Section 38(8) of the NHRA regarding the following property:
ERF/FARM PORTION Portion 19 Misgunst aan de Gouritz Rivier 257 SUBURB/FARM Misgunst aan de Gouritz Rivier 257
TOWN Mossel Bay LOCAL/ DISTRICT MUNICIPALITY Mossel Bay
STREET ADDRESS Off Vlees Bay Road, Fransmanshoek peninsula (via N2)
Short Description of the work to be done: Alterations/Demolition Proposed Construction of Two Dwellings & Access Roads

A copy of the application can be obtained from:

Name: Dr Peter Nilssen
e-mail: peter@carm.co.za
Telephone: 082 783 5896
Postal Address: PO Box 2635, Mossel Bay, 6500

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Kindly note that objections or comments that are not made on heritage grounds will not be considered.

Peter Nilssen

From: Peter Nilssen [peter@carm.co.za]
Sent: Wednesday, 30 September 2020 9:10 AM
To: 'george.sabbagha@gmail.com'
Cc: 'Melissa Mackay'
Subject: Public Consultation in terms of Section 38(3)(e) of the the NHRA (Act 25 of 1999) - Misgunst aan de Gouritz Rivier 257/19
Attachments: NOTICE.PDF; HIA - Misgunst aan de Gouritz Rivier 257-19 - HWC Case 20072309SB0729E - Nilssen.pdf; Appendix A - NID Form - Misgunst aan de Gouritz Rivier 257 19.pdf; Appendix B - Final BID - Misgunst 257-19- July 2020a.pdf; Appendix C - Section 38(8) Response to NID Interim ptn 19 257.pdf; Appendix D - Title Deed.pdf; Appendix E - Power of Attorney for HIA 09-2020.pdf

Dear Mr. George Sabbagha (Stillbaai Heritage Conservation Trust),

Trusting this finds you well!

As an Interested & Affected Party / registered conservation body, please find below information for your attention. Documents that will be submitted to Heritage Western Cape for this project are attached.

Please confirm receipt of this email and attachments.

Please note that this development also requires a Basic Assessment process in terms of the National Environmental Management Act (Act 107 of 1998). As an I&AP for the HWC application, you have also been registered for the Basic Assessment process and will receive all related documentation directly from the EAP facilitating that process in due course.

Thanks and best wishes
Peter Nilssen

NOTICE

APPLICATION IN TERMS OF THE NATIONAL HERITAGE RESOURCES ACT, 1999, ACT 25 OF 1999 (THE NHRA)

Please note that an application is being made in terms of Section 38(8) of the NHRA regarding the following property:

ERF/FARM PORTION **Portion 19 Misgunst aan de Gouritz Rivier 257** SUBURB/FARM **Misgunst aan de Gouritz Rivier 257**

TOWN **Mossel Bay** LOCAL/ DISTRICT MUNICIPALITY **Mossel Bay**

STREET ADDRESS **Off Vlees Bay Road, Fransmanshoek peninsula (via N2)**

Short Description of the work to be done: Alterations/Demolition **Proposed Construction of Two Dwellings & Access Roads**

A copy of the application can be obtained from:

Name: **Dr Peter Nilssen**

e-mail: **peter@carm.co.za**

Telephone: **082 783 5896**

Postal Address: **PO Box 2635, Mossel Bay, 6500**

Any person wishing to object or comment **on heritage grounds** to the application must make such comment /objection in writing to the above address on or before **1 November 2020**. (or 30 days from the date of publication).

Kindly note that objections or comments that are not made on heritage grounds will not be considered.

Appendix C: Palaeontological Specialist Study

Appendix C: Palaeontological Specialist Study

HWC CASE NO. 20072309SB0729E

**BRIEF PALAEOLOGICAL ASSESSMENT
PROPOSED DWELLING ON PORTION 19 OF MISGUNST AAN DE
GOURITZ 257
HESSEQUAMUNICIPALITY, WESTERN CAPE**

BY

**John Pether, M.Sc., Pr. Sci. Nat. (Earth Sci.)
Geological and Palaeontological Consultant**

P. O. Box 48318, Kommetjie, 7976

Tel./Fax (021) 7833023

Cellphone 083 744 6295

jpether@iafrica.com

Prepared at the Request of

Dr Peter Nilssen, PO Box 2635, Mossel Bay, 6500

044 690 4359 | 082 783 5896 | peter@carm.co.za

For

Aquifer Resource Management (Pty) Ltd.

4 February 2022

CONCLUSION

Excavations into the dunes of the Strandveld Formation entailed in the construction of the dwelling and supporting infrastructure on Portion 19 of Farm 257 are not expected to have an impact on fossil heritage resources due to the low to marginal palaeontological sensitivity of these modern dune sands.

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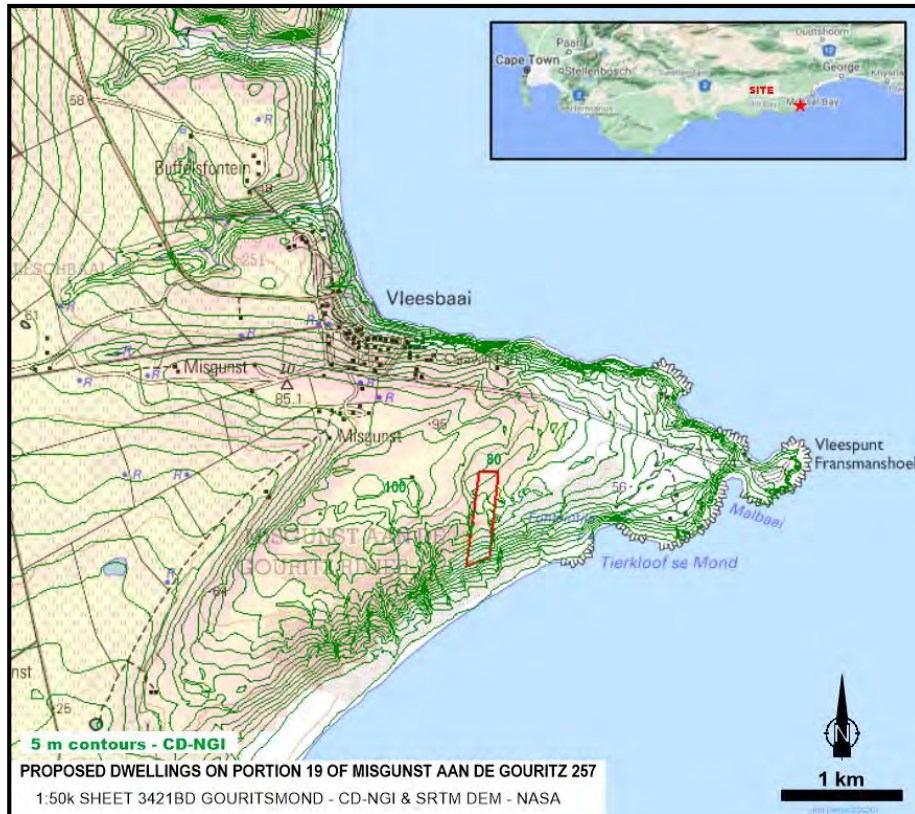
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PROJECT NAME

Proposed dwelling on Portion 19 of Misgunstaan de Gouritz 257.

LOCATION

Portion 19 of Farm Misgunstaan de Gouritz 257 is approached via the gravel road OP4979 between Vleesbaai and Vleespunt/Fransmanshoek Point, (Figure 1). About half way to Vleespunt near the summit overlooking it a track heading southwards into the vegetated dunes



leads to the property (Figure 2)

Figure 1. Location of the Project Area.

DESCRIPTION OF PROPOSED DEVELOPMENT

The property is situated within the Fransmanshoek Conservancy and the proposed development would therefore be undertaken and managed in terms of the principles prescribed by the conservancy.

The proposal is for the establishment of a primary dwelling (< 500m²) and an access road and associated engineering services and infrastructure.

Water supply is proposed to be sourced via a borehole and harvesting/ storage of rain water. Electricity supply is proposed to be sourced via solar and wind energy technology with battery storage.

Sewage is proposed to be dealt with via a biogas digester. Grey waste water would be treated in an artificial wetland (±100m²) and used for irrigation purposes.

Three alternative localities were considered for the location of the dwelling (Figure 2). Option 1 and its associated access road is preferred from a heritage and archaeological perspective and has also been identified by the Botanical Specialist and the Coastal Engineer as being the preferred option.

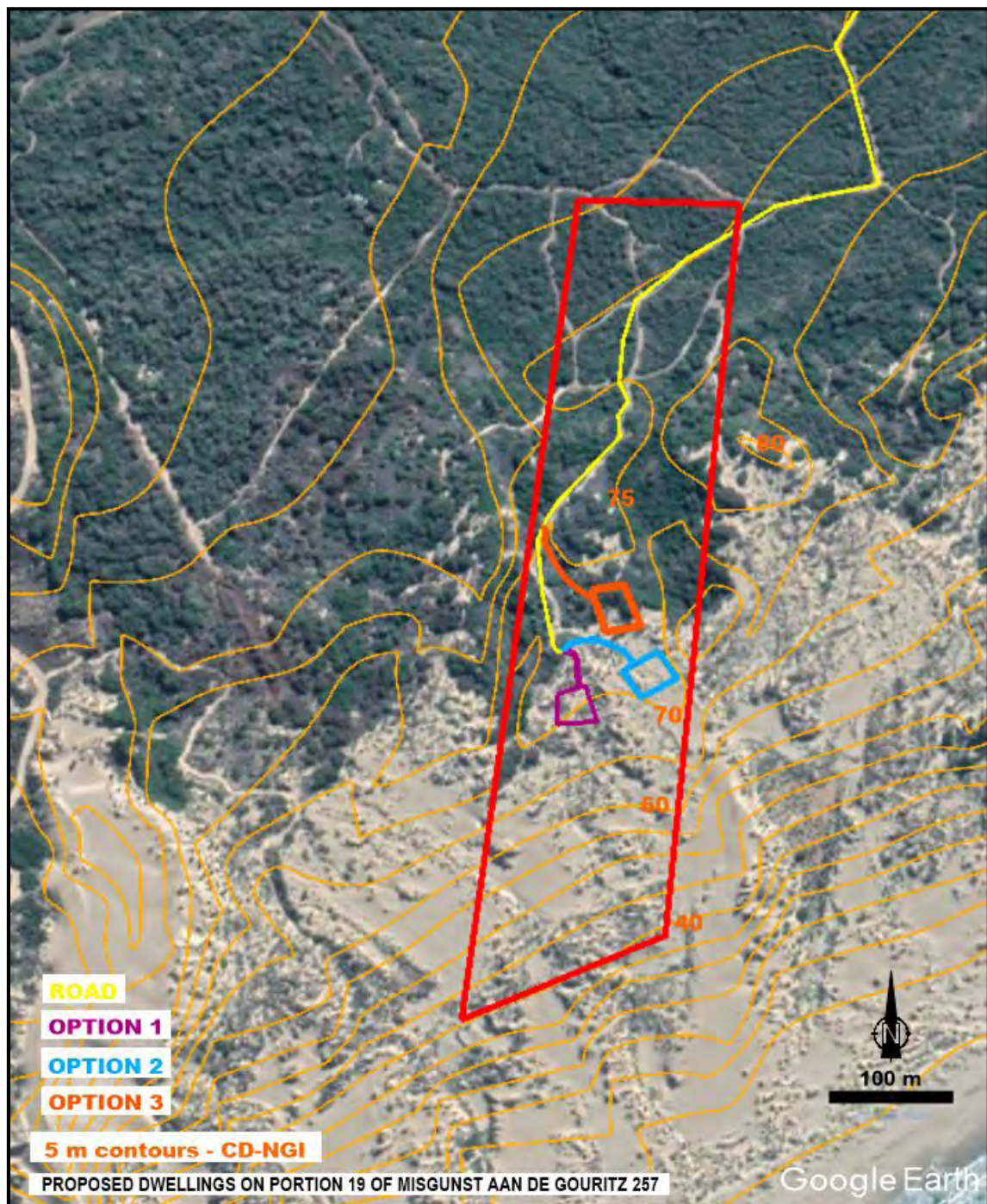


Figure 2. Aerial view of the context of the Proposed Development Area.

GEOLOGICAL CONTEXT

The bedrock underlying the Fransmanshoek peninsula consists of the Skurweberg Formation quartzitic sandstones of the upper part of the TABLE MOUNTAIN GROUP (Figure 3, Ss), which were deposited as sandy alluvial braid-plains during the early Silurian Period about 430 million years ago (~430 Ma). Much later, during the breakup of supercontinent Gondwana between about 155 Ma and 130 Ma, the bedrock was extensively disrupted by faulting and a “fresh” suite of sediments filled the new basins so created. These late Jurassic and early Cretaceous sediments are called the UITENHAGE GROUP (Figure 3) and comprise conglomerates eroded from the high ground above fault scarps (Enon Fm.), the sandy and muddy deposits of river flood plains (Kirkwood Fm.), and the deposits of deltas, estuaries and marine embayments at the coast (Sundays River Fm.). One of these prominent breakup faults defines

the northern edge of the Vleesbaai-Fransmanshoek peninsula, with outcrops of the Kirkwood Fm. exposed on the flanks of incised valleys north of the fault (Figure 3, *f*, J-Kk). Overlying the eroded surface of these older formations are the shelly marine beds of the De Hoopvlei Fm. (BREDASDORP GROUP) (Figure 3, Td), deposited during global warm periods of the Pliocene Epoch 5-3 Ma. These are succeeded by considerable thicknesses of calcified ancient dunes making up the Wankoe Fm. aeolianites (Figure 3, Tw) expressed as ridges in the landscape. Weathering of the Wankoe aeolianites has produced soil cover (T-Ql). A later cordon of dunes accumulated along the coast, namely the partly-calcified aeolianites of the Waenhuiskrans Fm. (Qw). In this area the Waenhuiskrans Fm. has been largely covered by the geologically recent dunes of the Strandveld Fm. (Qsr).

Figure 3. Surface geology of the surrounds of the Proposed Development.



ANTICIPATED IMPACTS ON PALAEOONTOLOGICAL HERITAGE RESOURCES

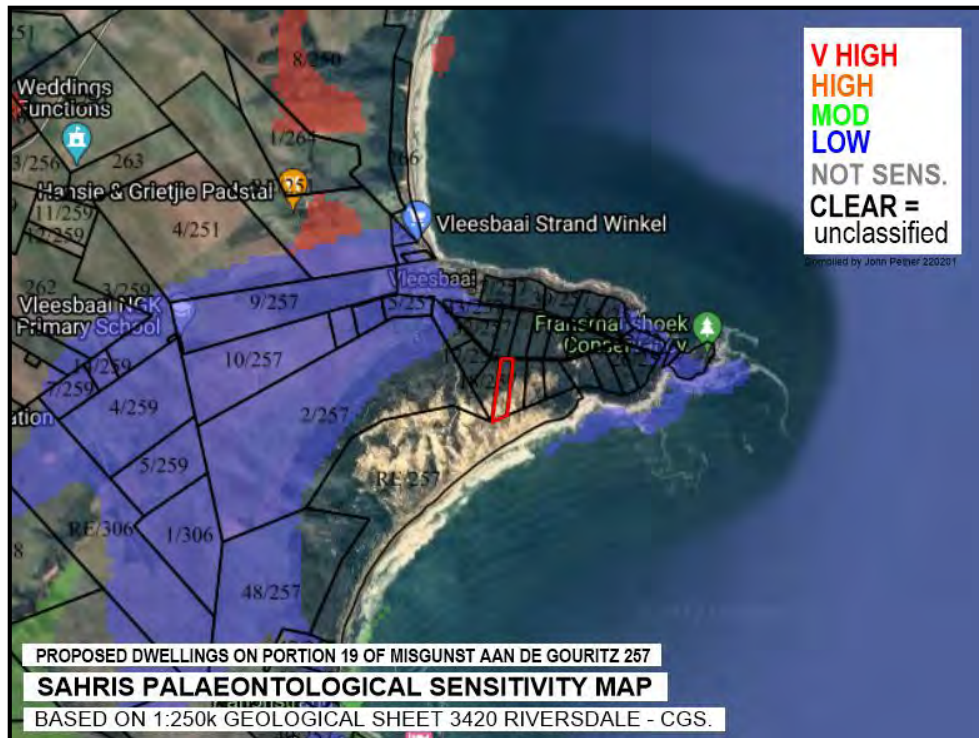
The proposed dwelling site is situated at ~70 m asl. at the brinkpoint overlooking the relatively steep slope down to the shoreline covered with partly-active dunes and the more gentle, vegetated slopes of the rounded crest of the aeolianite ridge (Figure 1 & 2). The archaeological field survey (Nilssen, 2021) notes that the site is a dune landscape of loose aeolian sands, with no visible archaeological material. Calcrite outcrops and deflated areas with exposed palaeosurfaces are not present.

The shallow excavations entailed in the proposed construction of the dwelling, access track, biogas digester and artificial wetland will only affect the upper loose dune sands of the Strandveld Formation.

The palaeontological sensitivity of the Strandveld Formation dune sands is not rated on the SAHRIS Palaeo-Map (Figure 4) and it differs between dunefields depending on the extents of exposures of underlying palaeosurfaces. The fossil potential of the Strandveld Formation sands is poor overall and animal bones and marine shells included in these latest Quaternary dunes, mainly deposited during the last 12 thousand years, are expected to be in an archaeological

context. Nevertheless, the fossil bones of large mammals are very occasionally found in dune-sand mines, such as elephant, hippopotamus, rhino and antelopes, the large bones being more easily seen. These finds in young dunes are often referred to as “subfossils”. Some finds are interesting in that they record the presence of fauna that has been lost in historical times. However, the relatively small scale of the excavated subsurface volume entailed in the proposed development renders the likelihood of intersecting the very sparsely distributed fossil bones improbable and such finds would very likely be the remains of species living today. Consequently the palaeontological sensitivity of the Strandveld Fm. sands in the vicinity of the development footprint is considered to be LOW to MARGINAL (Appendix 1)

Figure 4. Palaeontological sensitivities of formations in the area.



RECOMMENDATIONS

Excavations into the dunes of the Strandveld Formation entailed in the construction of the dwelling and supporting infrastructure are not expected to have an impact on fossil heritage resources due to the low to marginal palaeontological sensitivity of these modern dune sands.

Nevertheless, in case of the unexpected uncovering of sub-fossil bones in the dune sands, or buried archaeological material, or unmarked graves, it is recommended that a protocol for finds of potential sub-fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the Construction Phase of the project, basically “If bones or archaeological material are uncovered during excavations for foundations and other installations, stop work at that spot and report to Heritage Western Cape”. The basic FFP and the HWC Recording Form are provided in Appendix 2. Heritage Western Cape will assess the information and liaise with an archaeological or palaeontological specialist, as appropriate.

---oooOOOooo---

APPENDIX 1. PALAEOONTOLOGICAL SENSITIVITY RATING

Palaeontological Sensitivity refers to the likelihood of finding significant fossils within a geologic unit.

HIGH: Assigned to geological formations known to contain palaeontological resources that include rare, well-preserved fossil materials important to on-going palaeoclimatic, palaeobiological and/or evolutionary studies. Fossils of land-dwelling vertebrates are typically considered significant. Such formations have the potential to produce, or have produced, vertebrate remains that are the particular research focus of palaeontologists and can represent important educational resources as well.

MODERATE: Formations known to contain palaeontological localities and that have yielded fossils that are common elsewhere, and/or that are stratigraphically long-ranging, would be assigned a moderate rating. This evaluation can also be applied to strata that have an unproven, but strong potential to yield fossil remains based on its stratigraphy and/or geomorphologic setting.

LOW: Formations that are relatively recent or that represent a high-energy subaerial depositional environment where fossils are unlikely to be preserved, or are judged unlikely to produce unique fossil remains. A low abundance of invertebrate fossil remains can occur, but the palaeontological sensitivity would remain low due to their being relatively common and their lack of potential to serve as significant scientific resources. However, when fossils are found in these formations, they are often very significant additions to our geologic understanding of the area. Other examples include decalcified marine deposits that preserve casts of shells and marine trace fossils, and fossil soils with terrestrial trace fossils and plant remains (burrows and root fossils)

MARGINAL: Formations that are composed either of volcanoclastic or metasedimentary rocks, but that nevertheless have a limited probability for producing fossils from certain contexts at localized outcrops. Volcanoclastic rock can contain organisms that were fossilized by being covered by ash, dust, mud, or other debris from volcanoes. Sedimentary rocks that have been metamorphosed by the heat and pressure of deep burial are called metasedimentary. If the metasedimentary rocks had fossils within them, they may have survived the metamorphism and still be identifiable. However, since the probability of this occurring is limited, these formations are considered marginally sensitive.

NO POTENTIAL: Assigned to geologic formations that are composed entirely of volcanic or plutonic igneous rock, such as basalt or granite, and therefore do not have any potential for producing fossil remains. These formations have no palaeontological resource potential.

Adapted from Society of Vertebrate Paleontology. 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources - Standard Guidelines. News Bulletin, Vol. 163, p. 22-27.

APPENDIX 2. FOSSIL FINDS PROCEDURE

MONITORING

A constant monitoring presence over the period during which excavations for developments are made, by either an archaeologist or palaeontologist, is generally not practical.

The field supervisor/foreman and workers involved in digging excavations must be encouraged and informed of the need to watch for potential fossils and buried archaeological material and to immediately report such occurrences. To this end, responsible persons/officials must be designated. These include:

- The field supervisor/foreman, who is going to be most often in the field.
- The Environmental Control Officer (ECO) for the project, if appointed.
- The Project Manager/Site Agent/Owner (Site Officer).

Workers seeing potential objects are to report to the field supervisor who, in turn, will report to the designated Site Officer who will undertake the implementation of the Fossil Finds Procedure.

RESPONSE BY PERSONNEL IN THE EVENT OF FOSSIL BONE FINDS

The most important fossils of concern are the fossil bones and teeth of land animals.

In the process of digging the excavations fossil bones may be spotted in the hole sides or bottom, or as they appear in excavated material on the spoil heap.

- Stop work at fossil find. The Site Officer/ECO must be informed.
- Protect the find site from further disturbance and safeguard all fossil material in danger of being lost such as in the excavator bucket and scattered in the spoil heap.
- The Site Officer/ECO must immediately inform the Heritage Western Cape (HWC) and/or an archaeologist and provide via email the information about the find, as detailed below.
 - Date
 - Position of the excavation (GPS) and depth.
 - A description of the nature of the find.
 - Digital images of the excavation showing vertical sections (sides) and the position of the find showing its depth/location in the excavation.
 - A reference scale must be included in the images (tape measure, ranging rod, or object of recorded dimensions).
 - Close-up, detailed images of the find (with scale included).

Heritage Western Cape (HWC) will assess the information and a suitable response will be established which will be reported to the Owner/Developer and the Site Officer/ECO, such as whether rescue excavation or rescue collection by an archaeologist or palaeontologist is necessary or not. The response time/scheduling of the rescue fieldwork is to be decided in consultation with developer/owner and the ECO. It will probably be feasible to “leapfrog” the find and continue excavation farther along, so that the work schedule and machine time are minimally disrupted. The strategy is to rescue the material as quickly as possible.

APPLICATION FOR A PERMIT TO COLLECT FOSSILS

A permit from HWC and a Work Plan is required to excavate fossils. The applicant should be the qualified specialist responsible for assessment, collection and reporting. Should fossils be found that require rapid collecting, application for a palaeontological permit must be made to HWC immediately. The application requires the details and permission of the registered owner

of the site. The fossils and their contextual information must be deposited at a SAHRA/HWC-approved institution. The rescue of discovered palaeontological remains by a contracted specialist shall be at the Developer's expense.

HWC Recoding Form

FOSSIL DISCOVERIES: HWC PRELIMINARY RECORDING FORM		
Name of project:		
Name of fossil location:		
Date of discovery:		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	Lat:	Long:
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole		
Photographs (tick as appropriate and indicate number of the photograph)	Digital image of vertical section (side)	
	Fossil from different angles	
	Wider context of the find	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil	Name: Contact:	
Recorder	Name: Contact:	
Photographer	Name: Contact:	

APPENDIX 3. DECLARATION OF INDEPENDENCE

**BRIEF PALAEOLOGICAL ASSESSMENT
PROPOSED DWELLING ON PORTION 19 OF MISGUNST AAN DE GOURITZ 257
HESSEQUA MUNICIPALITY, WESTERN CAPE
HWC CASE NO. 20072309SB0729E**

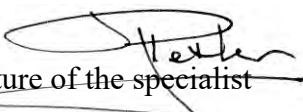
Terms of Reference

This assessment forms part of the Heritage Assessment and it assesses the overall palaeontological (fossil) sensitivities of formations underlying the Project Area.

Declaration

I ...**John Pether**....., as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in the compilation of the above report;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- 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 any vested interest in the proposed activity proceeding;
- have disclosed to the EAP any material information that has 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;
- have provided the EAP with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.


Signature of the specialist

Date:4February 2022

APPENDIX 4. CURRICULUM VITAE

John Pether, M.Sc., Pr. Sci. Nat. (Earth Sci.)

Independent Consultant/Researcher recognized as an authority with 38 years' experience in the field of coastal-plain and continental-shelf palaeoenvironments, fossils and stratigraphy, mainly involving the West Coast/Shelf of southern Africa. Has been previously employed in academia (South African Museum) and industry (Trans Hex, De Beers Marine). At present an important involvement is in Palaeontological Impact Assessments (PIAs) and mitigation projects in terms of the National Heritage Resources Act 25 (1999) (~350 PIA reports to date) and is an accredited member of the Association of Professional Heritage Practitioners (APHP). Continues to be involved as consultant to offshore and onshore marine diamond exploration ventures. Expertise includes:

- Coastal plain and shelf stratigraphy (interpretation of open-pit exposures, on/offshore cores and exploration drilling).
- Sedimentology and palaeoenvironmental interpretation of shallow marine, aeolian and other terrestrial surficial deposits.
- Marine macrofossil taxonomy (molluscs, barnacles, brachiopods) and biostratigraphy.
- Marine macrofossil taphonomy.
- Sedimentological and palaeontological field techniques in open-cast mines (including finding and excavation of vertebrate fossils (bones).

Membership of Professional Bodies

- South African Council of Natural Scientific Professions. Earth Science. Reg. No. 400094/95.
- Geological Society of South Africa.
- Palaeontological Society of Southern Africa.
- Southern African Society for Quaternary Research.
- Association of Professional Heritage Practitioners (APHP), Western Cape. Accredited Member No. 48.

Past Clients Palaeontological Assessments

AECOM SA (Pty) Ltd.	Guillaume Nel Environmental Management Consultants.
Agency for Cultural Resource Management (ACRM).	Klomp Group.
AMATHEMBA Environmental.	Megan Anderson, Landscape Architect.
AnélBlignaut Environmental Consultants.	Ninham Shand (Pty) Ltd.
Arcus Gibb (Pty) Ltd.	PD Naidoo & Associates (Pty) Ltd.
ASHA Consulting (Pty) Ltd.	Perception Environmental Planning.
Aurecon SA (Pty) Ltd.	PHS Consulting.
BKS (Pty) Ltd. Engineering and Management.	Resource Management Services.
Bridgette O'Donoghue Heritage Consultant.	Robin Ellis, Heritage Impact Assessor.
Cape Archaeology, Dr Mary Patrick.	Savannah Environmental (Pty) Ltd.
Cape EAPrac (Cape Environmental Assessment Practitioners).	Sharples Environmental Services cc
CCA Environmental (Pty) Ltd.	Site Plan Consulting (Pty) Ltd.
Centre for Heritage & Archaeological Resource Management (CHARM).	SRK Consulting (South Africa) (Pty) Ltd.
Chand Environmental Consultants.	Strategic Environmental Focus (Pty) Ltd.
CK Rumboll & Partners.	UCT Archaeology Contracts Office (ACO).
CNdV Africa	UCT Environmental Evaluation Unit
CSIR - Environmental Management Services.	Urban Dynamics.
Digby Wells & Associates (Pty) Ltd.	Van Zyl Environmental Consultants
Enviro Logic	Western Cape Environmental Consultants (Pty) Ltd, t/a ENVIRO DINAMIK.
Environmental Resources Management SA (ERM).	Wethu Investment Group Ltd.
Greenmined Environmental	Withers Environmental Consultants.

Stratigraphic consulting including palaeontology

Afri-Can Marine Minerals Corp	Council for Geoscience
De Beers Marine (SA) Pty Ltd.	De Beers Namaqualand Mines.
Geological Survey Namibia	IZIKO South African Museum.
Namakwa Sands (Pty) Ltd	NAMDEB

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