FINAL BASIC ASSESSMENT REPORT

for

HOUSE STEENEKAMP

on

Portion 19 of Farm 257 Misgunst aan de Gouritz Rivier

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations

Prepared for Applicant: Aquifer Resource Management (Pty.) Ltd.

Date: 9 May 2022

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Report Reference: MOS618/06
Department Reference: 16/3/3/1/D6/37/0003/22
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Report written & compiled by: **Ms Melissa Mackay** (BTech & ND Nature Conservation), who has sixteen years' experience as an environmental practitioner. Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners of South Africa, EAPSA, Registration Number **2019/1446**.

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PURPOSE OF THIS REPORT:

Final Basic Assessment Report

APPLICANT:

Aquifer Resource Management (Pty.) Ltd

CAPE EAPRAC REFERENCE NO:

MOS618/06

SUBMISSION DATE

09 May 2022

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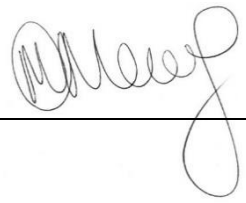
Ms Melissa Mackay	Snr Consultant	

DISTRIBUTION

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Registered I&APs	Multiple	

FINAL BASIC ASSESSMENT REPORT

in terms of the
National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended &
Environmental Impact Regulations 2014

House Steenekamp

Portion 19 of Farm 257 Misgunst aan de Gouritz Rivier

Submitted for:
Departmental Compliance

Report Issued by:
Cape Environmental Assessment Practitioners

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PO Box 2070
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ORDER OF REPORT

Basic Assessment Report

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~~Appendix A3 : Map with the GPS co-ordinates for linear activities~~

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Appendix B2 : A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas

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Appendix D : Biodiversity overlay map

Appendix E : Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.

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Appendix E2 : Copy of comment from Cape Nature

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Appendix E4 : Comment from the DEA: Oceans and Coast (Not Received)

~~Appendix E5 : Comment from the DAFF~~

Appendix E6 : Comment from WCG: Transport and Public Works (Not Received)

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Appendix E9 : Comment from WCG: DoH (Not Received)

~~Appendix E10 : Comment from DEA&DP: Pollution Management~~

~~Appendix E11 : Comment from DEA&DP: Waste Management~~

~~Appendix E12 : Comment from DEA&DP: Biodiversity~~

~~Appendix E13 : Comment from DEA&DP: Air Quality~~

Appendix E14 : Comment from DEA&DP: Coastal Management

Appendix E15 : Comment from the local authority

Appendix E16 : Confirmation of all services (water, electricity, sewage, solid waste management)

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Appendix F : Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.

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Appendix K : Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline (in report)

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1. CONTENT OF BASIC ASSESSMENT REPORTS

Appendix 1 of the 2014 EIA Regulations (as amended) contains the required contents of a Basic Assessment Report. The checklist below serves as a summary of how these requirements were incorporated into this Basic Assessment Report.

Requirement	***Details***
(a) Details of - *(i) The EAP who prepared the report; and* *(ii) The expertise of the EAP, including, curriculum vitae.* *(iii) Applicant Details*	Ms Melissa Mackay (EAPASA Registered) BTech & ND Nature Conservation, with sixteen years' experience as an environmental practitioner. Company profile is included as Appendix L3. Aquifer Resource Management (Pty)Ltd PO Box 448, Riversdale, 6670 Email : Steenekamp.gesin@gmail.com
(b) The location of the activity, including – *(i) The 21 digit Surveyor General code of each cadastral land parcel;* *(ii) Where available, the physical address and farm name;* *(iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.*	C05100000000025700019 Portion 19 of Farm 257 Misgunst aan de Gouritz Rivier, Fransmanshoek Conservancy near Vleesbaai
(c) a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is *(i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or* *(ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken.*	Refer to Appendix A & B
(d) a description of the scope of the proposed activity, including - *(i) All listed and specified activities triggered and being applied for; and* *(ii) A description of the activities to be undertaken including associated structures and infrastructure.*	Section B
(e) A description of the policy and legislative context within which the development is proposed, including – *(i) An identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity*	Section B

Requirement	***Details***
and have been considered in the preparation of the report; and *(ii) How the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks and instruments.*	
(f) A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.	Section D
(g) A motivation for the preferred site, activity and technology alternative.	Section E&F
(h) A full description of the process followed to reach the proposed preferred alternative within the site, including - *(i) Details of all alternatives considered;* *(ii) Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;* *(iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;* *(iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;* *(v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts:* *(aa) can be reversed;* *(bb) may cause irreplaceable loss of resources; and* *(cc) can be avoided, managed or mitigated.* *(vi) The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;* *(vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;* *(viii) The possible mitigation measures that could be applied and level of residual risk;* *(ix) The outcome of the site selection matrix;* *(x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and*	Section E Section C and Appendix F Section F Section E & F and Appendix G Section G and Appendix G

Requirement	***Details***
(xi) A concluding statement indicating the preferred alternatives, including preferred location of the activity.	
(i) A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including – *(ii) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and* *(iii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.*	Section F & G and Appendix G
(j) An assessment of each identified potentially significant impact and risk, including - *(i) Cumulative impacts;* *(ii) The nature, significance and consequences of the impact and risk;* *(iii) The extent and duration of the impact and risk;* *(iv) The probability of the impact and risk occurring;* *(v) The degree to which the impact and risk can be reversed;* *(vi) The degree to which the impact and risk may cause irreplaceable loss of resources; and* *(vii) The degree to which the impact and risk can be mitigated.*	Section G
(k) Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report.	Section G and Appendix G
(l) An environmental impact statement which contains: *(i) A summary of the key findings of the environmental impact assessment;* *(ii) A map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and* *(iii) A summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.*	Section G & H and Appendix G
(m) Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr.	Section G & H, Appendices G & H
(n) Any aspects which were conditional to the findings of the assessment either by the EAP or specialist	Section H

Requirement	***Details***
which are to be included as conditions of authorisation.	
(o) A description of assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed.	Section F, G & H and Appendix G
(p) A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	Section H
(q) Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded and the post construction monitoring requirements finalised.	Section H
(r) An undertaking under oath or affirmation by the EAP in relation to: *(i) The correctness of the information provided in the reports;* *(ii) The inclusion of comments and inputs rom stakeholders and I&APs;* *(iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and* *(iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.*	Section J
(s) Where applicable, details of any financial provisions for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts.	Not applicable to this application
(t) Any specific information that may be required by the competent authority.	
(u) Any other matters required in terms of section 24(4)(a) and (b) of the Act.	

Western Cape Government
Environmental Affairs and Development Planning

FORM NO. BAR10/2019

BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

NOVEMBER 2019

(For official use only)	
Pre-application Reference Number (if applicable):	16/3/3/6/7/1/D6/37/0159/20
EIA Application Reference Number:	16/3/3/1/D6/37/0003/22
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must Include an overview of the project including the Farm name/Portion/Erf number)

The applicant wishes to exercise his primary right to constructing a primary single residential dwelling on Portion 19 of Farm 257 Misgunst aan de Gouritz Riviere near Vleesbaai.

The primary dwelling is expected to be ±500m² in size, with a ±70m access road connecting the dwelling to the end of the existing road network. Total disturbance is expected to be ±1500m².

Option 1 in the Site Development Plan provided below is the preferred development site for this application.

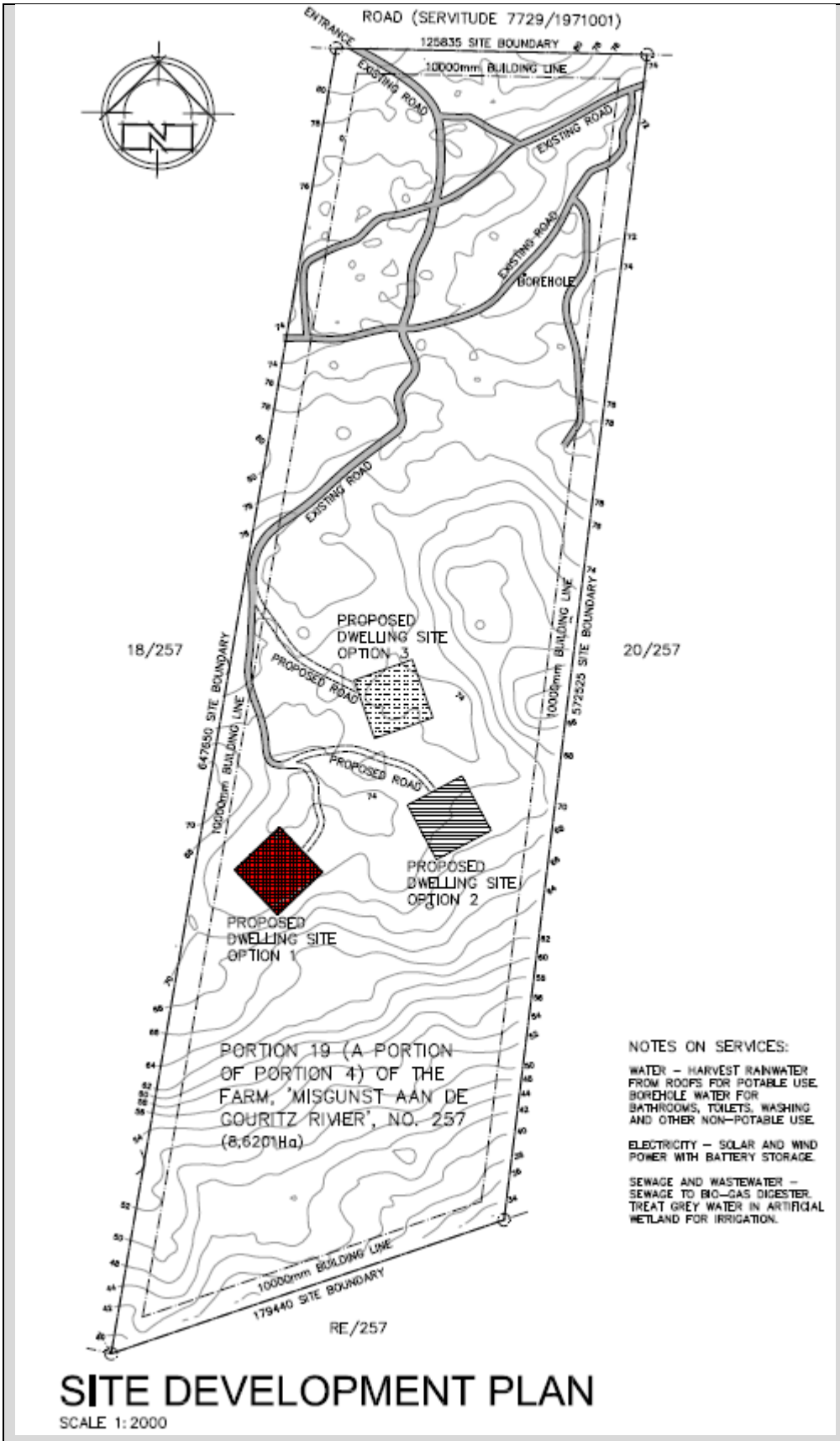

Figure 1: Site Development Plan

The dwelling will have off grid electricity, water and on-site sewerage disposal.

IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.
2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 19998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".
3. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
4. All applicable sections of this BAR must be completed.
5. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.
6. This BAR is current as of **November 2019**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at http://www.westerncape.gov.za/eadp to check for the latest version of this BAR.
7. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.
10. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.
11. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.
12. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.
13. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link https://screening.environment.gov.za/screeningtool to generate the Screening Tool Report. The screening tool report must be attached to this BAR.
14. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('NEM:AQA"), the submission of the Report must also be made as follows, for-

    Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

    Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

~~CAPE TOWN OFFICE: REGION 1 and REGION 2~~ ~~(Region 1: City of Cape Town, West Coast District)~~ ~~(Region 2: Cape Winelands District & Overberg District)~~	GEORGE OFFICE: REGION 3 (Central Karoo District & Garden Route District)
~~BAR must be sent to the following details:~~ ~~Western Cape Government~~ ~~Department of Environmental Affairs and Development Planning~~ ~~Attention: Directorate: Development Management (Region 1 or 2)~~ ~~Private Bag X 9086~~ ~~Cape Town,~~ ~~8000~~ ~~Registry Office~~ ~~1st Floor Utilitas Building~~ ~~1 Dorp Street,~~ ~~Cape Town~~ ~~Queries should be directed to the Directorate: Development Management (Region 1 and 2) at:~~ ~~Tel: (021) 483-5829~~ ~~Fax (021) 483-4372~~	BAR must be sent to the following details: Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530 Registry Office 4th Floor, York Park Building 93 York Street George Queries should be directed to the Directorate: Development Management (Region 3) at: Tel: (044) 805-8600 Fax (044) 805 8650

MAPS

Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.	
Locality Map:	The scale of the locality map must be at least 1:50 000. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following: • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development **must** be clearly indicated on the site plan.

	• Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): o Watercourses / Rivers / Wetlands o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable); o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): o Ridges; o Cultural and historical features/landscapes; o Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as **Appendix C**. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as **Appendix D**.
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as **Appendix A3**.

ACRONYMS

DAFF:	Department of Forestry and Fisheries
DEA:	Department of Environmental Affairs
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ **(**tick) or a **x** (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			**✓ (Tick) or x (cross)**
Appendix A:	**Maps**		
	Appendix A1:	**Locality Map**	✓
	Appendix A2:	**Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning**	✓
	Appendix A3:	**Map with the GPS co-ordinates for linear activities**	**x**
Appendix B:	**Appendix B1:**	**Site development plan(s)**	✓
	Appendix B2	**A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;**	
Appendix C:	**Photographs**		✓
Appendix D:	**Biodiversity overlay map**		✓
Appendix E:	**Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.**		
	Appendix E1:	**Final comment/ROD from HWC**	✓
	Appendix E2:	**Copy of comment from Cape Nature**	Pending
	Appendix E3:	**Final Comment from the DWS**	✓
	Appendix E4:	**Comment from the DEA: Oceans and Coast**	Pending
	Appendix E5:	**Comment from the DAFF**	**x**
	Appendix E6:	**Comment from WCG: Transport and Public Works**	Pending
	Appendix E7:	**Comment from WCG: DoA**	Pending
	Appendix E8:	**Comment from WCG: DHS**	**x**
	Appendix E9:	**Comment from WCG: DoH**	Pending

	Appendix E10:	**Comment from DEA&DP: Pollution Management**	×
	Appendix E11:	**Comment from DEA&DP: Waste Management**	×
	Appendix E12:	**Comment from DEA&DP: Biodiversity**	×
	Appendix E13:	**Comment from DEA&DP: Air Quality**	×
	Appendix E14:	**Comment from DEA&DP: Coastal Management**	Pending
	Appendix E15:	**Comment from the local authority**	Pending
	Appendix E16:	**Confirmation of all services (water, electricity, sewage, solid waste management)**	✓
	Appendix E17:	**Comment from the District Municipality**	Pending
	Appendix E18:	**Copy of an exemption notice**	×
	Appendix E19	**Pre-approval for the reclamation of land**	×
	Appendix E20:	**Proof of agreement/TOR of the specialist studies conducted.**	✓
	Appendix E21:	**Proof of land use rights**	✓
	Appendix E22:	**Proof of public participation agreement for linear activities**	×
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.**		✓
Appendix G:	**Specialist Report(s)**		✓
Appendix H:	**EMPr**		✓
Appendix I:	**Screening tool report**		✓
Appendix J:	**The impact and risk assessment for each alternative**		In report
Appendix K:	**Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline**		In report
Appendix…..	**Any other attachments must be included as subsequent appendices**		

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	~~CAPE TOWN OFFICE:~~		GEORGE OFFICE:	
	~~REGION 1~~ ~~(City of Cape Town, West Coast District~~	~~REGION 2~~ ~~(Cape Winelands District & Overberg District)~~	REGION 3 (Central Karoo District & Garden Route District)	
Duplicate this section where there is more than one Proponent Name of Applicant/Proponent:	Aquifer Resource Management (Pty) Ltd			
Name of contact person for Applicant/Proponent (if other):	Mr Gerhard Steenekamp			
Company/ Trading name/State Department/Organ of State:	Aquifer Resource Management (Pty.) Ltd			
Company Registration Number:	2005/018624/07			
Postal address:	PO Box 448			
	Riversdale		Postal code:	6670
Telephone:	( )		Cell:	084-4091429
E-mail:	Steenekamp.gesin@gmail.com		Fax:	
Company of EAP:	Cape Environmental Assessment Practitioners (*Cape EAPrac*)			
EAP name:	Ms Melissa Mackay			
Postal address:	PO Box 2070			
	George		Postal code:	6530
Telephone:	044 874 0365		Cell:	071 603 4132
E-mail:	mel@cape-eaprac.co.za		Fax:	044 874 0432
Qualifications:	BTech & ND Nature Conservation			
EAPASA registration no:	Melissa Mackay EAPASA Registration Number **2019/1446.** Ms Mackay has over sixteen years experience as an environmental practitioner. Director **Louise-Mari van Zyl** (MA Geography & Environmental Science [US]; Registered Environmental Assessment Practitioner with the Environmental Assessment Practitioners of South Africa, EAPSA, Registration Number **2019/1444**. Ms van Zyl has over twenty years' experience as an environmental practitioner.			
Duplicate this section where there is more than one landowner Name of landowner:	Aquifer Resource Management (Pty.) Ltd			

Name of contact person for landowner (if other):	Mr Gerhard Steenekamp		
Postal address:	PO Box 448		
	Riversdale	Postal code:	6670
Telephone:	( )	Cell:	084-4091429
E-mail:	Steenekamp.gesin@gmail.com	Fax:	
Name of Person in control of the land:	Aquifer Resource Management (Pty.) Ltd		
Name of contact person for person in control of the land:	As Above		
Postal address:			
		Postal code:	
Telephone:	( )	Cell:	
E-mail:		Fax:	

Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Mossel Bay Municipality		
Contact person:	Jaco Roux (Town Planner)		
Postal address:	4th Floor, Montagu Place Building, 111 Montagu Str		
	Mossel Bay	Postal code:	6500
Telephone	044 606 5071	Cell:	083 740 6898
E-mail:	jroux@mosselbay.gov.za	Fax:	

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INLCUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New	✓	~~Expansion~~	
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
Greenfield. Development of a primary dwelling with associated structures and infrastructure					
~~3.~~	~~**For Linear activities or developments**~~				
~~3.1.~~	~~Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:~~				
~~3.2.~~	~~Development footprint of the proposed development for all alternatives.~~				~~m²~~

3.3.	~~Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.~~																							
3.4.	~~Indicate how access to the proposed routes will be obtained for all alternatives.~~																							
3.5.	~~SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives~~																							
3.6.	**~~Starting point co-ordinates for all alternatives~~**																							
	~~Latitude (S)~~																							
	~~Longitude (E)~~																							
	~~Middle point co-ordinates for all alternatives~~																							
	~~Latitude (S)~~																							
	~~Longitude (E)~~																							
	~~End point co-ordinates for all alternatives~~																							
	~~Latitude (S)~~																							
	~~Longitude (E)~~																							

		~~º~~	~~‘~~	~~“~~
		~~º~~	~~‘~~	~~“~~
		~~º~~	~~‘~~	~~“~~
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		~~º~~	~~‘~~	~~“~~
		~~º~~	~~‘~~	~~“~~

~~Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.~~

4.	**Other developments**	
4.1.	Property size(s) of all proposed site(s):	8.62ha
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	0m²
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:	±1500m²
4.4.	Provide a detailed description of the proposed development and its associated infrastructure (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).	

The applicant wishes to exercise his primary right to constructing a primary single residential dwelling on the property. The primary dwelling is expected to be ±500m² in size, with a ±70m access road connecting the dwelling to the end of the existing road network. Total disturbance is expected to be ±1500m².

The dwelling will have off grid electricity, water and on-site sewerage disposal.

House construction

The house structure will consist of a conventional foundation and surface bed structure with lightweight drywall structure above surface bed level. Walls will exist of a combination of fibre cement planks and treated sheet metal.

Figure 2 Typical fibre cement wall cladding

Figure 3 Typical sheet metal wall cladding

The roof will either be a klip-lok or IBR sheet metal profile on a CCA treated timber truss structure.

Figure 4 Typical klip-lok roof sheeting

Figure 5 Typical IBR roof sheeting

Figure 2: Typical building material (Cobus Louw, 2021)

Water:

The expected water usage will be between 1 500 – 1 750 litre / day. Water Usage network will be split between toilet usage and the rest of the residential Usages. The toilet network will be able to function on the borehole water and the rest on harvested fresh water from the roofs.

The recommended freshwater storage capacity for household use will be 50 000 litres.

It is proposed that the residential unit be equipped with the following water saving technology:

· **Dual Flush Toilets**

· **Low flow shower heads** – It is proposed that the residential units be equip with low flow shower heads, as these can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008 - http://eartheasy.com/live_lowflow_aerators.htm). Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the homeowner but must have a flow of less than 7 litres per minute.

· **Low flow faucets** - Low flow faucets use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 litres per minute.

· **Rainwater Tanks** - All houses should be fitted with rainwater collection tanks for use externally (landscaping, washing cars etc). Consideration should be given to provide solar pumps at each rainwater tank to supply the units more effectively. The overflow from tanks should be directed into the stormwater system. All water sources situated externally on buildings should be fed from these rainwater tanks.

· **Geyser and pipe insulation** - Apart from the savings in terms of energy as detailed above, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required. Homeowners must be required to install geyser and pipe insulation; this must be included in their building guidelines.

Sewerage:

The calculated sewerage and grey water generation from the development has been calculated as 500 - 750 litre / day.

It is recommended that all wastewater from the residential units be treated as follows:

- All grey water from bathrooms, laundry and kitchen areas be directly diverted to a constructed / artificial wetland system.
- All black water (organic products) from the bathrooms, laundry and kitchen areas be diverted to a biogas digester with an overflow to the constructed / artificial wetland system soak away system.
- The water from the constructed / artificial wetland system will be used for gardening purposes.

The bio-gas digester will have the following building functions

- mixes the contents for increased gas generation efficiency

- naturally decomposes biodegradable materials without any additional chemicals

- stores the biogas that is generated by this natural decomposition

- generates an internal pressure which allows the biogas to be piped directly to the point of use

- the digester mixing, gas storage and pressurisation are all achieved without any mechanical input at all i.e. No pumps or motors of any kind.

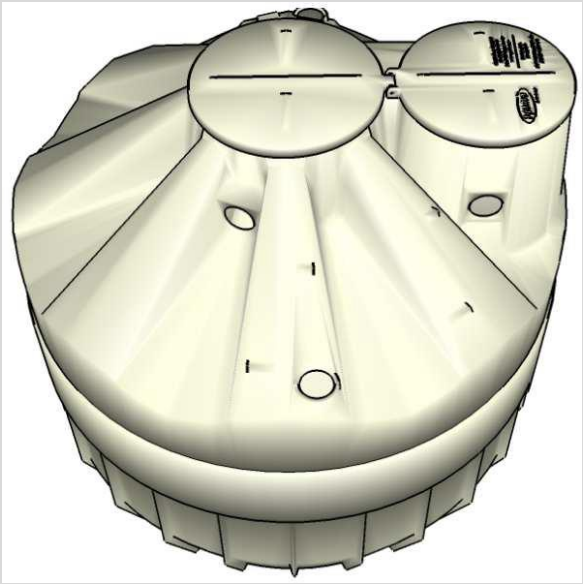


Figure 3: Typical on-site biogas digester (Cobus Louw, 2021)

4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.

Access to the property will be via the existing network of roads. The existing tracks are sandy routes that are accessed using 4x2 and 4x4 vehicles. Some of the existing access tracks must be upgraded and stabilised to accommodate 2x4 vehicles).

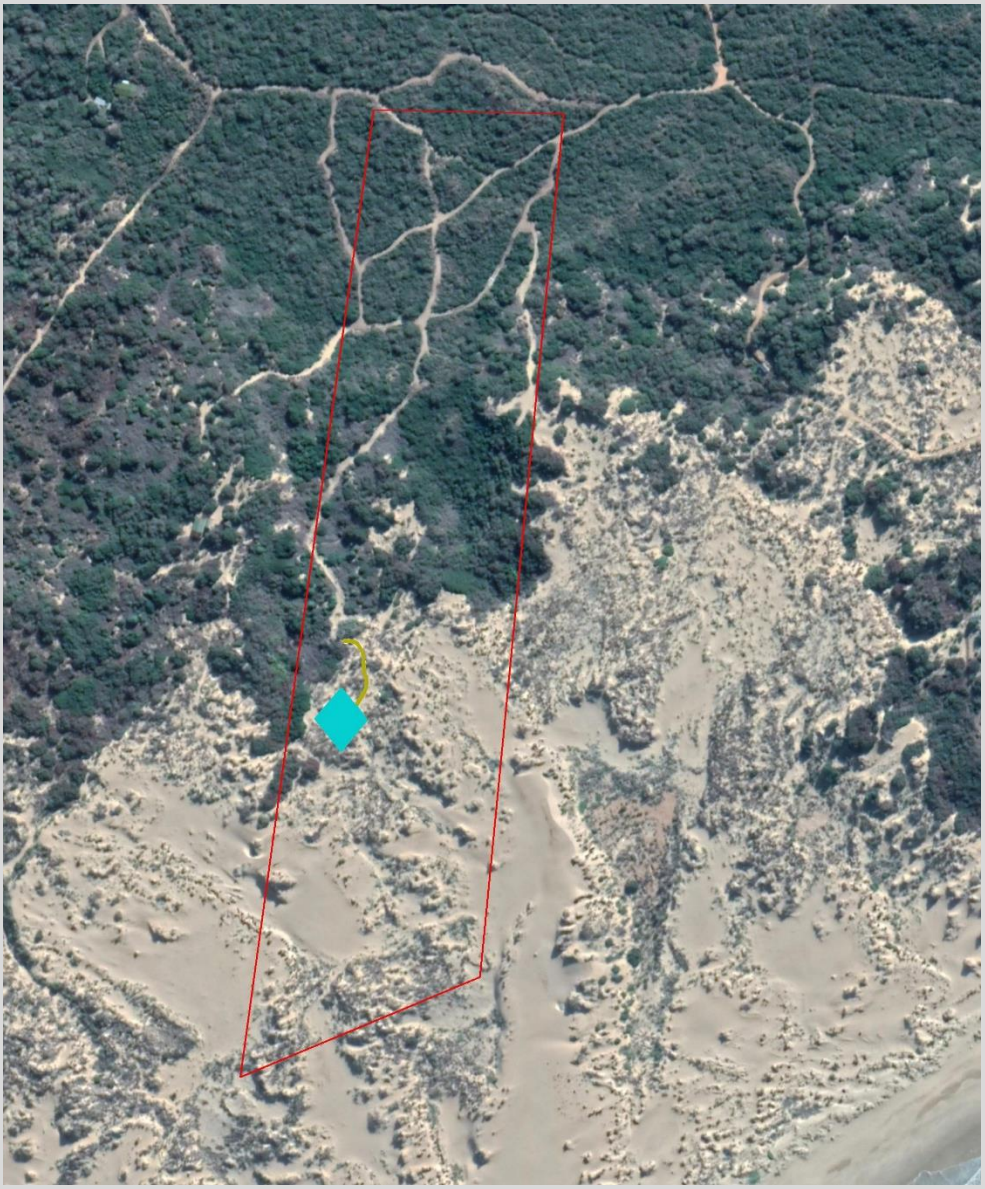


Figure 4: Aerial image of the property (Google Earth Pro, 2020)

Photo 1: Existing tracks on the site

Each area will be evaluated to determine the most workable option and to protect the sides next to the road. The road width must not exceed 4m and will be limited to 4 x 2 vehicles.

1. Hyson Cells filled with 15MPa concrete.
2. Tracks build with 20MPa concrete to form 2 concrete tracks each 300mm wide with construction joints at 2m intervals to prevent unnecessary expansion cracks.
3. Grass block in the form off:
    a. Concrete pre-cast grass blocks.
    b. Tensar TriAx Geogrid for soil stabilisation and grass / low growing vegetation over for coverage.
    c. Sudpave plastic grid pavers with grass / low growing vegetation over for coverage.

The 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.

The applicant is proposing ±70m additional access road connecting the dwelling to the end of the existing road network.

4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:	C	0	5	1	0	0	0	0	0	0	0	0	0	2	5	7	0	0	0	1	9

4.7.	Coordinates of the proposed site(s) for all alternatives:			
	Latitude (S)	34°	18‘	09“
	Longitude (E)	21°	55‘	19“

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. EXEMPTION APPLIED FOR IN TERMS OF THE NEMA AND THE NEMA EIA REGULATIONS

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	~~YES~~	**NO**

2. IS THE FOLLOWING LEGISLATION APPLICABLE TO THE PROPOSED ACTIVITY OR DEVELOPMENT

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	**YES**	~~NO~~
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1.	**YES**	~~NO~~
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3.	~~YES~~	**NO**
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	~~YES~~	**NO**
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	~~YES~~	**NO**
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	~~YES~~	**NO**
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	~~YES~~	**NO**
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	~~YES~~	**NO**

3. OTHER LEGISLATION

List any other legislation that is applicable to the proposed activity or development.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	***ADMINISTERING AUTHORITY*** ***and how it is relevant to this application***	***TYPE*** ***Permit/license/authorisation/comment / relevant consideration*** *(e.g. rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, etc.)*	***DATE*** *(if already obtained)**:***
National Environmental Management Act (Act 107 of 1998 as amended)	DEA&DP	Environmental Authorisation	Pending
National Environmental Management Laws Amendment Act (Act 25 of 2014)	DEA&DP	Public participation as part of the Environmental Authorisation	Pending

National Environmental Management: Biodiversity Act (Act 10 of 2004)	DEA&DP	Removal of invasive vegetation / impact on threatened ecosystem type	None
National Water Act (Act 36 of 1998)	Department of Water & Sanitation	None. The borehole does not require a WUL.	None
National Forest Act (Act 84 of 1998)	Department of Forestry	None	None
Conservation of Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture	Removal of invasive vegetation	None
Land Use Planning Ordinance (Act 15 of 1985)	Mossel Bay Municipality	Building Plan Application	Pending post EIA

4. POLICIES

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.	
LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	***Describe how the proposed development complies with and responds:***
National Environmental Management Act (Act 107 of 1998 as amended)	Environmental Impact Assessment is being undertaken in terms of Chapter 5 of NEMA using the 2017 EIA regulations.
National Environmental Management Laws Amendment Act (Act 25 of 2014)	The public participation is being undertaken in terms of this Act, specifically the 30 day comment period prescribed.
National Environmental Management: Biodiversity Act (Act 10 of 2004)	The identification of the onsite vegetation and the ecosystem status associated with the vegetation is undertaken in terms of this Act. This

	Act also applies to the control and management of Alien Invasive Species (AIS), which includes animals and vegetation.
National Water Act (Act 36 of 1998)	The development will be getting water from an on site borehole and rainwater harvesting. According to the BGCMA, this will not trigger any Water Use License requirements.
National Forest Act (Act 84 of 1998)	Not applicable.
Conservation of Agricultural Resources Act (Act 43 of 1983)	This Act applies for the removal and control of alien invasive vegetation, protection of water resources and the prevention of soil erosion.
Land Use Planning Ordinance (Act 15 of 1985)	The planning and construction of a dwelling to accommodate the land use proposed is regulated by this Ordinance. This process will only commence on the EIA process is completed.
Outeniqua Sensitive Coastal Areas Act (OSCA)	The property is not located within an OSCA area.
National Waste Management Strategy	All waste from construction to decommissioning must be dealt with in terms of this strategy.
National Protected Area Expansion Strategy	There are no NPAES focus areas near the development properties.
Municipal Biodiversity Summary Project	The summary provides a tool with which to evaluate the impact of the development on the environment.

5. GUIDELINES

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.	
Guideline for Environmental Management Plans (2005)	An EMPr has been included with this Basic Assessment to provide practical and implementable actions to ensure that the development maintains sustainability and minimise impacts through all its phases. The document is drafted as per the Guidelines and requirements of NEMA.

Guideline for Public Participation (2013)	The PPP for this process is based on this Guideline and also includes any updated regulations.
Guideline on Alternatives (2013)	Feasible and reasonable alternatives must be considered alongside the development proposal in order to ensure the Best Practicable Environmental Option (BPEO). These Guidelines have been used in their consideration.
Guideline on Need & Desirability (2013)	Need & Desirability refers to the temporal and spatial need of an area for a specific development. This Guideline was used to define the requirements and implications of Need & Desirability.
Mossel Bay Municipality Spatial Development Framework (2018)	The proposal is allowed in terms of the land use and zonation and as such is in line with the SDF as it does not deviate from the existing rights. Demographic information was obtained from this document.
Mossel Bay Municipality Integrated Development Plan 2022 - 2027	The proposal is identified in line with the IDP. Demographic information was obtained from this document.

6. PROTOCOLS

Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form
The following protocols apply: • SITE SENSITIVITY VERIFICATION REQUIREMENTS WHERE A SPECIALIST ASSESSMENT IS REQUIRED BUT NO SPECIFIC ASSESSMENT PROTOCOL HAS BEEN PRESCRIBED • PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY • PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES • PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON AQUATIC BIODIVERSITY • PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL SPECIES

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1**	Describe the portion of the proposed development to which the applicable listed activity relates.
17(iii)(e)	Development— (i) in the sea; (ii) in an estuary; **(iii) within the littoral active zone;** (iv) in front of a development setback; or (v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater; in respect of— (a) fixed or floating jetties and slipways; (b) tidal pools; (c) embankments; (d) rock revetments or stabilising structures including stabilising walls; or **(e) infrastructure or structures with a development footprint of 50 square metres or more —**	The development with a total footprint area of ±1500m² will take place within the littoral active zone as identified in the 2013 DEADP Coastal Management Lines guideline. It is more than 100m inland of the high water mark of the sea (±400m).
18	The **planting of vegetation** or placing of any material on dunes or exposed sand surfaces **of more than 10 square metres**, **within the littoral active zone**, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where — (i) the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation undertaken in accordance with a maintenance management plan; or (ii) such planting of vegetation or placing of material will occur behind a development setback.	The development with a total footprint area of ±1500m² will take place within the littoral active zone as identified in the 2013 DEADP Coastal Management Lines guideline. An area of ±1ha has been recommend by the coastal engineer as part of the coastal fynbos interface to prevent wind-blown sand inundation off the blow-out on the dune top located below the proposed development site.

19A(ii)	The infilling or depositing of any material of **more than 5 cubic metres** into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from— (i) the seashore; **(ii) the littoral active zone**, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea; —	The development with a total footprint area of ±1500m² will take place within the littoral active zone as identified in the 2013 DEADP Coastal Management Lines guideline.
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed development to which the applicable listed activity relates.
4(i)(ii)(aa)	The development of a road wider than 4m with a reserve less than 13.5m **i. Western Cape** i. Areas zoned for use as public open space or equivalent zoning; **ii. Areas outside urban areas;** **(aa) Areas containing indigenous vegetation;** (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	The site contains a number of existing tracks. Some of these tracks will need to be upgraded to accommodate 2x4 vehicles to access the primary/second dwelling.
12(i)(iii)	The clearance of an area of **300 square metres** or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **i. Western Cape**	The development with a total footprint area of ±1500m² will take place within the littoral active zone as identified in the 2013 DEADP Coastal Management Lines guideline. Vegetation clearance of the development site will be located in the Cape Seashore Vegetation type as indicated on the biodiversity overlays.

	i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; **ii. Within critical biodiversity areas identified in bioregional plans;** **iii. Within the littoral active zone** or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding **where such removal will occur behind the development setback line on erven in urban areas;** iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	According to the WCBSP, the site is included within a CBA.

Note:
- The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted.
- Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority.

List the applicable waste management listed activities in terms of the NEM:WA

~~Activity No(s):~~	~~Provide the relevant **Basic Assessment Activity(ies)** as set out in **Category A**~~	~~Describe the portion of the proposed development to which the applicable listed activity relates.~~

~~List the applicable listed activities in terms of the NEM:AQA~~

~~Activity No(s):~~	~~Provide the relevant **Listed Activity(ies)**~~	~~Describe the portion of the proposed development to which the applicable listed activity relates.~~

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.

Alternative 1 Option 1 (Preferred):

The applicant wishes to exercise his primary right to constructing a primary single residential dwelling on the property. The primary dwelling is expected to be ±500m² in size, with a ±70m access road connecting the dwelling to the end of the existing road network. Total disturbance is expected to be ±1500m². This is identified as Option 1 on the SDP.

The dwelling will have off grid electricity, water and on-site sewerage disposal.

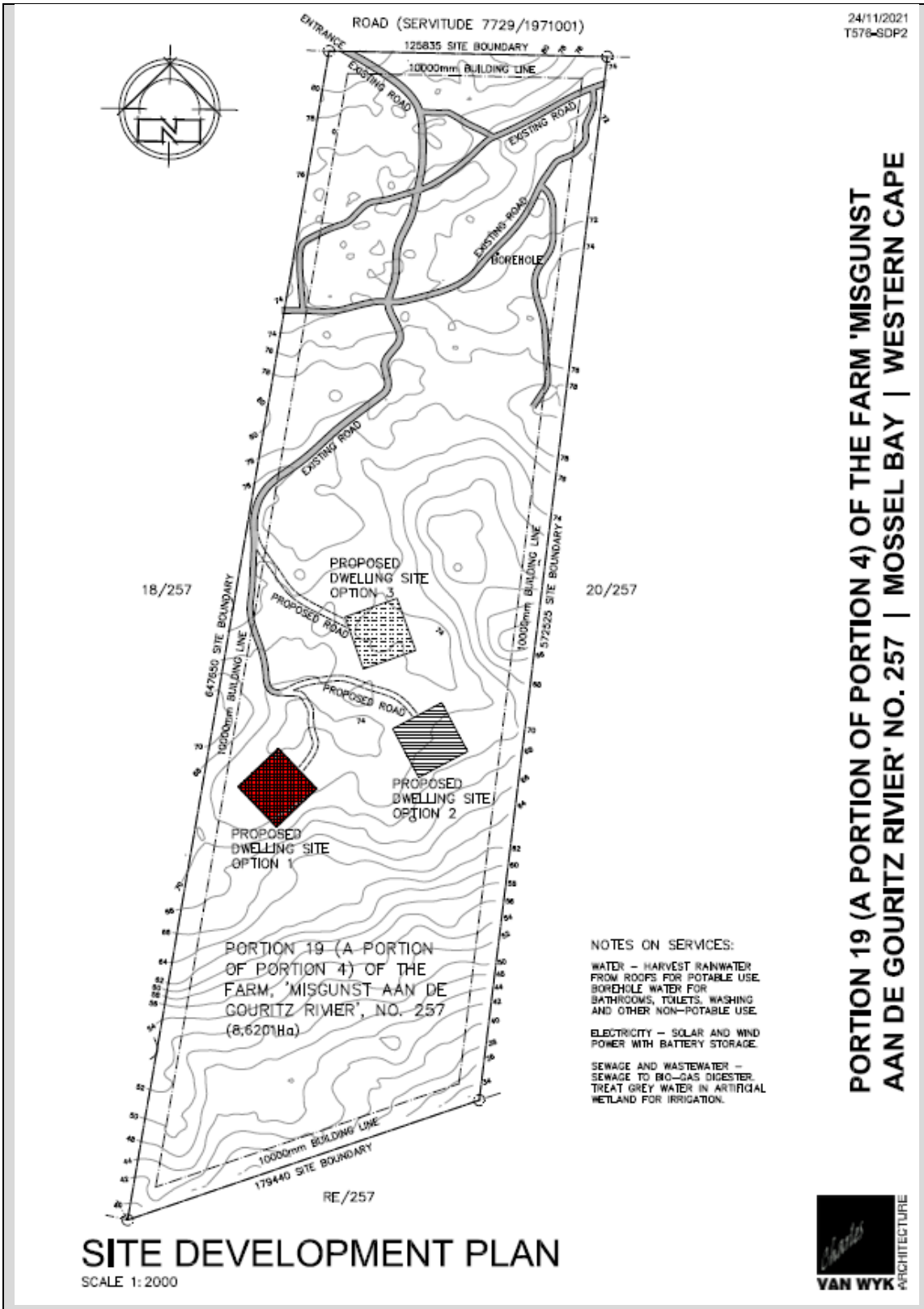


Figure 5: Site Development Plan

House construction

The house structure will consist of a conventional foundation and surface bed structure with lightweight drywall structure above surface bed level. Walls will exist of a combination of fibre cement planks and treated sheet metal.

Figure 2 Typical fibre cement wall cladding

Figure 3 Typical sheet metal wall cladding

The roof will either be a klip-lok or IBR sheet metal profile on a CCA treated timber truss structure.

Figure 4 Typical klip-lok roof sheeting

Figure 5 Typical IBR roof sheeting

Figure 6: Typical building material (Cobus Louw, 2021)

Water:

The expected water usage will be between 1 500 – 1 750 litre / day. Water Usage network will be split between toilet usage and the rest of the residential Usages. The toilet network will be able to function on the borehole water and the rest on harvested fresh water from the roofs.

The recommended freshwater storage capacity for household use will be 50 000 litres.

It is proposed that the residential unit be equipped with the following water saving technology:

· **Dual Flush Toilets**

· **Low flow shower heads** – It is proposed that the residential units be equip with low flow shower heads, as these can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008 - http://eartheasy.com/live_lowflow_aerators.htm). Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the homeowner but must have a flow of less than 7 litres per minute.

· **Low flow faucets** - Low flow faucets use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 litres per minute.

· **Rainwater Tanks** - All houses should be fitted with rainwater collection tanks for use externally (landscaping, washing cars etc). Consideration should be given to provide solar pumps at each rainwater tank to supply the units more effectively. The overflow from tanks should be directed into the stormwater system. All water sources situated externally on buildings should be fed from these rainwater tanks.

· **Geyser and pipe insulation** - Apart from the savings in terms of energy as detailed above, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required. Homeowners must be required to install geyser and pipe insulation; this must be included in their building guidelines.

Sewerage:

The calculated sewerage and grey water generation from the development has been calculated as 500 - 750 litre / day.

It is recommended that all wastewater from the residential units be treated as follows:

- All grey water from bathrooms, laundry and kitchen areas be directly diverted to a constructed / artificial wetland system.
- All black water (organic products) from the bathrooms, laundry and kitchen areas be diverted to a biogas digester with an overflow to the constructed / artificial wetland system soak away system.
- The water from the constructed / artificial wetland system will be used for gardening purposes.

The bio-gas digester will have the following building functions

- mixes the contents for increased gas generation efficiency

- naturally decomposes biodegradable materials without any additional chemicals

- stores the biogas that is generated by this natural decomposition

- generates an internal pressure which allows the biogas to be piped directly to the point of use

- the digester mixing, gas storage and pressurisation are all achieved without any mechanical input at all i.e. No pumps or motors of any kind.

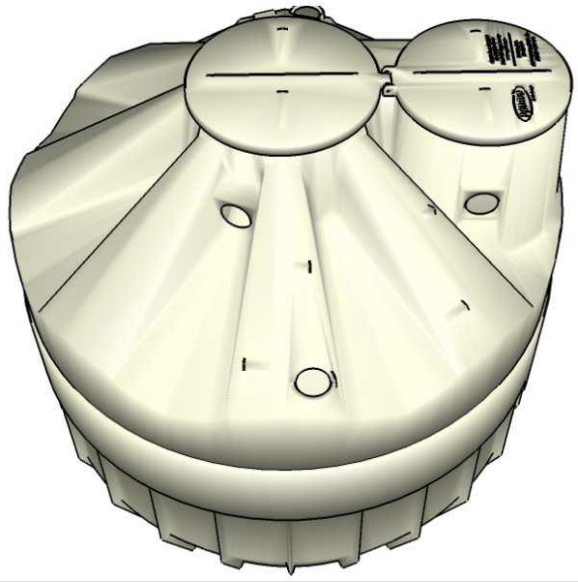


Figure 7: Typical on-site biogas digester (Cobus Louw, 2021)

2.	Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.

The subject property, Portion 19 of 257, is zoned Agriculture Zone I in terms of the Mossel Bay Municipality: Integrated Zoning Scheme By-Law, 2018 with, amongst others, 1 dwelling house and additional dwelling units as primary land use rights, however the additional dwelling units are permitted, subject to the following conditions:

(a) additional dwelling units are calculated at a ratio of one additional dwelling unit per 10 ha, with the exception that if the agricultural land unit is smaller than 10 ha one additional unit is permitted;

(b) only a maximum of five (5) additional dwelling units are permitted per agricultural land unit;

(c) an additional unit may not be erected within 1 km of the high water mark of the sea or a tidal river except where a proclaimed township is situated between the additional dwelling unit and the sea or tidal river;

(d) one additional dwelling unit may be erected within the 1km high water mark of the sea or a tidal river, provided that the additional dwelling unit is attached to the main house and does not exceed a floor area of 60m²; and

(e) no alienation of additional dwelling units will be permitted whether by cadastral subdivision or sectional title.

(f) **a site development plan of the proposed additional dwelling units must be submitted simultaneously with comments from the Department of Agriculture: Western Cape, relevant roads authority and the environmental section of the Department of Environmental Affairs and Development Planning, with the exemption that if only one additional dwelling is proposed this is not required;**

There are no provisions made for the departure from this land use description / conditions. The property owner/ developer needs to be cognisant of these restrictions and that no building plan will be approved if it does not comply with the Mossel Bay Municipality: Integrated Zoning Scheme By-Law, 2018.

3.	Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.

Not applicable.

4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework.

The property is zoned as Agriculture Zone I which allows for the construction of a primary dwelling. The PSDF reflects this region as a rural development node, with agricultural activities of grain and pastures highlighted.

The applicant has no intention of exercising the agriculture rights (ploughing, crop production, livestock production etc.) on the property, but will rather follow the management prescripts promoting the Fransmanshoek conservancy within which it is located.

4.2	The Integrated Development Plan of the local municipality.

The construction of the single residential dwelling on the property does not conflict with the 2022 – 2027 IDP of the municipality.

4.3.	The Spatial Development Framework of the local municipality.

Mossel Bay Municipal Spatial Development Framework, 2018 (MBMSDF)

The property is zoned Agriculture I and the applicant is proposing the implementation of this zoning by constructing a single residential dwelling on the property.

The property is identified as being within the coastal setback area around Vleesbaai in the SDF and as such the municipal requirements for residential dwellings is applicable.

4.4.	The Environmental Management Framework applicable to the area.

There is no gazetted EMF for this area, however as part of the Fransmanshoek Conservancy, the management plans and HOA requirements are applicable to this property.

5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

The evaluation of the three options and their impact on the environment has led to the selection of Option 1 as the Preferred Alternative.

6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

The WCBSP was utilised to determine the desktop sensitivities associated with the site.

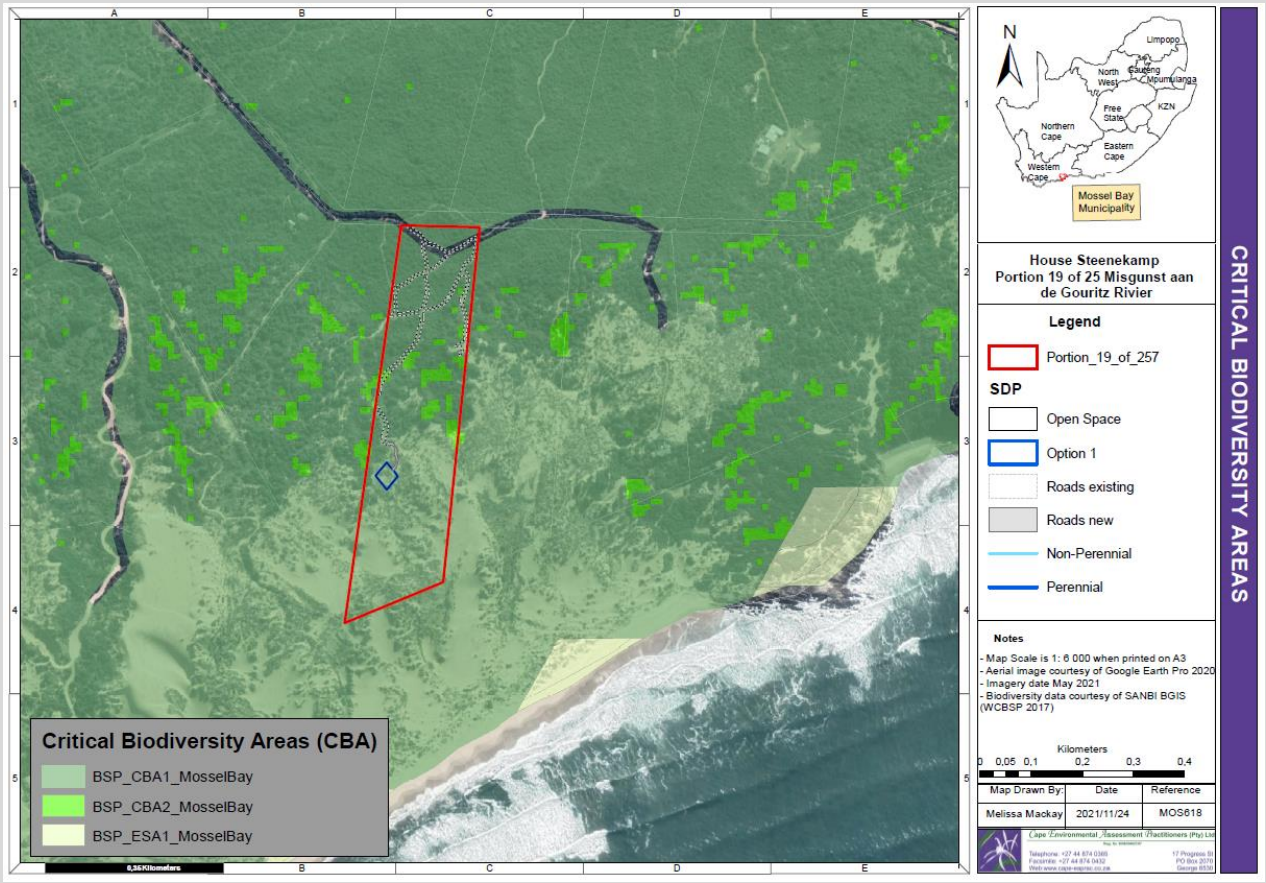


Figure 8: Critical Biodiversity Areas

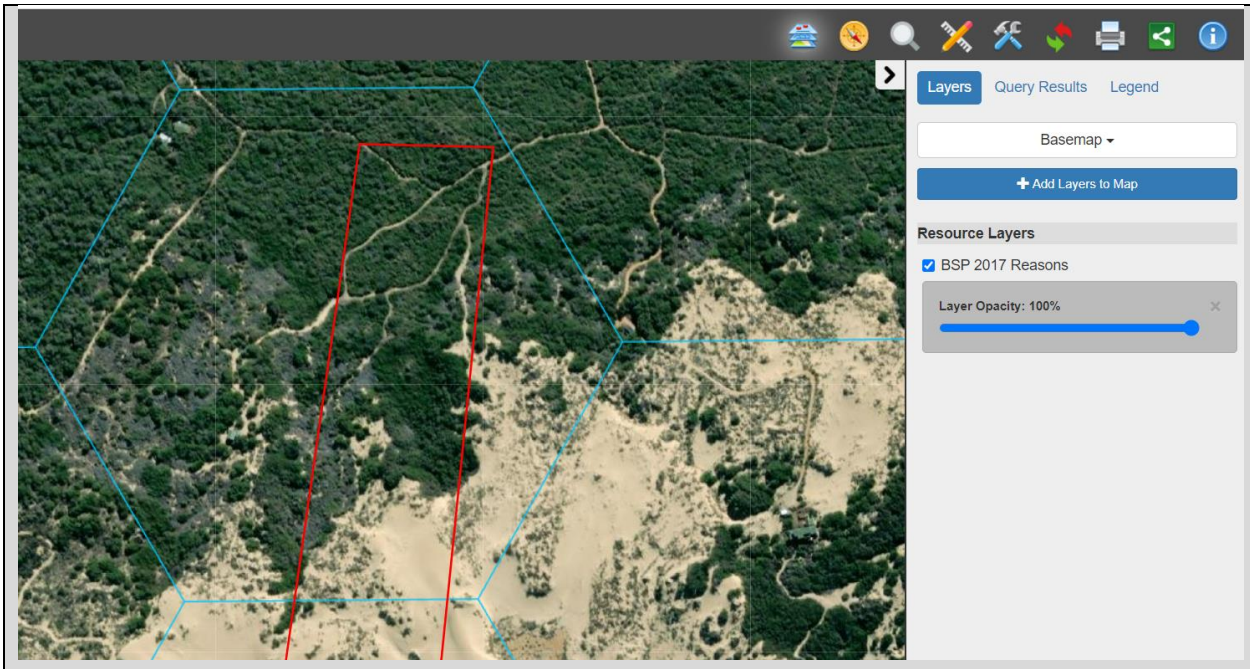


Figure 9: BSP Reasons (CapeFarmMapper, 2022)

According to the WCBSP Reasons for the classification, the following is reflected:

BSP 2017 Reasons

Summary 1:	Coastal Habitat Type (1.65), Ecological processes (19.49), SA Vegetation Type (16.12), Threatened Vertebrate (19.49)
Feature 1:	Bontebok Extended Distribution Range
Feature 2:	Canca Limestone Fynbos (LT)
Feature 3:	Cape Seashore Vegetation (LT)
Feature 4:	Coastal Habitat Type
Feature 5:	Coastal resource protection- Eden
Feature 6:	Foredune

It must be noted that in terms of the 2018 SANBI vegetation classification, the property is located on Hartenbos Dune Thicket (LC) and Cape Seashore Vegetation (LC). This was confirmed on site by the botanical specialist.

The area is considered to be in the category of **Critical Biodiversity Area 1**

Critical Biodiversity Area 1	Keep natural, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land-uses are appropriate.

The applicant is proposing a single residential dwelling and access to the dwelling. This is not a high impact activity. This would fall into the category of Rural Accommodation as defined in the Handbook. However, the property forms part of the Fransmanshoek Conservancy and will not be utilised for any agricultural activities. Thus it is being considered here as part of the Conservation areas defined in the Handbook.

The Handbooks lists Land Use Activity Descriptions and Biodiversity–related Conditions/Controls for Conservation Areas as follows:

1. Conservation	This is a land use activity where conservation is the major objective. CBAs are suitable sites to be zoned as the relevant Conservation/Open Space category. Subject to stringent controls the following biodiversity-compatible land use activities (i.e. those of very low impact) may be accommodated in CBAs: 1. a) **Conservation management activities** such as the clearing of invasive alien species, research and environmental education. 1. b) **Low intensity ecotourism activities** such as recreation and tourism (e.g. hiking trails, bird and game watching, and small-scale, eco-friendly visitor overnight accommodation) with limited access points. 1. c) **Sustainable consumptive activities:** Harvesting of natural resources (e.g. wild flowers for medicinal, culinary or commercial use). **Assumes the following conditions/controls:** • These land uses are limited to very low transformation levels for infrastructure development. Unless existing infrastructure already exists, this should be used. Alternatively transformed areas should be utilised. • Environmental Management Plans are required to ensure appropriate protection of the receiving environment e.g. sustainable harvesting volumes, periods, etc. • Green technology and architectural design principles have been adopted. • The entire property or a part thereof (depending on the land use activity above) is under some form of conservation agreement or mechanism. These mechanisms would include formal protected areas in terms of NEM:PAA, appropriate zoning (in terms of the Land Use Planning Ordinance) and other Conservation Areas, such as stewardship agreements or conservancies.

The property is ±8.43ha in size and will not be utilised for agriculture. Clearing of alien invasive vegetation is an ongoing management requirement. The residential dwelling proposed is low impact and takes into account green technology and design.

Fransmanshoek Conservancy:

The property is located within the boundaries of the Fransmanshoek (FMH) Conservancy. It is bound by the management objectives and requirements, including approval of building plans by the FMH and any other policies associated with the conservancy.

Fransmanshoek Conservancy was established in 1994 and is the oldest conservancy within the Western Cape. It employs a full-time senior ranger and two student rangers. The conservation area of the Conservancy consists of various coastal properties that includes the Springerbaai Eco-estate, the villages of Boggomsbaai and Vleesbaai, the farm Misgunt (home of the Vleesbaai 4x4 Dune Route), the Fransmanshoek peninsula, the village of Kanon and the Cape Vacca Nature Reserve.

The property is located in the area of the yellow star shown in the figure below.

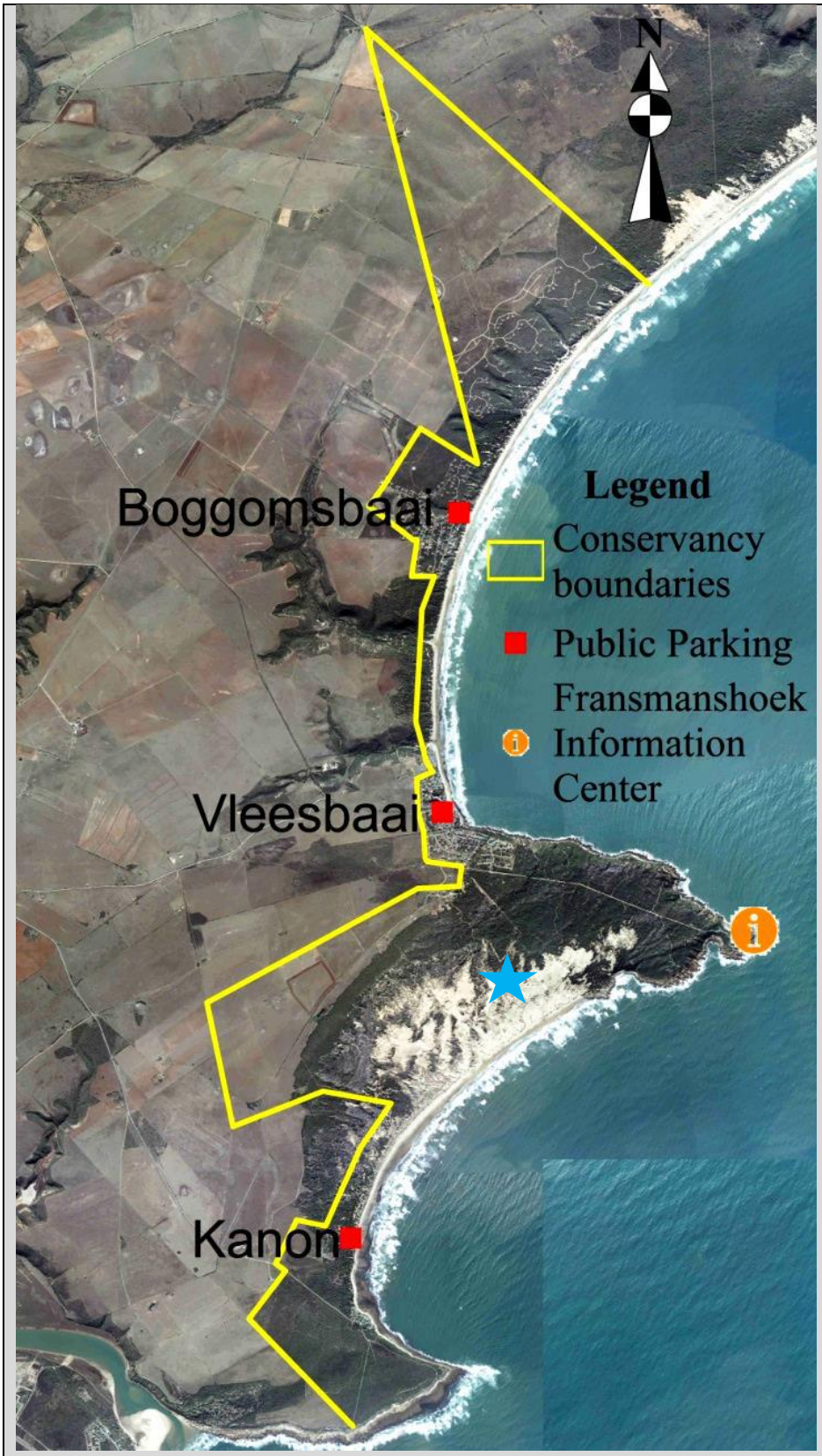


Figure 10: Fransmanshoek Conservancy boundaries (FMH, 2021)

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.

According to the ICMA Coastal Zonation, the properties fall within the Coastal Protection Zone. This is the rural area located 1000m inland of the high water mark of the sea. The proposed dwelling will

be located ±400 inland from the high water mark. The 2018 DEA&DP modelled littoral active zone is located above Options 1 and 2 and below Option 3 (see figure below).

The coastal protection zone is established to manage, regulate and restrict the use of land that is adjacent to coastal public property, or that plays a significant role in the coastal ecosystem (DEA&DP & SSI, 2009).

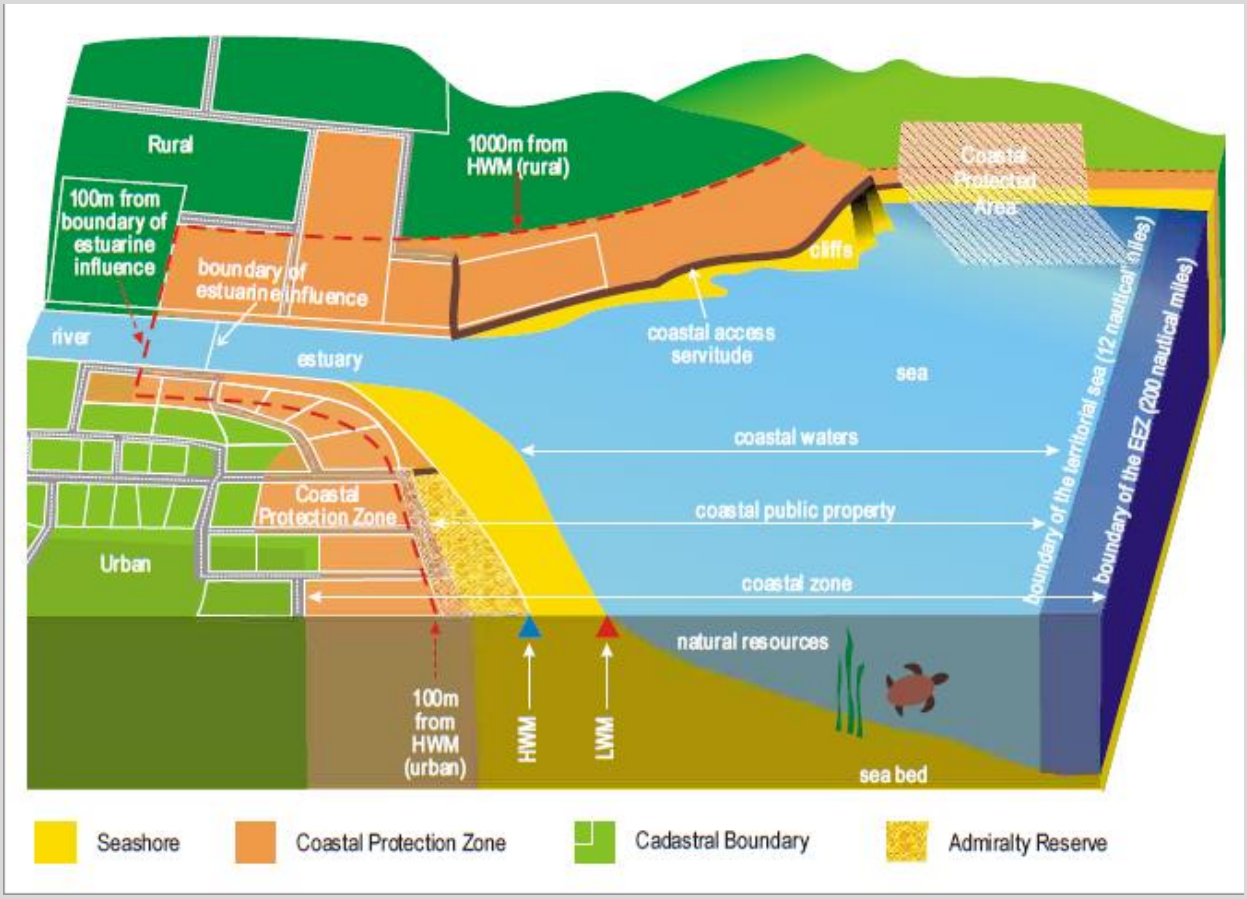


Figure 11: Coastal Zones (2009 The Department of Environmental Affairs & SSI Engineers and Environmental Consultants, South Africa)

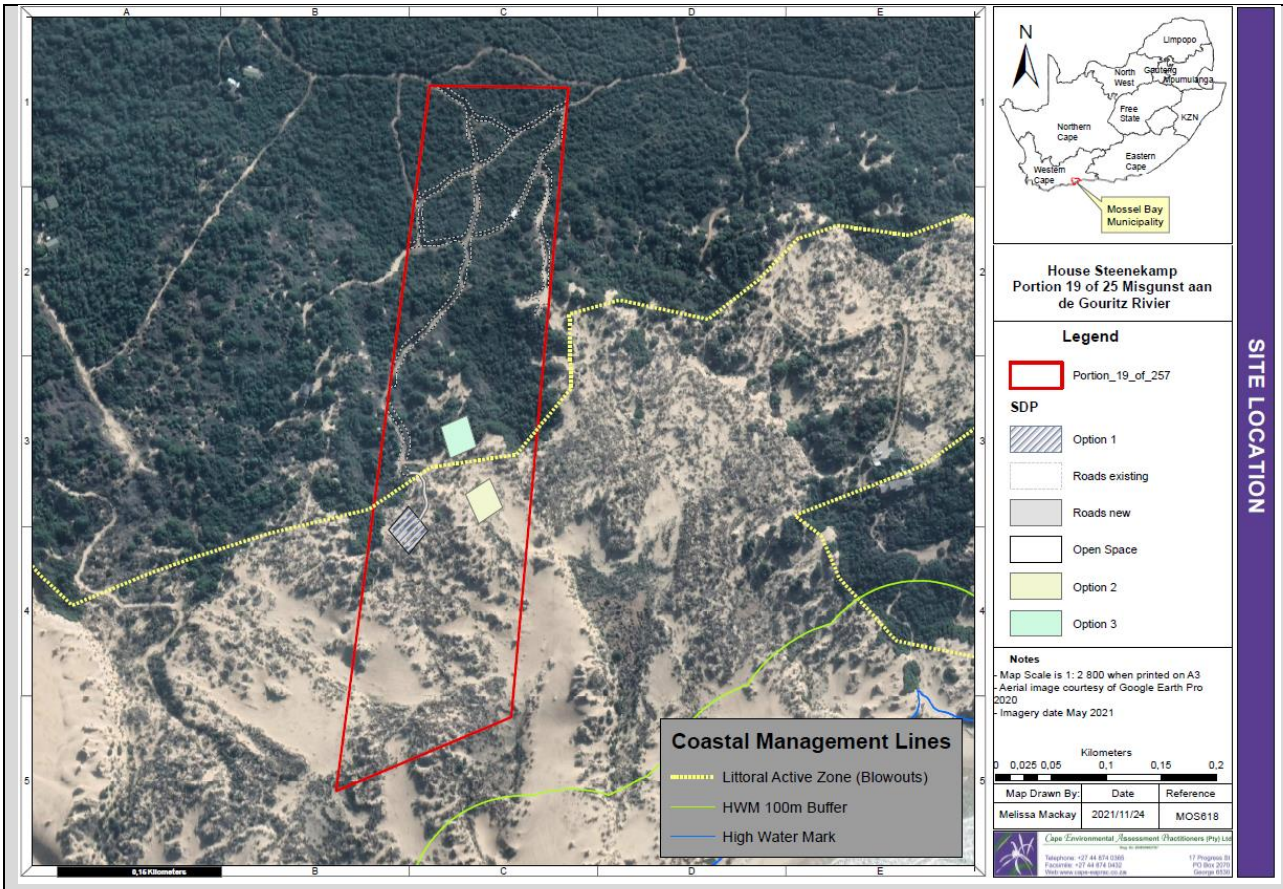


Figure 12: Coastal Management Lines

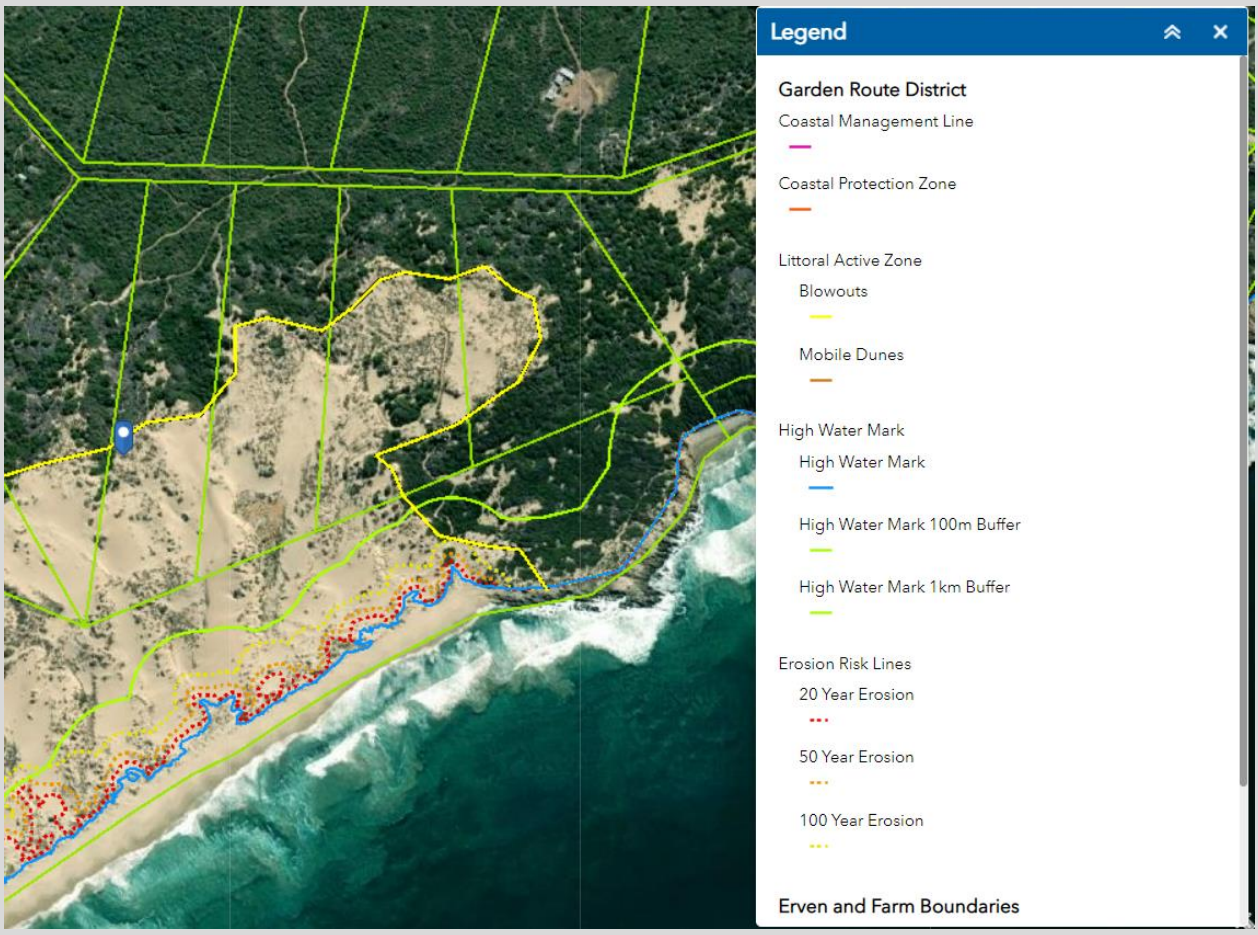


Figure 13: Coastal Management Lines (DEA&DP, 2022)

The Coastal Protection Zones aims to:

- To protect the ecological integrity, natural character, and the economic, social and aesthetic value of the neighbouring coastal public property;
- To avoid increasing the effect or severity of natural hazards;
- To protect people, property and economic activities from the risks and threats which may arise from dynamic coastal processes such as wave and wind erosion, coastal storm surges, flooding and sea-level rise;
- - To maintain the natural functioning of the littoral active zone;
- - To maintain the productivity of the coastal zone; and
- - To allow authorities to perform rescue and clean-up operations.

The construction of a single residential dwelling will not adversely affect the aims of the Coastal Protection Zone as identified above. The following must be taken into consideration:

- The property is located in the Fransmanshoek Conservancy area and the development will comply with any requirements of the management of the area;
- The preferred Option 1 is located outside of the littoral active zone according to the coastal engineers on site determination of the line and it will not inhibit the natural functioning of the littoral active zone;
- No agricultural activities will be undertaken on the site and the remainder of the property will be retained in its current state;
- This proposed dwelling is considered to have a low to negligible impact on the environment according to the specialist studies.

The proposed development of the single residential dwelling will not affect the interests of the community as the property will retain its natural character and function.

8.	Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.

Not applicable.

9.	Explain how the proposed development will optimise vacant land available within an urban area.

Not applicable as the property is not located within an urban area.

10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.

The development will make use of existing road access routes onto the property. The only other infrastructure on the site is an existing borehole which will be used for some water.

11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).

There are no municipal services available to the property. The applicant will develop off grid mechanisms for water, sewage and electricity. The Mossel Bay Municipality has confirmed that they have no objections to the proposed off grid options. See Appendix E16.

12.	In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.

Need (time)

Is the land use considered within the timeframe intended by the existing approved Spatial Development Framework (SDF)? (I.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP?

Yes, the SDF dated 2018 identifies the property as being within the coastal setback area of Vleesbaai and it is zoned as Agriculture Zone I. The proposed single residential dwelling is allowable in terms of the zonation and land use, as well as the location within 1km of the high water mark of the sea. It is a low impact, low density development.

Should the development occur here at this point in time?

The applicant bought the property with the intention of utilising it for low impact rural residential use.

Does the community / area need the activity and the associated land use concerned?

The development of the single residential dwelling does not support any community needs. However, the intention to retain the environment and not implement any agriculture or higher density development ensures retention and continuity of the natural status of the area and its ongoing association with the Fransmanshoek Conservancy.

Are the necessary services with adequate capacity currently available?

No, there are no existing municipal services provided to the property. The applicant will develop off grid infrastructure to which the municipality has no objection.

Is this development provided for in the infrastructure planning of the municipality?

No.

Is this project part of a national programme to address an issue of national concern or importance?

No.

Desirability (place)

Is the development the best practicable environmental option for this land / site?

Yes. The proposal is not inconsistent with spatial policies and objectives in relation to primary dwelling rights on agriculturally zoned land within 1km of the high water mark of the sea.

The proposed Preferred Alternative takes into consideration the environmental sensitivities and the requirements of the applicant and is considered to be a low to negligible significant site.

Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?

No. The proposal is not inconsistent with spatial policies and objectives in relation to primary dwelling rights on agriculturally zoned land within 1km of the high water mark of the sea.

Would the approval of this application compromise the integrity of the existing approved environmental management priorities for the area?

No. The property forms part of the Fransmanshoek Conservancy (FMH) and the development of the single residential dwelling and the environmental management of the property will be done in terms of the management principles and objectives of the conservancy. The dwelling must comply with the FMH Homeowners Association Constitution (Appendix L5 of this report).

Do location factors favour this land use at this place?

Yes. The area identified for Option 1 has avoided the most significant negative impacts as identified by the specialists and fulfils the requirements of the applicant.

How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas?

The property are located in the Coastal Protection Zone (within 1000m of the high water mark of the sea for rural properties) and avoids the littoral active zone as defined on site by the coastal

engineer. The development of the area of ±1500m² will have a low to negligible impact on the environment.

How will the development impact on people's health and wellbeing?

The site will not negatively impact on people's health and wellbeing. It is private property and the activities are consistent with the current rural residential land use within the conservancy.

Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?

Unlikely. The property will be owned and managed by the applicant.

Will the proposed land use result in unacceptable cumulative impacts?

Unlikely. The applicant joins the homeowners association of the Fransmanshoek Conservancy which aids in further environmental management of the area. The applicant has no intention of developing any agricultural activities on the property which may cause disruption of pattern and process in the environment. The proposed single residential dwelling is in keeping with the municipal requirements for the property, and excludes additional consent use dwellings within the coastal setback area.

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

Not applicable.

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

The PPP is being undertaken and this section will be updated once the comment period is completed. The PPP will be undertaken as per the approved PP Plan.

The full copies of comments received is included in Appendix F, along with responses to the comments received (Annexure F5: Comments & Responses Report).

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

CapeNature:

Ms Megan Simons, Tel: 087 087 3058, Fax: (044) 802 5313, Email: msimons@capenature.co.za

WC Department of Health:

Mr ~~Lungise Booi, Tel: (044) 803 2727, Email: Mlungisi.Booi@westerncape.gov.za~~

Mr Eugen Engel, Tel: (044) 803 2700, Email: eugene.engle@westerncape.gov.za

WC Department of Public Works:

Mr Cornelius Malgas, Tel: (044) 272 6071, Fax:(044) 272 7243, Email: Cornelius.Malgas2@westerncape.gov.za

Garden Route District Municipality:

Ms Nina Viljoen, Tel: (044) 803 1448, Email: Nina@gardenroute.gov.za / Rekords@gardenroute.gov.za

Mossel Bay Municipality:

Mr Jaco Roux, Tel: (044) 606 5071, Fax: (044) 690 5786, Email: jroux@mosselbay.gov.za

~~Mr Warren Manuel, Tel (044) 606 5163, Fax: (044) 690 5786, Email: wmanuel@mosselbay.gov.za~~

Ms Mushfiqah Abrahams, Tel: (044) 606 5000, Email: mushfiqah.abrahams@mosselbay.gov.za

DEA&DP: Coastal Management

Ms Ieptieshaam Bekko, Tel: (021) 483 3370, Fax: (021) 483 4527, Email: ieptieshaam.bekko@westerncape.gov.za

DFFE: Oceans & Coasts

Oceans & Coasts EIA, Tel: (021) 819 2499, Fax: (021) 819 2445, Email: oceia@environment.gov.za

Breede Gouritz Catchment Management Agency (BGCMA)

Mr Carlo Abrahams, Tel: (023) 346 8000, Email: cabrahams@bgcma.co.za

WC Department of Agriculture

Mr Cor van der Walt, Tel: (021) 808 5093, Email: corvdw@elsenburg.com

Civil Aviation Authority

Ms Lizelle Stroh, Tel: (011) 545 1232, Fax: (011) 545 1282, Email: strohl@caa.co.za

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

Not applicable.

5. if any of the State Departments and Organs of State did not respond, indicate which.

The following State Departments did not respond:

WC Department of Health:

Mr Eugen Engel, Tel: (044) 803 2700, Email: eugene.engle@westerncape.gov.za

WC Department of Public Works:

Mr Cornelius Malgas, Tel: (044) 272 6071, Fax:(044) 272 7243, Email: Cornelius.Malgas2@westerncape.gov.za

Garden Route District Municipality:

Ms Nina Viljoen, Tel: (044) 803 1448, Email: Nina@gardenroute.gov.za / Rekords@gardenroute.gov.za

DFFE: Oceans & Coasts

Oceans & Coasts EIA, Tel: (021) 819 2499, Fax: (021) 819 2445, Email: oceia@environment.gov.za

Civil Aviation Authority

Ms Lizelle Stroh, Tel: (011) 545 1232, Fax: (011) 545 1282, Email: strohl@caa.co.za

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

The following issues were raised during the process:
DEA&DP: Coastal Management Unit: The SD: Coastal Management is not opposed to the construction of a single dwelling on Portion 19 of the Farm Misgunst. However, considering the proposed development site, the alternative sites, the environmental sensitivities, including coastal processes and the WCBSP, it is recommended that the competent authority not consider option 1 as the preferred alternative, but rather consider option 3
Response: We take note that the SD: Coastal Management is not opposed to the exercising of the applicants primary rights. We acknowledge the complexity of decision-making in the coastal environment, however we submit that coastal specific principles must be applied in a balanced manner where total avoidance of impacts cannot be the outcome and the implementation of integrated environmental management must be applied. The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone. Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.
Mossel Bay Municipality: The proposal is a primary land use right in terms of the Mossel Bay Zoning Scheme By-Law, 2021 and therefore the Planning Department of the Mossel Bay Municipality has no objection against the proposal.
Response: Duly noted. The applicant wishes to enact the primary right.
Breede Gouritz Catchment Management Agency (BGCMA): 1. This office anticipate that the volume of treated effluent (grey water) will be minimal for a single residential dwelling. If the irrigation of land with the treated wastewater pose a significant risk to the water resources, please advise the applicant to apply for necessary authorisation so that the activity is managed accordingly. 2. 2. The geohydrologist team informed this office that the groundwater will only be used for reasonable domestic use. The applicant is advise to ensure that this borehole does not accelerate salt water intrusion to the fresh groundwater resource in the area.
Response:

1. There are no water resources in proximity to the activity and as such it is highly unlikely that the wastewater will pose any risk.
2. A Phase 1 groundwater assessment report was compiled. The groundwater in the borehole already has high salinity due to a combination of the aquifer host rocks and salt spray close to the ocean. It will thus only be used for washing and sewage. The low volumes of use will result in a limited (few tens of meters) cone of depression and sea water intrusion will not occur. Ongoing monitoring will be undertaken to confirm the calculations.

Mossel Bay Municipality Infrastructure Services:

We herewith confirm that we have no objections to your proposal to use harvested rainwater for drinking / cooking and ground water from the borehole not exceeding 10m³ / day for washing, waterborne sewage and fire emergency purposes. It is also noted that you will be utilising an off-grid solar system for electricity.

It is however essential that all buildings on this property adheres to the Mossel Bay Town Planning scheme and building regulations.

Response:

The building plans will be provided to the municipality once the EIA process is finalised. The Mossel Bay Municipality planning department has already confirmed that the proposal is in line with the town planning scheme.

Fransmanshoek Conservancy:

All building plans must be submitted to the Fransmanshoek Conservancy HOA and the Mossel Bay Municipality.

Response:

The building plans will be provided to the HOA and municipality once the EIA process is finalised. The Mossel Bay Municipality planning department has already confirmed that the proposal is in line with the town planning scheme.

CapeNature:

In conclusion, the positioning of the house in the LAZ is the most concerning aspect of the proposed development. CapeNature does not support any of the three options for the proposed house.

Response:

Your objection is noted. The property is zoned as Agriculture Zone I and has a primary right for a Primary Dwelling. The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. By considering development of the primary dwelling in the outer edge of the LAZ, it is submitted that the risk associated with substantially (interfering) with coastal processes (or coastal

processing interfering with the activity) is reduced. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.
Western Cape Department of Agriculture: From a purely Agricultural perspective, Portion 19 of Farm 257 is subjected to a Primary Dwelling unit as a Primary Right under the Agriculture I Zoning scheme. The WCDoA:LUM office has no objection towards the application, on condition that the Active Littoral Zone be excluded from development and that the mitigation measures presented in the EMPr are strictly adhered to and monitored for compliance.
Response: Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. By considering development of the primary dwelling in the outer edge of the LAZ, it is submitted that the risk associated with substantially (interfering) with coastal processes (or coastal processing interfering with the activity) is reduced. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. The preferred Option 1 has been shown by the coastal engineer to be outside of the dynamic Littoral Active Zone (LAZ), and as such will have a Low impact on the surrounding environment.

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that *"Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority."*

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile Report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. GROUNDWATER

1.1.	Was a specialist study conducted?	**YES**	~~NO~~
1.2.	Provide the name and or company who conducted the specialist study.		
Mr Gerdes Steenekamp of Groundwater Complete			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		

HYDROGEOLOGY

UNSATURATED ZONE

The unsaturated zone refers to the portion of the geological/soil profile that is located above the static groundwater elevation or water table. Based on the drilling results of borehole, the unsaturated zone is predominantly composed of unconsolidated sand at surface followed by consolidated sand and calcrete.

The unsaturated zone affects both the quality and quantity of the underlying groundwater. The type of material forming the unsaturated zone as well as the permeability and texture thereof will significantly influence aquifer recharge as well as the mass transport of surface contamination to the underlying aquifer(s). Factors like ion exchange, retardation, biodegradation and dispersion all play a role in the unsaturated zone.

The thickness of the unsaturated zone is determined by subtracting the static water level elevation in the project area from the surface elevation, or simply by measuring the depth of the groundwater level below surface. The thickness of the unsaturated zone at Misgunst is estimated to range between 30 and 50 meters.

SATURATED ZONE

The saturated zone, as the name suggests, is the portion of the geological/soil profile that is located below the static groundwater elevation or water table. The depth to the saturated zone is therefore equal to the thickness of the unsaturated zone, which can range between 30 and 50 meters below surface in the Misgunst area.

The saturated zone is important as it forms the groundwater zone or system on which groundwater users rely for their water supply.

TRANSMISSIVITY AND STORATIVITY OF THE AQUIFER

A constant rate pumping test was performed on the Misgunst borehole to calculate representative aquifer parameters (transmissivity or hydraulic conductivity and apply them to estimate sustainable yield of the borehole.

SUSTAINABLE YIELD ESTIMATION

An aquifer test was performed on the borehole by Groundwater Complete in March 2020. The pumping test was conducted for a 12-hour period, which was considered sufficient given:

- The blow yield of the borehole during drilling of more than 3 600 liters per hour; and

- the limited yield of only about 1 250 liters per hour for 10 hours per day required from the borehole.

GROUNDWATER QUALITY

Groundwater quality from Misgunst-FMHK1 was analysed by SANAS-accredited Aquatico Laboratories on February 4, 2020.

The groundwater has high overall salinity as is expected from a borehole in the dunes near the coast. The dominating ions are sodium and chloride, which far exceed guidelines for potable water, but nitrate also exceeds concentrations for potable water as stated in the SANS 241/2015 water quality guidelines. The groundwater quality from FMHK01 plots in field 8 of the expanded Durov diagram and the Stiff diagram also confirms the strong domination by sodium and chloride in the water.

The water will thus be applied as is for domestic use (i.e. washing, bathing, showering) because there are no parameters (e.g. Fe, Mn) that indicate a negative effect on aesthetic aspects if applied for domestic use but not for potable purposes.

The origin of the high salinity groundwater is considered to be mainly a result of the leaching to the groundwater of salt spray from the ocean deposited onto the dunes. In situ salinity from the Nardouw Formation probably also contribute but considering the significant recharge to the dune system the salt spray component is expected to have the highest contribution to groundwater salinity.

GROUNDWATER VULNERABILITY

The Groundwater Vulnerability Classification System used in this investigation was developed as a first order assessment tool to aid in the determination of an aquifer's vulnerability/susceptibility to groundwater contamination. This system incorporates the wellknown and widely used Parsons Aquifer Classification System as well as drinking water quality guidelines as stated by the Department of Water Affairs and Forestry. This system is especially useful in situations where limited groundwater related information is available. The project area achieved a score of 4 and the underlying aquifer can therefore be regarded as having a LOW vulnerability.

AQUIFER CLASSIFICATION

For the purpose of this study an aquifer is defined as a geological formation or group of formations that can yield groundwater in economically useable quantities. Aquifer classification according to the Parsons Classification system.

According to the Parsons Classification system, the Misgunst aquifer is regarded as a minor- and in some cases a non-aquifer system.

AQUIFER PROTECTION CLASSIFICATION

The combination of Aquifer Vulnerability Classification rating and Aquifer System management Classification provides a protection level referred to as Groundwater Quality Management Classification (GQM).

The GQM for the Misgunst aquifer calculates to 2, which indicates a low level of protection.

1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.

SATURATED ZONE

The saturated zone, as the name suggests, is the portion of the geological/soil profile that is located below the static groundwater elevation or water table. The depth to the saturated zone is therefore equal to the thickness of the unsaturated zone, which can range between 30 and 50 meters below surface in the Misgunst area.

The saturated zone is important as it forms the groundwater zone or system on which groundwater users rely for their water supply.

AQUIFER CLASSIFICATION

For the purpose of this study an aquifer is defined as a geological formation or group of formations that can yield groundwater in economically useable quantities. Aquifer classification according to the Parsons Classification system.

According to the Parsons Classification system, the Misgunst aquifer is regarded as a minor- and in some cases a non-aquifer system.

2. SURFACE WATER

2.1.	Was a specialist study conducted?	**YES**	~~NO~~
2.2.	Provide the name and/or company who conducted the specialist study.		
Dr Jackie Dabrowski from Confluent Environmental (Pty) Ltd			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		

There are no water resources found on the property. An Aquatic Compliance Statement was undertaken in response to the sensitivity theme identified in the Screening Tool and called for by DEA&DP.

Based on the results of the desktop review and the site survey, the sensitivity of aquatic biodiversity on Portion 19 of Farm 257 can be regarded as **Low**. The main factors influencing the statement include the following:

- While the SQC in which the site falls is a FEPA, the site falls well outside the catchment area of the river reach for which the FEPA status was determined; and
- No freshwater features were identified within the footprint area of the site or within close proximity (i.e. within 2 km) of the site.

3. COASTAL ENVIRONMENT

3.1.	Was a specialist study conducted?	**YES**	~~NO~~
3.2.	Provide the name and/or company who conducted the specialist study.		
Mr Laurie Barwell of Laurie Barwell & Associates			
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		

The National Environmental Management Act (NEMA, Act 107 of 1998) makes provision for activities identified in terms of section 24(2)(a) that require an Environmental Impact Assessment to be undertaken in order to be issued with an Environmental Authorisation. "environmental authorisation", when used in Chapter 5, means the authorisation by a competent authority of a listed activity or specified activity in terms of this Act, and includes a similar authorisation contemplated in a specific environmental management Act. The National Environmental Management: Integrated Coastal Management Act (NEM:ICMA, Act 24 of 2008) is considered to be a "specific environmental management Act", or SEMA.

The development triggers a coastal related listed activity, in that the preferred Option 1 dwelling site is located within the 2018 DEA&DP modelled littoral active zone line.

Thus coastal activities identified in terms of Chapter 5 of NEMA for this application are considered in terms of Section 63 of the ICMA as follows:

63. Environmental authorisations for coastal activities

(1) Where an environmental authorisation in terms of Chapter 5 of the National Environmental Management Act is required for coastal activities, the competent authority must take into account all relevant factors, including -

(a) the representations made by the applicant and by interested and affected parties;

This report will be subject to a public participation process which will generate representations by I&APs. These will be included in the final BAR submitted to the competent authority for their consideration.

(b) the extent to which the applicant has in the past complied with similar authorisations;

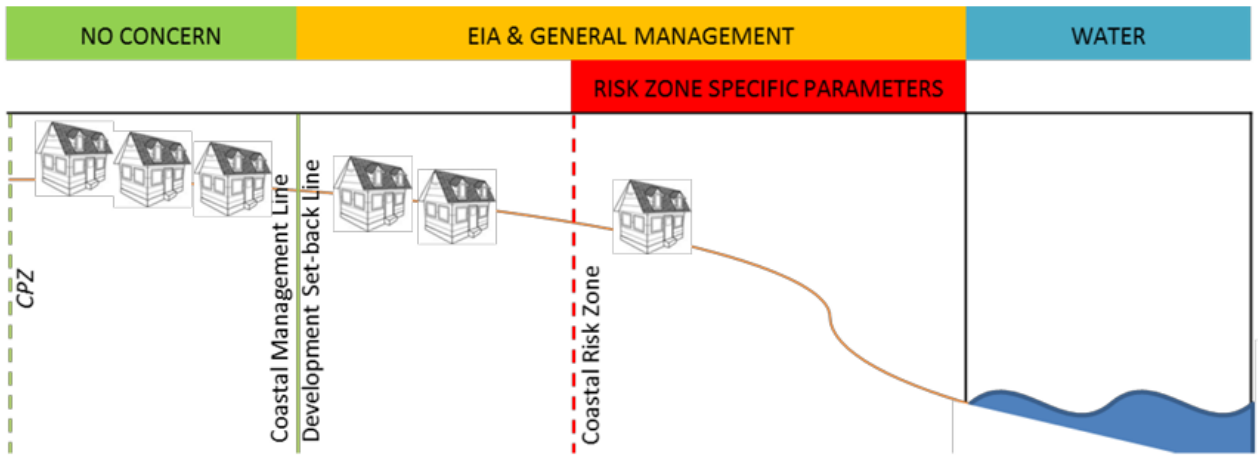
The applicant has not applied for any similar authorisations, thus this item is not applicable.

(c) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development or activity is consistent with the purpose for establishing and protecting those areas;

The property and the proposed dwelling site options are located within 1000m of the high water mark of the sea, thus they are considered to fall within the Coastal Protection Zone as defined by the NEM:ICMA. In addition two of the proposed dwelling site alternatives are located within the 2018 DEA&DP modelled littoral active zone. The qualitative impact assessment in the coastal engineering study has determined that the littoral active zone buffer is located on the 65m MSL contour which is lower than that modelled by DEA&DP.

The alternatives are completely outside the coastal risk lines which in it self speaks to the overall sensitivity and therefore development parameters that should be considered. Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

These management zones are shown as a conceptual scheme in the following figure:



Excerpt from the coastal engineering report states:

Key findings are that the Visbaai coastline is in a dynamic state of equilibrium as deduced for the 77 years assessment period. In contrast, the exposed sand area within the Fransmanshoek Dune Field is shrinking as areas become stabilised by vegetation. The analysis shows that revegetation at an estimated average rate of 0.5 ha per year has occurred over the period 1969 to 2019. Large areas of the remainder of the dune field are well covered by pioneer grasses and coastal fynbos. The dune field is functioning as a relic sand sink and that little 'new' sand is feeding into the dune field from the beach.

The analysis results lead to a recommended development coastal processes buffer line located along the +65 m MSL contour line. This line also translates to the recommended position of the landward edge of the coastal processes active zone for the property and allows for uninhibited mobile dune sand movement along the SW to NE wind-blown sand pathway for as long as there are exposed sandy areas within the dune field. Storm erosion and climate change related guidelines depicted as Coastal Management Lines fall within this buffer area.

The topographic information shows that there is a natural plateau located north of the +70 m MSL contour on the property. The western side of this area (Plateau 1) is stabilised by dune vegetation with no windblown sand moving into or off this area. The eastern- and northern side of this area (Plateau 2) consists of an exposed sand blow-out.

The comparative impact assessment shows that building on the natural plateau area, Plateau 1 depicted as Option 1, will have the lowest environmental impact with an added positive benefit of adding coastal fynbos through active coastal vegetation management on 1 ha around the building footprint to ensure an appropriate vegetated buffer interface with the surrounding dune field.

Option 1 is recommended.

(d) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area;

The Eden Coastal Management Lines (DEA&DP, 2018) indicate that the property is located within the Coastal Protection Zone due to it being within 1000m inland of the high water mark of the sea. This line is also considered to be the coastal management line.

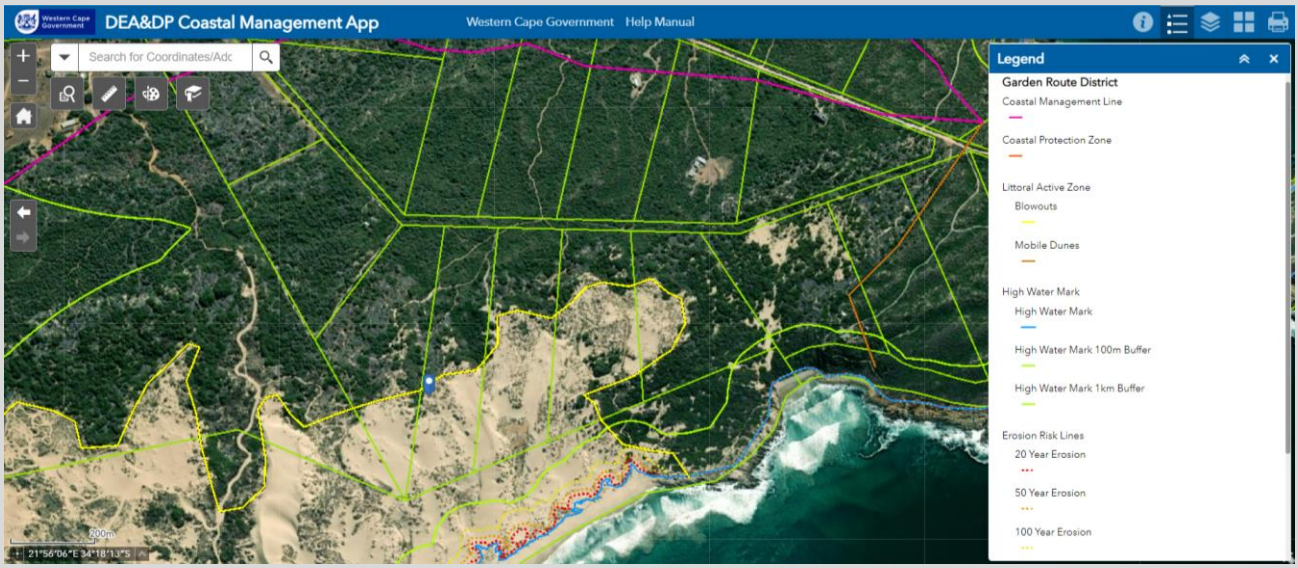


Figure 14: Eden Coastal Management Lines (DEA&DP, 2018)

The coastal management lines effectively delineate different management zones proposed to facilitate improved planning and management of sensitive and often vulnerable coastal areas, and to safeguard public access points. In terms of how existing development is influenced by the implementation of this setback line, it is necessary to look closer at the projected risk lines.

The proposed development sites do not fall into any of the projected risk lines associated with climate change impacts. Two of them are shown to be located within the modelled littoral active zone line, although the coastal engineering analysis results lead to a recommended development coastal processes buffer line located along the +65 m MSL contour line

Figure 15: Eden Coastal Management Risk Lines (DEA&DP, 2018)

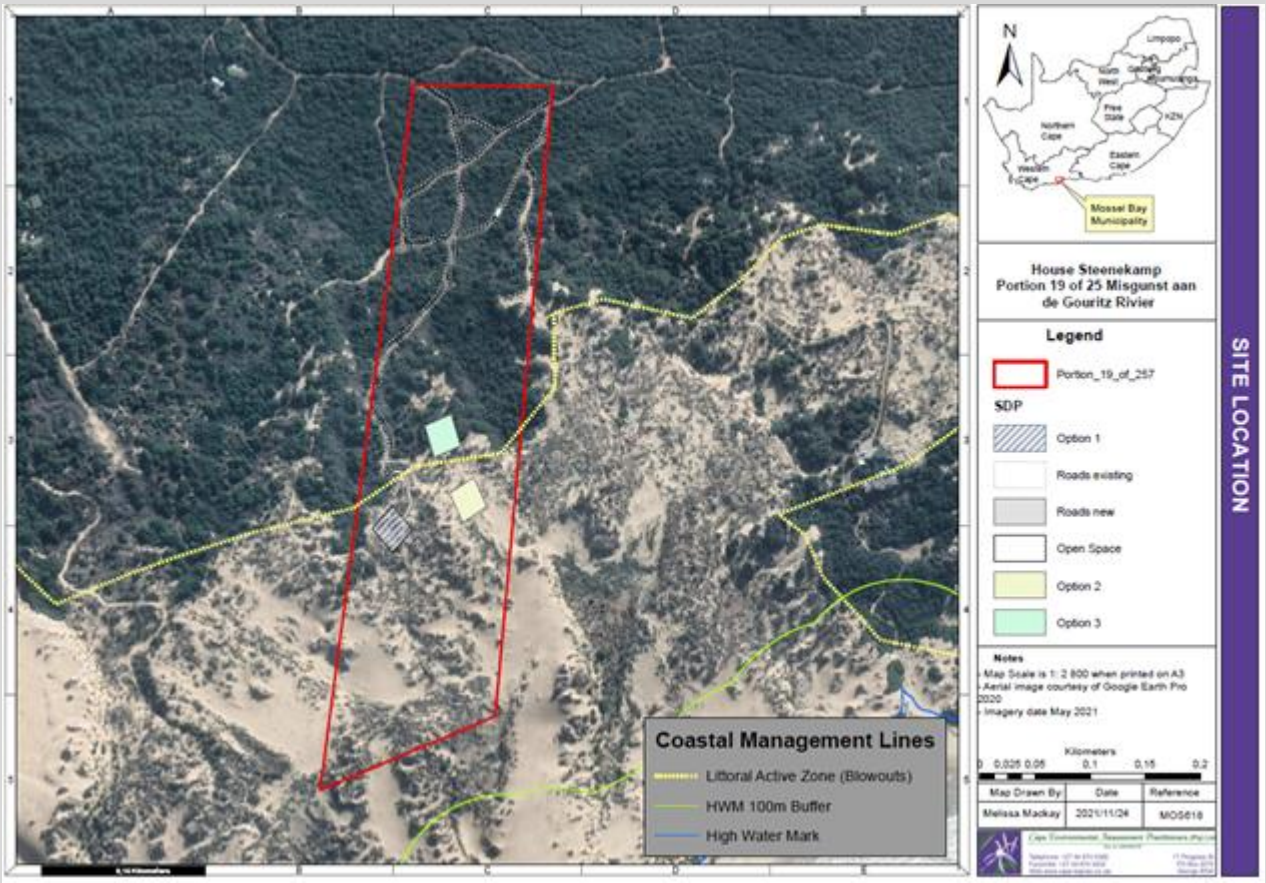


Figure 16: Development options with Coastal Management Lines

(e) the socio-economic impact if the activity –

(i) is authorised;

(ii) is not authorised;

The property is currently a vacant farm portion that is zoned as Agriculture 1 and located within the Fransmanshoek Conservancy. Surrounding land uses include the town of Vleesbaai, active farming properties and small holdings with residential dwellings. The immediately neighbouring properties have single residential dwellings within the conservancy. The socio-economic impact of the activity is limited to some small construction benefits, benefit to the applicant in terms of owning a coastal dwelling and economic and thus environmental benefit, to the Fransmanshoek (FMH) Conservancy.

The conservancy is partly funded by membership fees generated by the homeowners association and as such it is to the benefit of both the landowner and the conservancy to be granted the right to an abode on the property.

Excerpts from the FMH management plan:

2. Objectives

The purpose of the organization is to;

(a) promote the protection of indigenous plants and animals, undisturbed or important biological communities and/or landscapes of exceptional beauty;
(b) co-operate with authorities in respect of the management of the conservancy;
(c) to collect funds and use such funds for the promotions of the organization's activities;
(d) to preserve and improve its natural assets;
(e) to manage the conservancy for the mutual benefit of present and future generations.

6. Financial

The financial year of the organization extends from 1 March to 28 February (the following year). All financial transactions shall be duly recorded by the Secretary/Treasurer who shall submit annually, at the close of the financial year to the annual general meeting, a complete financial report signed by himself, the Chairman and the full executive committee. The organization shall have the authority to receive, invest and spend funds.

9. CONSERVANCY BUDGET

The conservancy budget is comprised of membership fees, sponsorships and donations. The budget has been designed to ensure that membership fees cover all the running costs, such as the rangers' salaries, petrol and maintenance of the bakkie. Donations and sponsorships (external funding) are used for the execution of conservation related or environmental education projects. Membership fees are calculated with respect to the length of coastline adjacent to the property.

(g) the likely impact of coastal environmental processes on the proposed activity;

(Section 63(1)(g) amended by section 33(c) of Act 36 of 2014)

Coastal processes active zone:

Active management through stabilisation activities commenced soon after 1969. The measured average stabilisation rate is 0.5 ha per year over the period 1969 to 2019. The extent of the Fransmanshoek dune field has therefore shrunk at a similar rate with the landward edge of the active zone moving seawards. The potential increase in stable vegetated areas in the FMH-DF by 2030 is shown. This implies that the seaward edge of the coastal processes active zone will be located a lot closer to the coastline than at present.

Positioning the development beyond the coastal processes active zone:

Following a precautionary approach, it is considered appropriate to recommend the development to be located landward of the landwards extent of the coastal processes active zone, determined as the + 65 m MSL contour on Portion 19. This is along the foot of a steep cliff. The belt of coastal fynbos that is naturally forming landwards of the + 65 m contour and forms a logical interface and buffer area between the stable area and the coastal processes active zone.

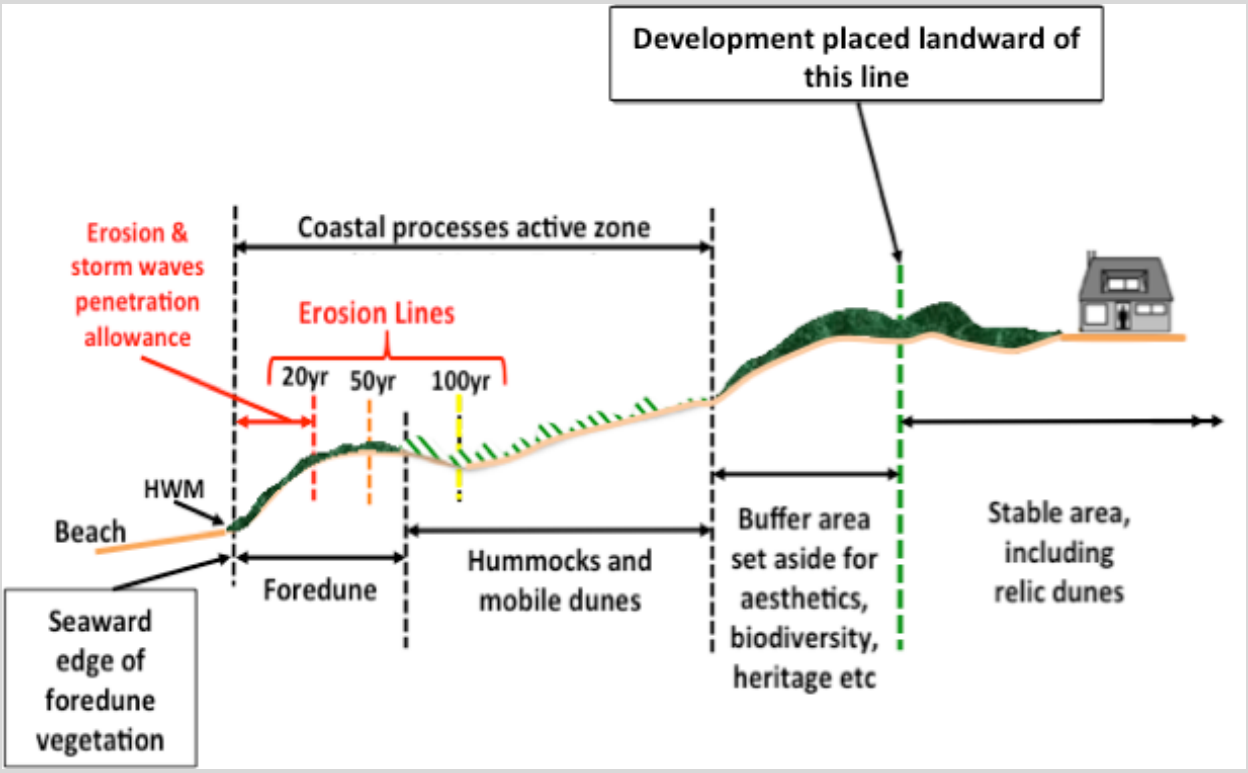


Figure 17: Definition of a buffer area and associated positioning of development landward of the coastal processes active zone (adapted from Barwell, 2011)

The site (Portion 19) is located well above the elevation of the coastal erosion lines. For Portion 19 it is thus recommended that the area seaward of the + 65 m MSL contour be seen as being part of the coastal processes active zone and be left to function as an unmanaged system. The mobile dunes will continue moving eastwards as depicted.

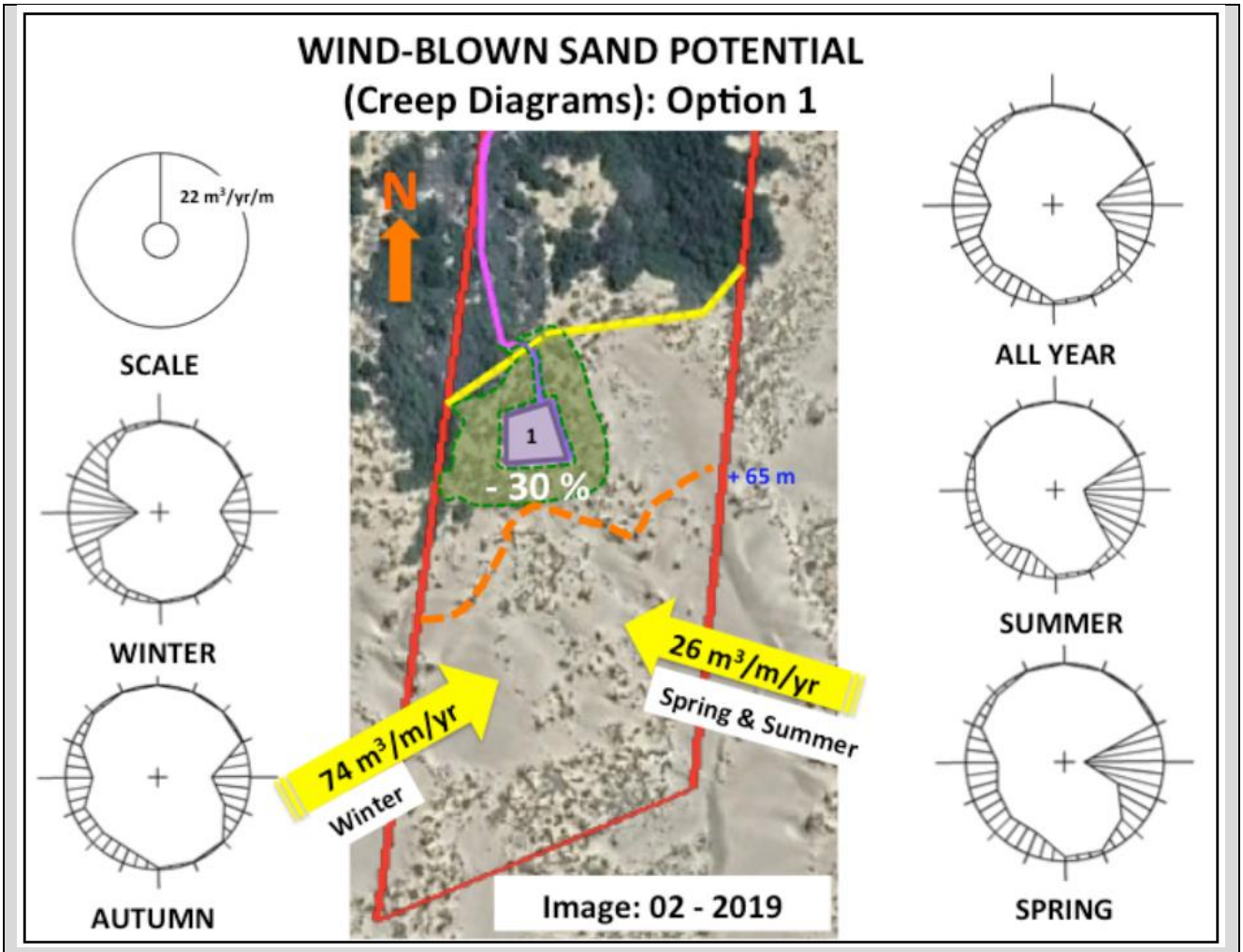


Figure 18: Preferred Option 1 with the recommended coastal process line at +65m MSL

Option 1 is placed on a prepared building platform at a level of +73 m MSL within the natural Plateau 1 area. It is foreseen that the existing vegetated area is protected, and actively managed to maintain a coastal fynbos area of 1 ha surrounding the building footprint as indicated. The access road is engineered to link up with the already disturbed track route immediately north of the Option 1.

According to the coastal engineer, the facts show that Plateau 1, on which the footprint for Option 1 is situated, is the most stable of all the identified options and will require the least intervention to safeguard the development from wind-blown sand and/or blow-out due to the prevailing winds.

The three alternatives proposed for House Steenekamp have been mapped onto the Sentinel 2 NVDI and Natural Colour imagery for the periods 2017 / 2018 to 5 May 2022. The imagery clearly shows the stabilisation of thicket vegetation in these areas and the expansion of the vegetation across the dune system. This confirms the information from the coastal engineers report that the dune areas are systematically revegetating over time and that the active coastal processes are shifting southwards. The revegetation and stabilisation of this area is ongoing, and has in fact accelerated in the last two years, especially with the above average rains that have been experienced.

The Natural Colour and NVDI maps have been included in Annexure D of the report.

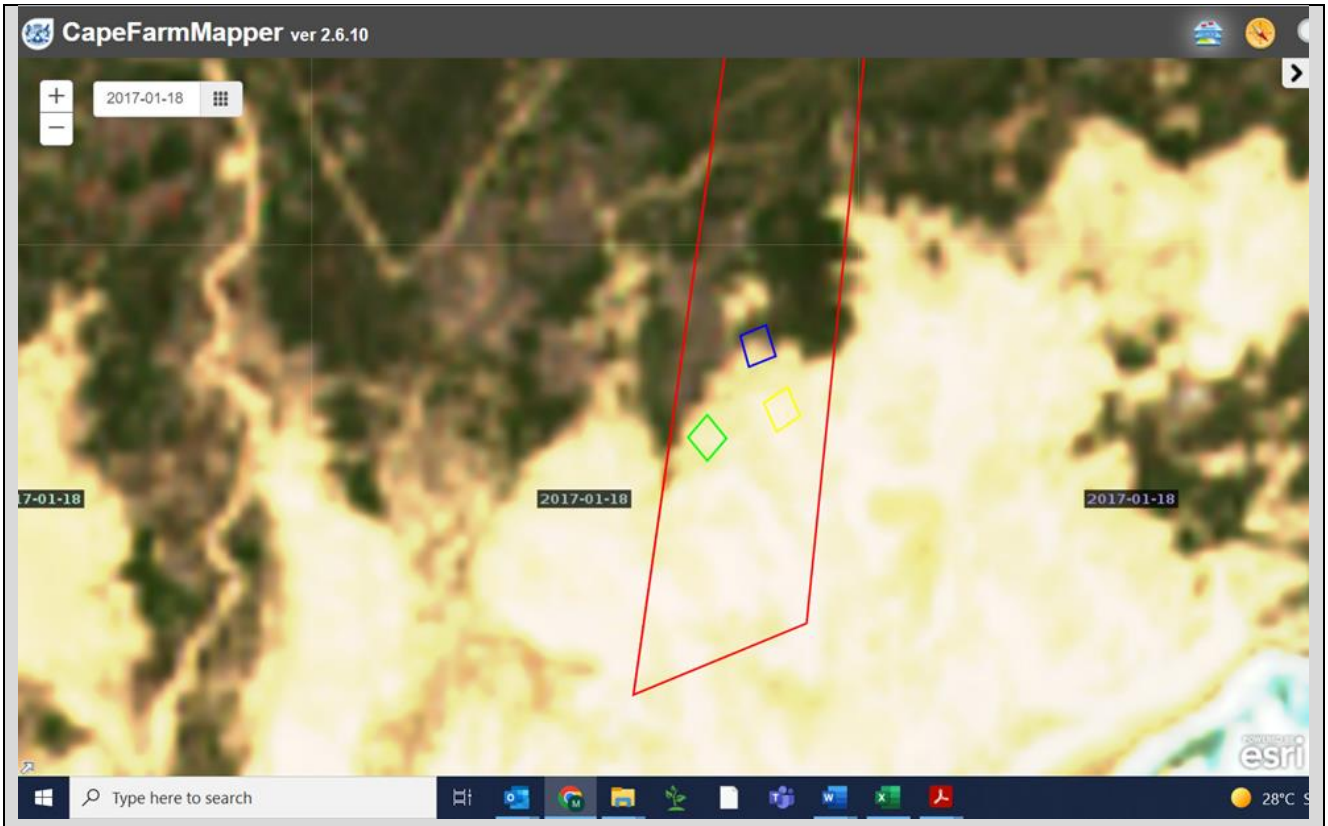


Figure 19: Sentinel 2 Natural Colour vegetation coverage 2017 (CapeFamMapper)

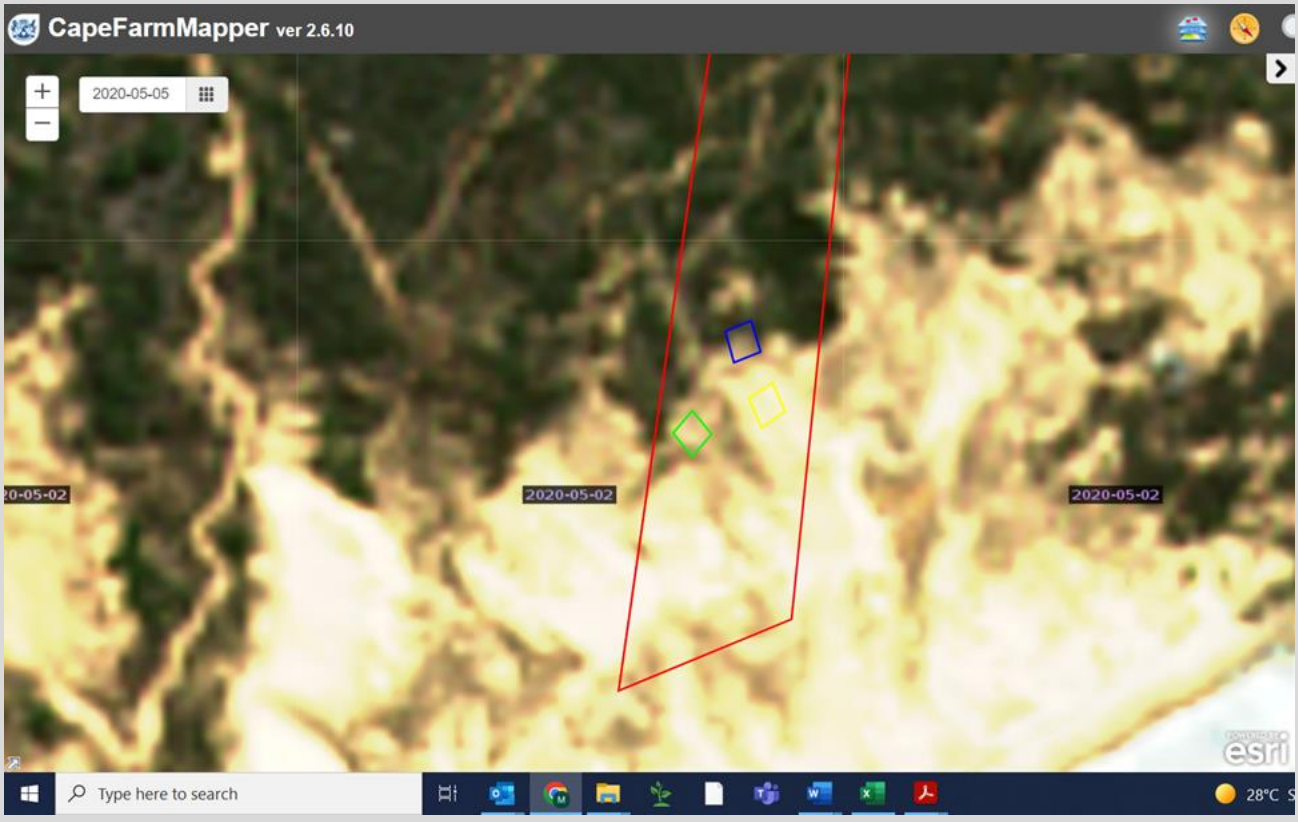


Figure 20: Sentinel 2 Natural Colour vegetation coverage 2020 (CapeFamMapper)

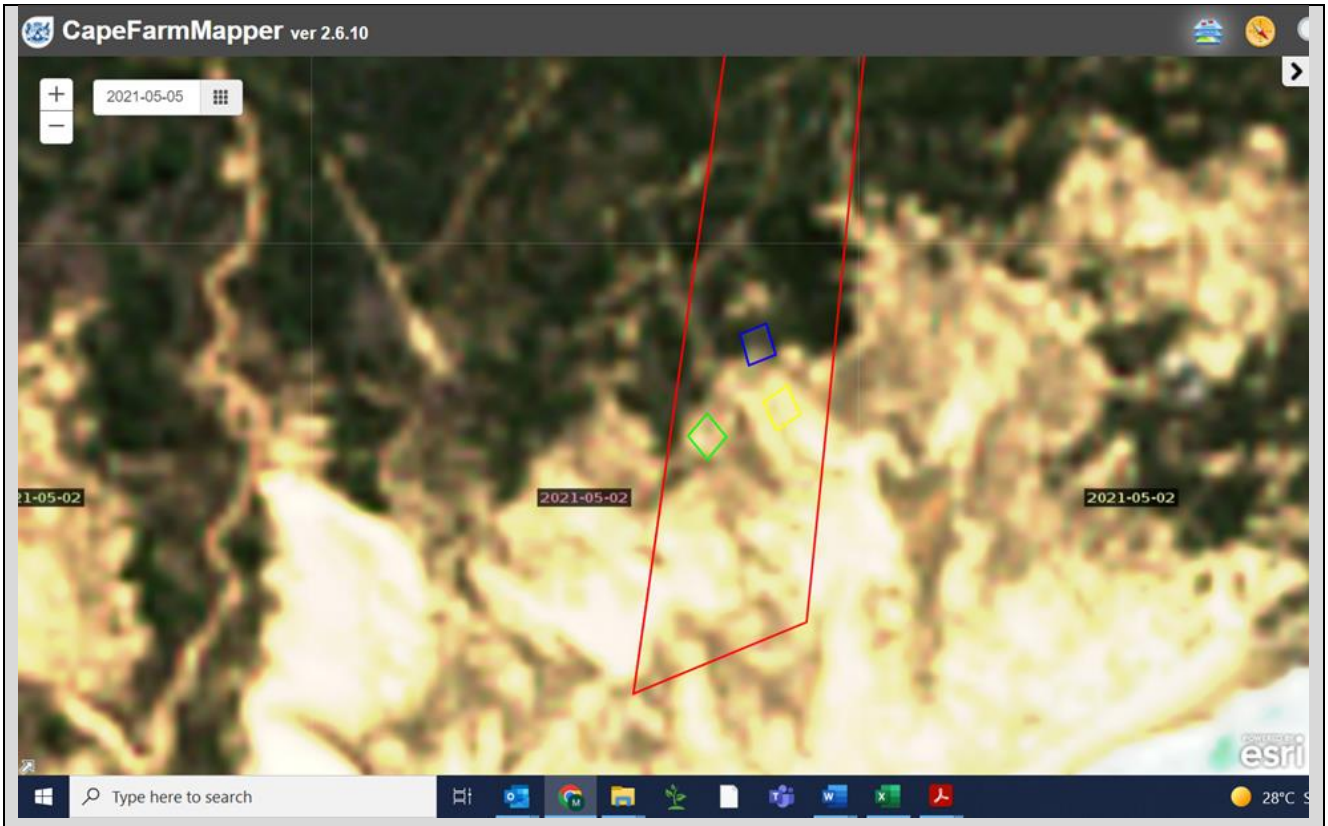


Figure 21: Sentinel 2 Natural Colour vegetation coverage 2021 (CapeFamMapper)

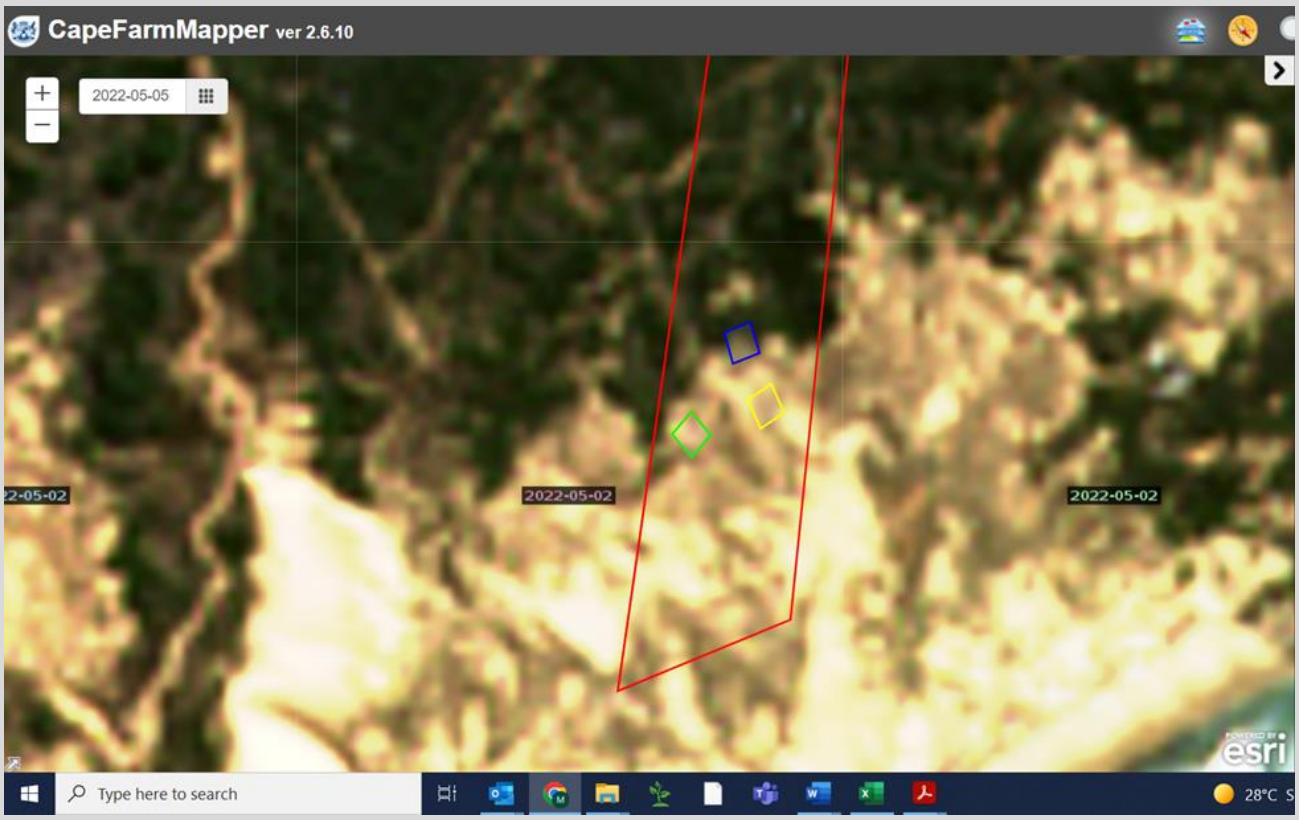


Figure 22: Sentinel 2 Natural Colour vegetation coverage 2022 (CapeFamMapper)

The ongoing vegetation of the site can also be seen in the photographs below. These are located between Options 1 and 2 and show the transitional area between the modelled LAZ and the functional LAZ.

This expansion of the vegetation is part of the reason that the coastal engineer confirmed the significant ratings of the proposal to be Low.

Photo 2: Excerpt from the Botanical report at the waypoint FRM0004 and dated 28 February 2020

Photo 3: May 2022 photograph of the transitional area showing significantly increased vegetation cover

The marker pole for the edge of proposed Option 2 is visible in the above photograph, as indicated by the yellow arrow. The circle provides orientation to the hummock.

(h) whether the development or activity—

(i) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations;

The development is not located on coastal public property.

(ii) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17;

The property and the proposed dwelling site options are located within 1000m of the high water mark of the sea, thus they are considered to fall within the Coastal Protection Zone as defined by the NEM:ICMA. In addition two of the proposed dwelling site alternatives are located within the 2018 DEA&DP modelled littoral active zone. The qualitative impact assessment in the coastal engineering study has determined that the littoral active zone buffer is located on the 65m MSL contour which is lower than that modelled by DEA&DP.

The development is not inconsistent with the purpose for which a coastal protection zone is established. The zone is also supported by the municipal planning requirements in that no additional dwellings may be constructed within this zone (Municipality: Integrated Zoning Scheme By-Law, 2018). The primary right for the property to develop a Primary Dwelling is thus confirmed.

(iii) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18;

The properties are not located within coastal access land.

(iv) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated;

No. The impacts of the proposed dwelling unit on the property is not likely to have significant negative impacts on the environment and will be located outside of the active coastal process zone.

(v) is likely to be significantly damaged or prejudiced by dynamic coastal processes;

No. As shown by the coastal engineer, the proposed site options are all located above the +65m MSL contour which is the result of the analysis of integrated with sound coastal environmental management practices to identify viable options for placing the development and recommending design specifications for the location, alignment, levels and related management actions. . The facts show that Plateau 1, on which the footprint for Option 1 is situated, is the most stable of all the identified options and will require the least intervention to safeguard the development from wind-blown sand and/or blow-out due to the prevailing winds.

(vi) would substantially prejudice the achievement of any coastal management objective; or

No. As shown by the coastal engineer, the proposed site options are all located above the +65m MSL contour which is the result of the analysis of integrated with sound coastal environmental management practices to identify viable options for placing the development and recommending design specifications for the location, alignment, levels and related management actions. . The facts show that Plateau 1, on which the footprint for Option 1 is situated, is the most stable of all the identified options and will require the least intervention to safeguard the development from wind-blown sand and/or blow-out due to the prevailing winds.

(vii) would be contrary to the interests of the whole community;

No. The proposal is related to a residential dwelling which is in keeping with the current land use of the area. The property has a primary right for a Primary Dwelling in effect.

(Section 63(1)(h) substituted by section 33(d) of Act 36 of 2014)

(i) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land;

The property is located entirely within the coastal protection zone (they are within 1000m of the high water mark of the sea). The alternatives are completely outside the coastal risk lines which in it self speaks to the overall sensitivity and therefore development parameters that should be considered. Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

These management zones are shown as a conceptual scheme in the following figure:

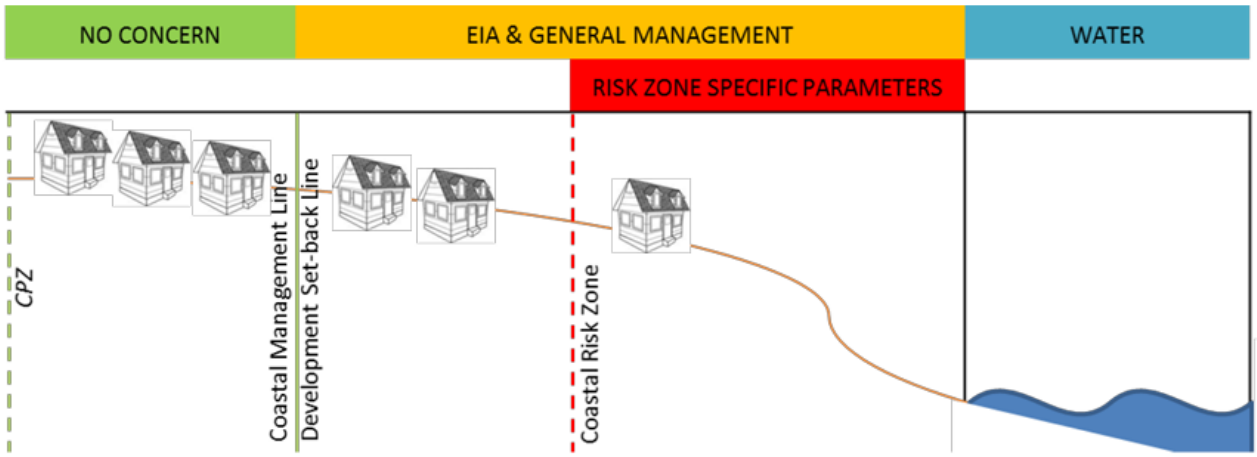


Figure 23: Coastal Management Zones (DEA&DP, 2018)

(j) whether the proposed activity or development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and

Not directly, however the membership fees generated for the Fransmanshoek Conservancy by the landowner will aid in environmental education and management within the boundaries of the conservancy.

(5) The competent authority must ensure that the terms and conditions of any environmental authorisation are consistent with any applicable coastal management programmes and promote the attainment of coastal management objectives in the area concerned.

The competent authority for this application is obliged to comply with this requirement. This Basic Assessment Report and the specialist studies will also aid in their consideration of the application.

We acknowledge the complexity of decision-making in the coastal environment, however we submit that coastal specific principles must be applied in a balanced manner where total avoidance of impacts cannot be the outcome and the implementation of integrated environmental management must be applied.

The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

(6) Where an environmental authorisation is not required for coastal activities, the Minister may, by notice in the Gazette list such activities requiring a permit or licence.

Not applicable.

3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.

Not applicable.

3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.

4. BIODIVERSITY

4.1.	Were specialist studies conducted?	**YES**	~~NO~~
4.2.	Provide the name and/or company who conducted the specialist studies.		

Dr Dave McDonald of Bergwind Botanical Surveys & Tours (Botanical & Terrestrial Biodiversity)

Mr Willem Mathee & Prof Jan Venter (Terrestrial Animals)

4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.

The following systemic conservation planning and biodiversity tools were utilised:

- SANBI Vegetation Maps 2018;
- Terrestrial ecosystem threat status assessment 2018;
- Terrestrial Ecosystem Threat Status 2011;
- National Freshwater Ecosystem Priority Areas (NFEPA);
- Western Cape Biodiversity Spatial Plan (WCBSP, 2017;
- Eden Coastal Management Lines (DEA&DP, 2018).

The preferred dwelling site (Alternative 1 Option 1) has been identified as the best practicable option as a result of the specialist studies.

4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.

The WCBSP's specific objectives are to:

- *Serve as the primary source of biodiversity information for all land use planning and decision-making in the Western Cape, to be used in conjunction with information from other sectors.*
  The WCBSP was used by the EAP and the specialists in considering the biodiversity information applicable to the property.
- *Ensure that the Western Cape's ecological infrastructure is maintained, ecosystem fragmentation and loss is avoided, and the resilience of ecosystems and human communities to the impacts of climate change is strengthened.*
  The preferred Alternative 1 Option 1 has been identified as the best option as it will incur the lowest negative impacts of the three options. The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed

sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

- *Provide a spatial framework for environmentally sustainable development and resource use.*
  The WCBSP was use to consider the development within geographic area of Misgunst and its environment.
- *Inform municipalities and other land use planners and regulators about spatial biodiversity priorities in order to promote the wise management of biodiversity, and to streamline and monitor land use decision-making.*
  The municipality has incorporated the WCBSP spatial data into their SDF and this ensures that the property was identified as being part of the coastal setback of 1km inland of the high water mark of the sea.
- *Focus on-the-ground conservation and restoration action in biodiversity priority areas, thus supporting CapeNature in implementing its biodiversity mandate, including working with landowners to consolidate and expand the provincial protected area network.*
  The Fransmanshoek Conservancy was established under the Western Cape Nature Conservation authorities (now CapeNature) in 1994. The conservancy aims to promote conservation within urban and rural areas, providing management and guidance to landowners in order to support the biodiversity mandate of CapeNature. The co-operation with landowners is critical, and the applicant is committed to ensuring that the property retains its importance in the conservancy.
- *Mainstream biodiversity conservation into the daily activities of a range of development and production sectors whose primary business is not biodiversity conservation, thus promoting greater synergy between biodiversity conservation and development through implementation of the WCBSP*.

Land Use Guidelines:

The property is located within a Terrestrial CBA, as such the following guidelines are considered:

Map category	Desired management objective	General guidelines	Specific guidelines
Critical Biodiversity Area 1: Terrestrial & Forest		• Extensive (low-intensity) livestock or game ranching, if well-managed, may be compatible with the desired management objectives for these areas. These land uses are acceptable if they take into account the specific biodiversity features (e.g. rare species or vegetation remnants) and vulnerabilities (e.g. infestation by invasive alien plants) at each site, if they comply with recommended stocking rates and if any associated infrastructure (required to support the ranching activities) is kept to low levels. • Conservation efforts should focus on conserving Species of Conservation Concern and populations of keystone species and species responsible for pollination and seed dispersal.	• Applications for land use of any kind should be referred to the Land Use and Conservation Planning team at CapeNature for comment. • Degraded areas included in the land parcel, but not the land use proposal, should be restored to natural ecosystem functioning where possible. • Alien clearing should be given high priority.

The development is of a low-intensity nature and does not include any agriculture or game farming activities. The application is being submitted to CapeNature's land use management for comment as part of this EIA process. Alien clearing is being given high priority by the applicant.

4.5.	Explain what impact the proposed development will have on the site specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.

According to the WCBSP, the site falls within an area identified as CBA 1.

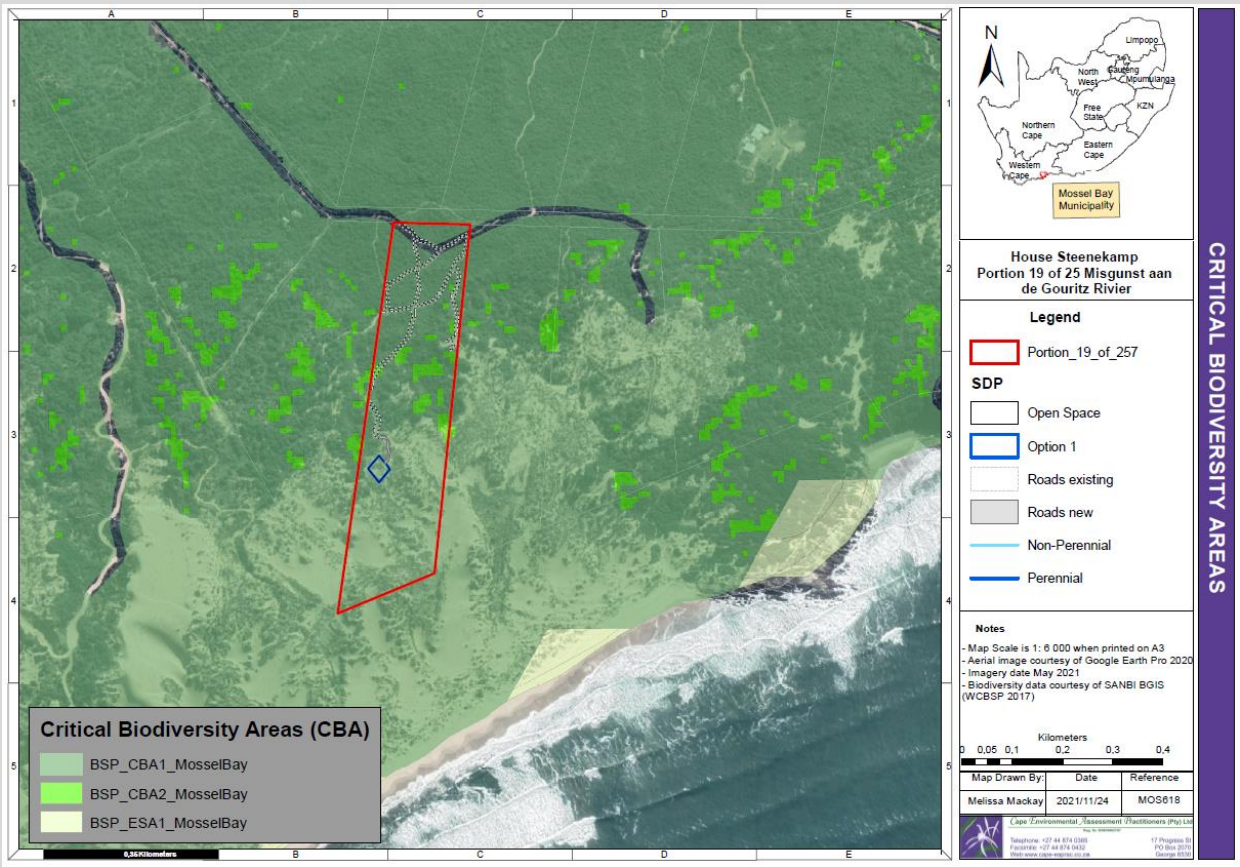


Figure 24: Critical Biodiversity Areas

The WCBSP 2017 provides the following reason for the CBA 1 classification:

Summary_1	Coastal Habitat Type (1.65), Ecological processes (19.49), SA Vegetation Type (16.12), Threatened Vertebrate (19.49)
Summary_2	
Feature_1	Bontebok Extended Distribution Range
Feature_2	Canca Limestone Fynbos (LT)
Feature_3	Cape Seashore Vegetation (LT)
Feature_4	Coastal Habitat Type
Feature_5	Coastal resource protection- Eden
Feature_6	Foredune

The botanical specialist and the biodiversity mapping have confirmed that the development site is located within the Cape Seashore vegetation type which is considered to be of Least Concern, both in the gazetted 2011 Threat Status and in the 2018 Threat Status Assessment by Skowno et al.

In addition the 2018 SANBI ecosystem classification states that the ecosystem type is not Canca Limestone Fynbos, but Hartenbos Dune Thicket, also confirmed on site by the botanical specialist.

The impacts of the single residential dwelling as proposed has been rated as Low to Very Low negative impact on the environment.

Excerpt from the Botanical and Terrestrial Biodiversity Impact Assessment:

The proposed dwelling would be constructed at a site on Portion 19 of Farm 257, Mossel Bay, where the vegetation is made partly of alien Marram grass and partly of scattered indigenous species, notably *Seriphium plumosum*, *Passerina rigida* and *Lessertia canescens*. The entire area of the Fransmanshoek Peninsula is declared a CBA1 zone, but the proposed dwelling would have a **low to very low impact** on the existing habitat and would be in keeping with the conservation objectives of the Fransmanshoek Conservancy.

It is recommended that the dwelling should be built at the preferred site (Option 1) or Option 2 whereas the Option 3 site would not be desirable. The anticipated impact after mitigation would be **Very Low Negative** for both Options 1 and 2.

A site sensivity plan was drafted taking all specialist ratings into account.

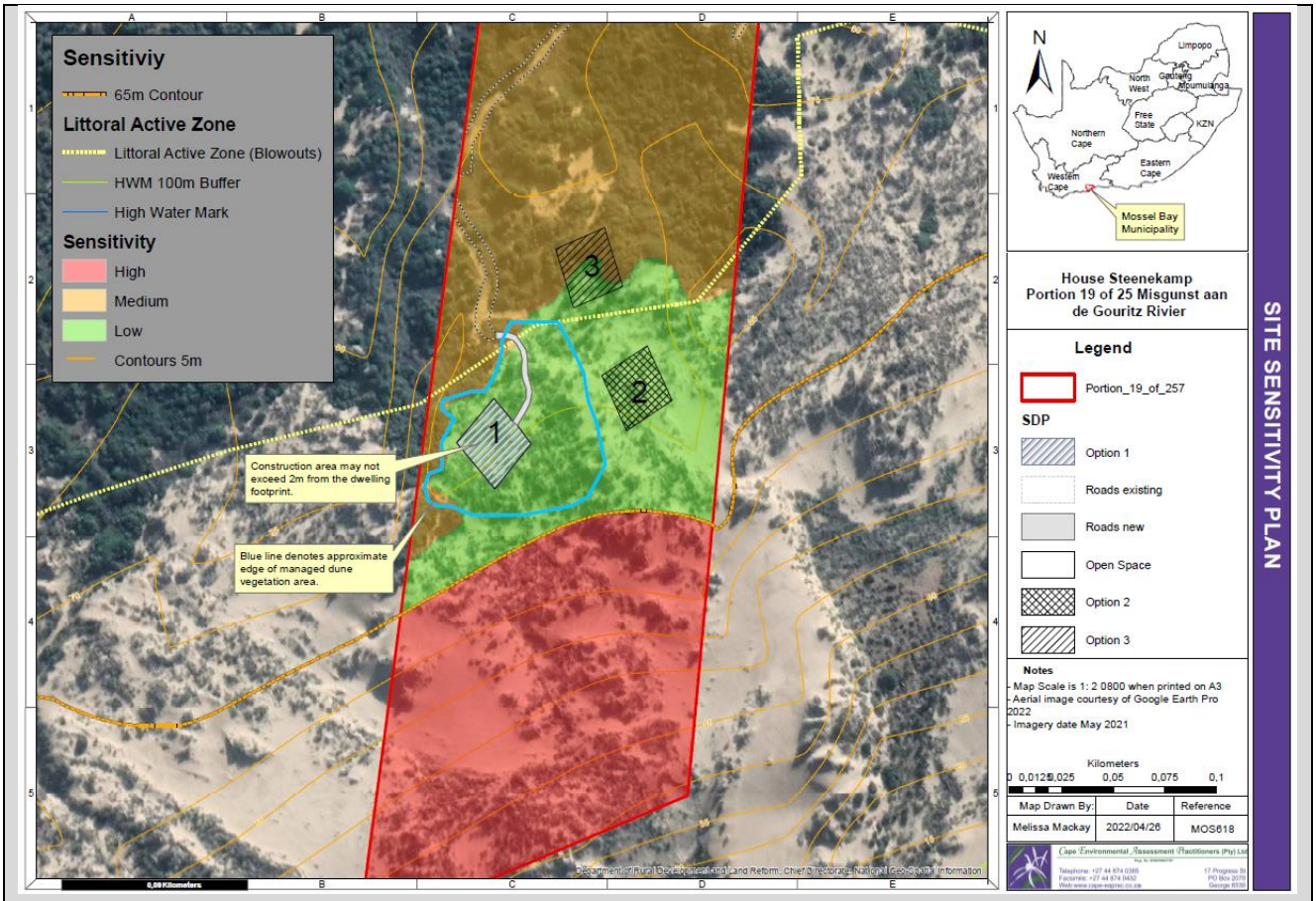


Figure 25: Site Sensitivity Plan

The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

4.6.	If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.

The proposed development is located within the Fransmanshoek Conservancy (FMH). Although this is not a formally declared protected area in terms of NEM:PAA, the conservancy is subject to the agreement between it and CapeNature. The conservancy has a management plan in place and promotes membership by land owners within its boundaries. Members are required to abide by the management objectives and goals of the FMH.

The proposed development will be subject to the requirements of the FMH Constitution and the management of the property (particularly alien vegetation clearing) will be done in conjunction with the FMH.

4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.

The proposed development will have very little impact on the fauna. The applicant has no intention to erect fences or any other structures that may affect or impede on the movement and habitat of fauna on the property. The Faunal Compliance Statement confirms the following:

Based on the results of the desktop study and site survey, the sensitivity of the study site (Portion 19 of Farm 257) in terms of terrestrial animals can be regarded as **LOW**. This assessment is based on the following:

- The absence of georeferenced records for the highlighted species in the study site or surrounding areas;
- The lack of observations of these species during the site survey; and
- The habitats present not being suitable for the highlighted species to occur.

The requirements of the FMH HOA Constitution will be complied with by the applicant which will further ensure that the impact on indigenous fauna in the area will be kept to a minimum.

5. GEOGRAPHICAL ASPECTS

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
No geographical aspects will be affected.

6. HERITAGE RESOURCES

6.1.	Was a specialist study conducted?	**YES**	~~NO~~
6.2.	Provide the name and/or company who conducted the specialist study.		
Mr Stefan de Kock (Perception Planning) – Heritage Background Information Document Dr Peter Nilssen – Heritage Impact Assessment			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		

There are no areas of sensitive heritage resources as confirmed by the specialists and Heritage Western Cape.

A Heritage Notice of Intent was submitted to Heritage Western Cape (HWC) on 19 July 2020. On the 12th August 2020, the HWC requested a Heritage Impact Assessment be undertaken with specific reference to an Archaeological foot survey, comments from I&AP's including the SAHRA MUCH unit. This study was completed and the HIA was submitted to HWC decision making.

HWC issues its Final Decision on 3 March 2022 as follows:

FINAL COMMENT

The committee endorsed the revised HIA from Dr Nilssen dated February 2022 and the recommendations on page 43 of the HIA:

- 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 workplan 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 44 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.

The requirements for the management of any possible heritage resources has been included in the EMPr.

7. HISTORICAL AND CULTURAL ASPECTS

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.

There are no areas of cultural or historically significant elements resources as confirmed by the specialists and Heritage Western Cape.

The requirements for the management of any possible heritage resources has been included in the EMPr.

8. SOCIO/ECONOMIC ASPECTS

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.

The property is located within the rural area south of the village of Vleesbaai. According the Mossel Bay Municipality SDF, these areas were originally associated with livestock and fish trading. They have subsequently become coastal holiday places for inland farmers and have developed into the current holiday townships. Permanent occupants are only around 25% of the population. The are largely self-contained and Vleesbaai operates as a private township.

Due to the low density layout of the area, the density is too low to be serviced by conventional reticulated civil services, but this does allow for a high level of biodiversity conservation. This means that the majority of dwellings implement off grid service infrastructure. Due to the low densities, even if permanent occupation were to significantly increase, innovative off-grid infrastructure technologies should be promoted so as to limit the burden on municipal service provision. In light of this, the Mossel Bay Municipality has confirmed that they have no objection to the proposed services for this application.

The area is typically middle to upper income in nature, as many of these are second homes.

8.2.	Explain the socio-economic value/contribution of the proposed development.

The property is currently a vacant farm portion that is zoned as Agriculture 1 and located within the Fransmanshoek Conservancy. Surrounding land uses include the town of Vleesbaai, active farming properties and small holdings with residential dwellings. The immediately neighbouring properties have single residential dwellings within the conservancy. The socio-economic impact of the activity is limited to some small construction benefits, benefit to the applicant in terms of owning a coastal dwelling and economic and thus environmental benefit, to the Fransmanshoek (FMH) Conservancy.

The conservancy is partly funded by membership fees generated by the homeowners association and as such it is to the benefit of both the landowner and the conservancy to be granted the right to an abode on the property.

Excerpts from the FMH management plan:

2. Objectives

The purpose of the organization is to;

(a) promote the protection of indigenous plants and animals, undisturbed or important biological communities and/or landscapes of exceptional beauty;

(b) co-operate with authorities in respect of the management of the conservancy;

(c) to collect funds and use such funds for the promotions of the organization's activities;

(d) to preserve and improve its natural assets;

(e) to manage the conservancy for the mutual benefit of present and future generations.

6. Financial

The financial year of the organization extends from 1 March to 28 February (the following year). All financial transactions shall be duly recorded by the Secretary/Treasurer who shall submit annually, at the close of the financial year to the annual general meeting, a complete financial report signed by himself, the Chairman and the full executive committee. The organization shall have the authority to receive, invest and spend funds.

9. CONSERVANCY BUDGET

The conservancy budget is comprised of membership fees, sponsorships and donations. The budget has been designed to ensure that membership fees cover all the running costs, such as the rangers' salaries, petrol and maintenance of the bakkie. Donations and sponsorships (external funding) are used for the execution of conservation related or environmental education projects. Membership fees are calculated with respect to the length of coastline adjacent to the property.

8.3.	Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.

Not applicable.

8.4.	Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.

The following potential impacts may impact on people's health and well being:

- Noise during construction – this will be mitigated by managing construction work hours and health and safety on the construction area. Due to the isolation of the property, this is likely to be extremely negligible.
- The visual impact / sense of place of the residential dwelling will be in keeping with the surrounding residential land use. Compliance with the FMH Home Owners Constitution, and the signing off the building plans by the committee ensure any impacts in this regard are negligible.

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. DETAILS OF THE ALTERNATIVES IDENTIFIED AND CONSIDERED

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred property and site site alternative.

Alternative 1 Option 1 (Preferred):

The applicant wishes to exercise his primary right to constructing a primary single residential dwelling on the property. The primary dwelling is expected to be ±500m² in size, with a ±70m access road

connecting the dwelling to the end of the existing road network. Total disturbance is expected to be ±1500m². This is identified as Option 1 on the SDP.

The dwelling will have off grid electricity, water and on-site sewerage disposal.

Option 1 is proposed at a level of +73 m MSL and 15b) within the natural Plateau 1 area. It is foreseen that the existing vegetated area is protected, and actively managed to maintain a coastal fynbos area of 1 ha surrounding the building footprint.

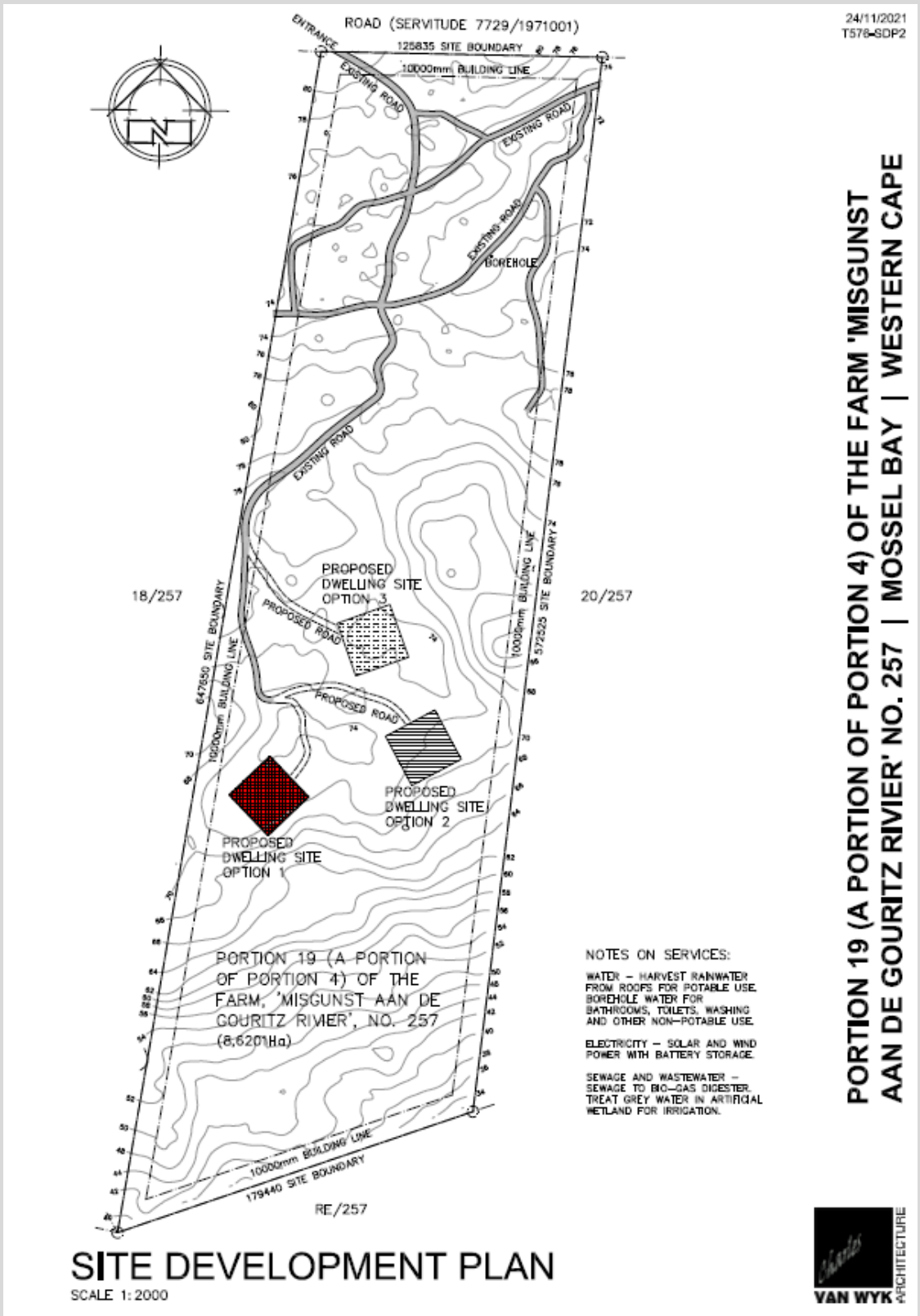


Figure 26: Site Development Plan (Option 1)

House construction

The house structure will consist of a conventional foundation and surface bed structure with lightweight drywall structure above surface bed level. Walls will exist of a combination of fibre cement planks and treated sheet metal.

Figure 2 Typical fibre cement wall cladding

Figure 3 Typical sheet metal wall cladding

The roof will either be a klip-lok or IBR sheet metal profile on a CCA treated timber truss structure.

Figure 4 Typical klip-lok roof sheeting

Figure 5 Typical IBR roof sheeting

Figure 27: Typical building material (Cobus Louw, 2021)

Water:

The expected water usage will be between 1 500 – 1 750 litre / day. Water Usage network will be split between toilet usage and the rest of the residential Usages. The toilet network will be able to function on the borehole water and the rest on harvested fresh water from the roofs.

The recommended freshwater storage capacity for household use will be 50 000 litres.

It is proposed that the residential unit be equipped with the following water saving technology:

· **Dual Flush Toilets**

· **Low flow shower heads** – It is proposed that the residential units be equip with low flow shower heads, as these can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008 - http://eartheasy.com/live_lowflow_aerators.htm). Low flow shower heads make use of either aerators or pulse systems to reduce the flow without

compromising the quality of the shower. The choice of shower head is up to the homeowner but must have a flow of less than 7 litres per minute.

· **Low flow faucets** - Low flow faucets use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 litres per minute.

· **Rainwater Tanks** - All houses should be fitted with rainwater collection tanks for use externally (landscaping, washing cars etc). Consideration should be given to provide solar pumps at each rainwater tank to supply the units more effectively. The overflow from tanks should be directed into the stormwater system. All water sources situated externally on buildings should be fed from these rainwater tanks.

· **Geyser and pipe insulation** - Apart from the savings in terms of energy as detailed above, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required. Homeowners must be required to install geyser and pipe insulation; this must be included in their building guidelines.

Sewerage:

The calculated sewerage and grey water generation from the development has been calculated as 500 - 750 litre / day.

It is recommended that all wastewater from the residential units be treated as follows:

- All grey water from bathrooms, laundry and kitchen areas be directly diverted to a constructed / artificial wetland system.
- All black water (organic products) from the bathrooms, laundry and kitchen areas be diverted to a biogas digester with an overflow to the constructed / artificial wetland system soak away system.
- The water from the constructed / artificial wetland system will be used for gardening purposes.

The bio-gas digester will have the following building functions

- mixes the contents for increased gas generation efficiency

- naturally decomposes biodegradable materials without any additional chemicals

- stores the biogas that is generated by this natural decomposition

- generates an internal pressure which allows the biogas to be piped directly to the point of use

- the digester mixing, gas storage and pressurisation are all achieved without any mechanical input at all i.e. No pumps or motors of any kind.

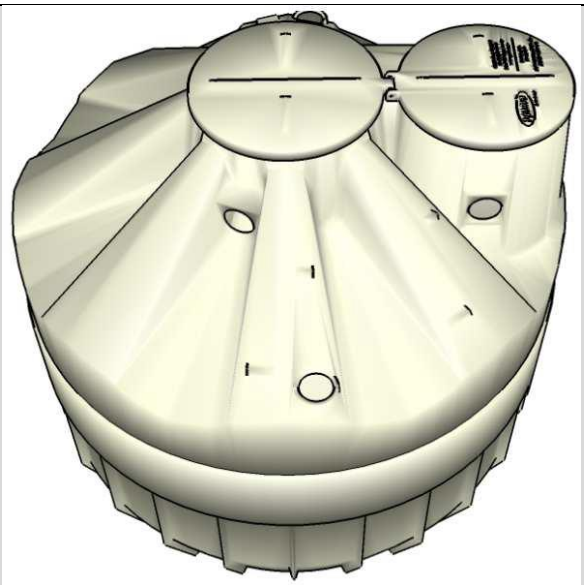


Figure 28: Typical on-site biogas digester (Cobus Louw, 2021)

Provide a description of any other property and site alternatives investigated.

Alternative 2 Option 2:

Alternative 2 Option 2 proposes the construction of a single residential dwelling as described for Alternative 1, but located further east of Option 1. t is in a slight depression with vegetated dunes around it at a level of +72 m MSL.

Option 2 is the least preferred option according to the coastal engineer, and has the same potential low negative botanical and terrestrial biodiversity impacts as Option 1 according to the botanical / terrestrial specialist.

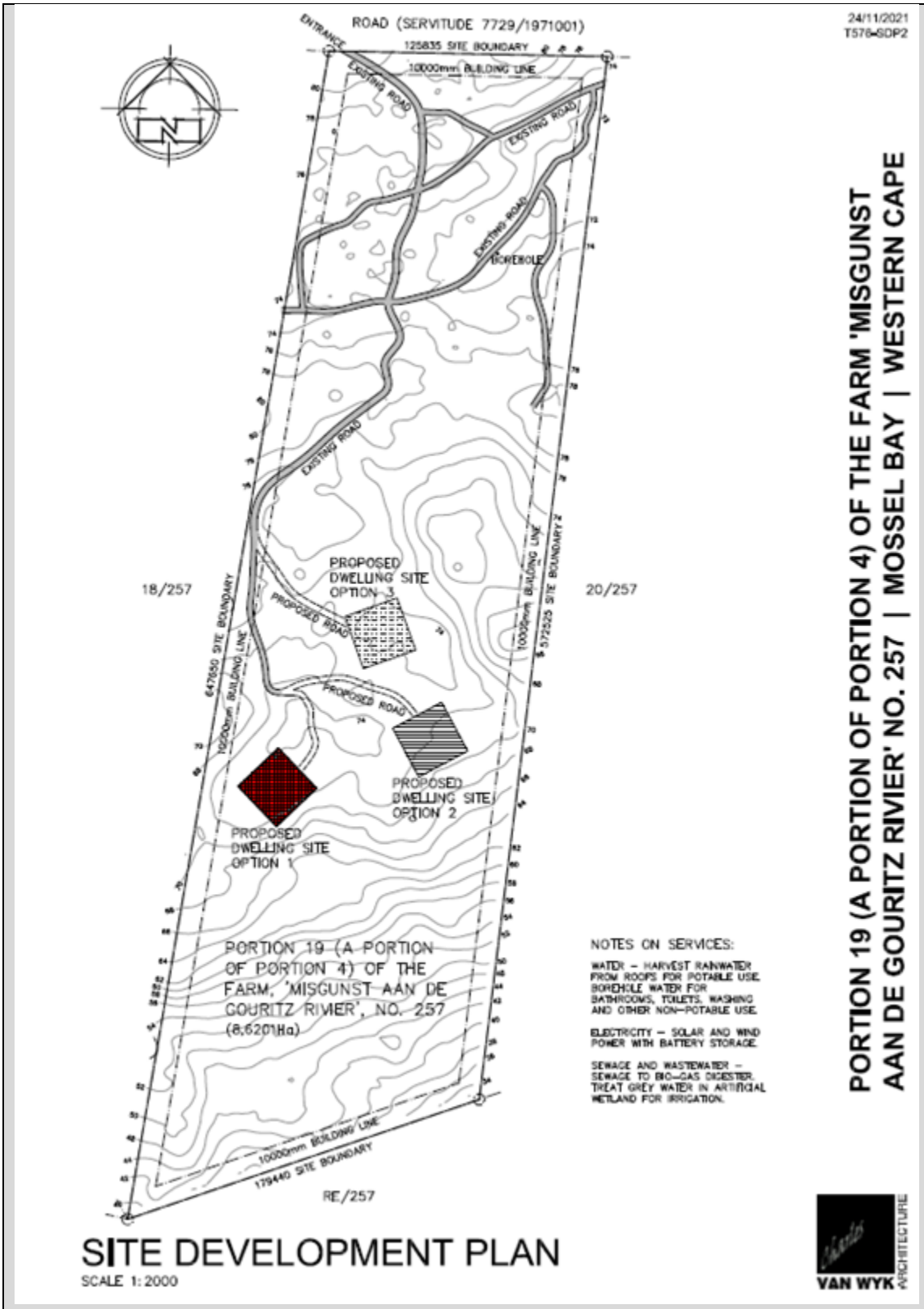


Figure 29: Site Development Plan (Option 2)

Alternative 3 Option 3:

Alternative 3 Option 3 proposes the construction of a single residential dwelling as described for Alternative 1, but located further north of Option 1. Option 3 is located in a depression and the barrier dune vegetation grades into Hartenbos Dune Thicket. This site is the least suitable of the three

options and is not recommended from a botanical aspect. It is vegetated with alien *Acacia saligna* and *Searsia crenata* (Hartenbos Dune Thicket). It is at a level of +74 m MSL.

This option is also least preferred by the coastal engineer.

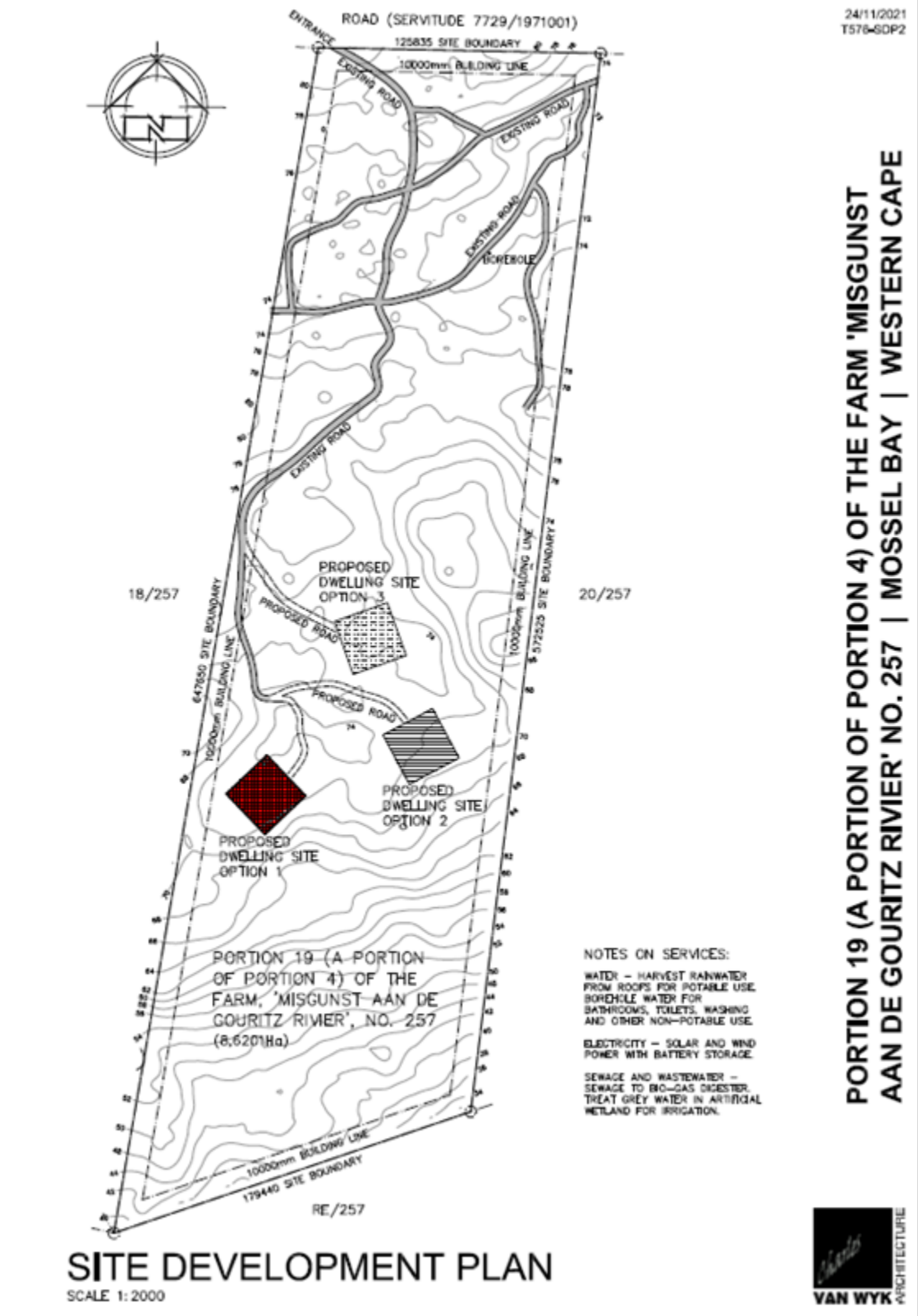


Figure 30: Site Development Plan (Option 3)

Provide a motivation for the preferred property and site alternative including the outcome of the site selection matrix.

Alternative 1 Option 1 is the preferred site alternative as confirmed by the specialists and coastal engineer.

Following were the criteria provided by the applicant for the site selection:

- The applicant has ownership of the property.
- The municipality supports the off-grid services.
- The zoning allows for a primary residential dwelling.
- The development on the site will add to the funding of the Fransmanshoek Conservancy.

The following were criterial provided by the EAP & specialist:

- Avoid areas of highest potential impact.
- The size of the property does not restrict the proposed single residential dwelling.
- The sensitivity of the site from a biodiversity aspect is Low to Very Low.

The matrix value is determined by multiplying the weighting by the individual score assigned.

The maximum score that can be achieved by this site selection matrix is 105. Site 1 (Option 1) scores marginally higher than Sites 2 & 3. This is due to the preference given to the site in terms of the environmental aspects.

Site Selection Matrix

Criteria		Site 1	Site 2	Site 3
Property				
Size	3	15	15	15
Applicant owned	1	5	5	5
Zonation	3	15	15	15
Landuse	2	10	10	10
Services		0	0	0
Access	3	9	9	9
Water	3	9	9	9
Electricity	3	12	12	12
Environmental considerations	2	8	4	4
Waste Management	1	4	4	4
		87	83	83

1 = Not Acceptable
2 = Poor
3 = Acceptable
4 = Very Good
5 = Excellent

Multiply weighting for criteria by the individual score assigned i.e. weighting for Size is 3, score given is 5 therefore matrix value is 15

Provide a full description of the process followed to reach the preferred alternative within the site.

The applicant, in consultation with the architect developed the site plan based on their requirements for a permanent single residential dwelling. The applicant appointed the EAP in February 2020 to run desktop sensitivities on the site. This was followed up by specialist investigations to determine the best option for the dwelling.

Alternative 1 Option 1 is best located in terms of the botanical / terrestrial biodiversity and coastal engineering disciplines, whilst the other specialists (aquatic, heritage, archaeology & fauna) have no specific preference as the sensitivity of the site for their disciplines is negligible to Low.

Provide a detailed motivation if no property and site alternatives were considered.

Not applicable.

List the positive and negative impacts that the property and site alternatives will have on the environment.

The following impacts have been identified:

Positive:

- Supporting the Fransmanshoek Conservancy as an active member.
- Supporting the local economy during construction phase, albeit on a small scale.
- Active alien invasive vegetation clearing.
- Impact of development on the prevailing coastal processes.
- Impact of the development on the Fransmanshoek managed conservancy.

Negative:

- Loss of Hartenbos Dune Thicket.
- Loss of a limited amount of foredune (barrier dune) vegetation of low sensitivity.
- Temporary noise impacts during construction.
- Impact of development on the prevailing coastal processes.
- Impact of the coastal processes on the development.
- Impact of the development on the Fransmanshoek managed conservancy.
- Establishment cost (Including veg. management).
- Maintenance cost (Including veg. management).

1.2.	Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred activity alternative.

No activity alternatives are being proposed. The applicant is proposing the construction of a single residential dwelling as per the rights allowed to the property which is zoned as Agriculture I.

Provide a description of any other activity alternatives investigated.

Not applicable.

Provide a motivation for the preferred activity alternative.

The preferred activity is for the construction of a single residential dwelling as per the rights allowed to the property which is zoned as Agriculture I.

Provide a detailed motivation if no activity alternatives exist.

Not applicable.

List the positive and negative impacts that the activity alternatives will have on the environment.

Not applicable.

1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts

Provide a description of the preferred design or layout alternative.

The preferred designs have been included as part of Alternative 1 Option 1. The final design must be provided to the FMH HOA committee to ensure that it complies with the FMH Constitution.

Provide a description of any other design or layout alternatives investigated.

Not applicable.

Provide a motivation for the preferred design or layout alternative.

Not applicable.

Provide a detailed motivation if no design or layout alternatives exist.
Not applicable.
List the positive and negative impacts that the design alternatives will have on the environment.
Not applicable.

1.4.	Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred technology alternative:
Not applicable.
Provide a description of any other technology alternatives investigated.
Not applicable.
Provide a motivation for the preferred technology alternative.
Not applicable.
Provide a detailed motivation if no alternatives exist.
Not applicable.
List the positive and negative impacts that the technology alternatives will have on the environment.
Not applicable.

1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred operational alternative.
The following is included in the choice of the Preferred Alternative (Alternative 1 Option 1): Active management of alien vegetation along the route and immediately adjacent to the development along with the re-establishment of indigenous coastal fynbos will stabilise the sandy environment and pro-actively reduce the risk to the development from run-away fires. This is not a separate alternative, but forms part of the Preferred Alternative.
Provide a description of any other operational alternatives investigated.
Not applicable.
Provide a motivation for the preferred operational alternative.
Not applicable.
Provide a detailed motivation if no alternatives exist.
Not applicable.
List the positive and negative impacts that the operational alternatives will have on the environment.
Not applicable.

1.6.	The option of not implementing the activity (the 'No-Go' Option).

Provide an explanation as to why the 'No-Go' Option is not preferred.
Alternative 4- (No-Go Alternative) The No-Go Alternative is the option to retain the status quo i.e. not implementing the dwelling in the areas that have been identified. This could mean that no development takes place at all on the property, which is an unlikely scenario given that the property has zoning / land use rights which allow for an residential dwelling as a minimum.

It must be noted that the applicant may construct the dwelling outside of any of the geographical listed activity triggers (i.e. outside of the littoral active zone), without having to undertake this EIA process, as long as the vegetation disturbance remains below 1ha. This is not the ideal choice for either the applicant nor the environment for the following reasons:

- The applicant wishes to be able to have a view of the ocean and environs and placing the dwelling further back to the north will negate this possibility unless he opts to build a dwelling that includes multi storeys. This contrasts with the applicant's desire to have a resource friendly, environmentally friendly dwelling. In addition it will not be in keeping with the sense of place of the surrounding properties or with the principle of the FMH Home Owners Constitution.
- The areas further north of the current identified footprint contain intact and nearly pristine Hartenbos Dune Thicket. It would be of greater negative impact to remove this vegetation in areas that are intact. This is confirmed in the botanical assessment which prefers Option 1 over Option 3 for this very reason.
- Fire risks for a dwelling located in thick vegetation are significantly increased.

1.7.	Provide and explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist.

Alternative 1 Option 1 is the best practicable option for this proposal. The alternative has the least negative impacts associated with it, and is likely to have less impacts for any development elsewhere on the property that may not require an EIA (see No Go Alternative).

1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.

Alternative 1 Option 1 is the preferred option for the proposed development. This alternative is consistent with planning requirements and objectives, will be utilised for residential use only, has a very low to low impact on the biodiversity and provides additional support to the functioning and management of the Fransmanshoek Conservancy.

The preferred location is provided in the SDP below:

Alternative 1 Option 1 (Preferred):

The applicant wishes to exercise his primary right to constructing a primary single residential dwelling on the property. The primary dwelling is expected to be ±500m² in size, with a ±70m access road connecting the dwelling to the end of the existing road network. Total disturbance is expected to be ±1500m². This is identified as Option 1 on the SDP.

The dwelling will have off grid electricity, water and on-site sewerage disposal.

Option 1 is proposed at a level of +73 m MSL and 15b) within the natural Plateau 1 area. It is foreseen that the existing vegetated area is protected, and actively managed to maintain a coastal fynbos area of 1 ha surrounding the building footprint.

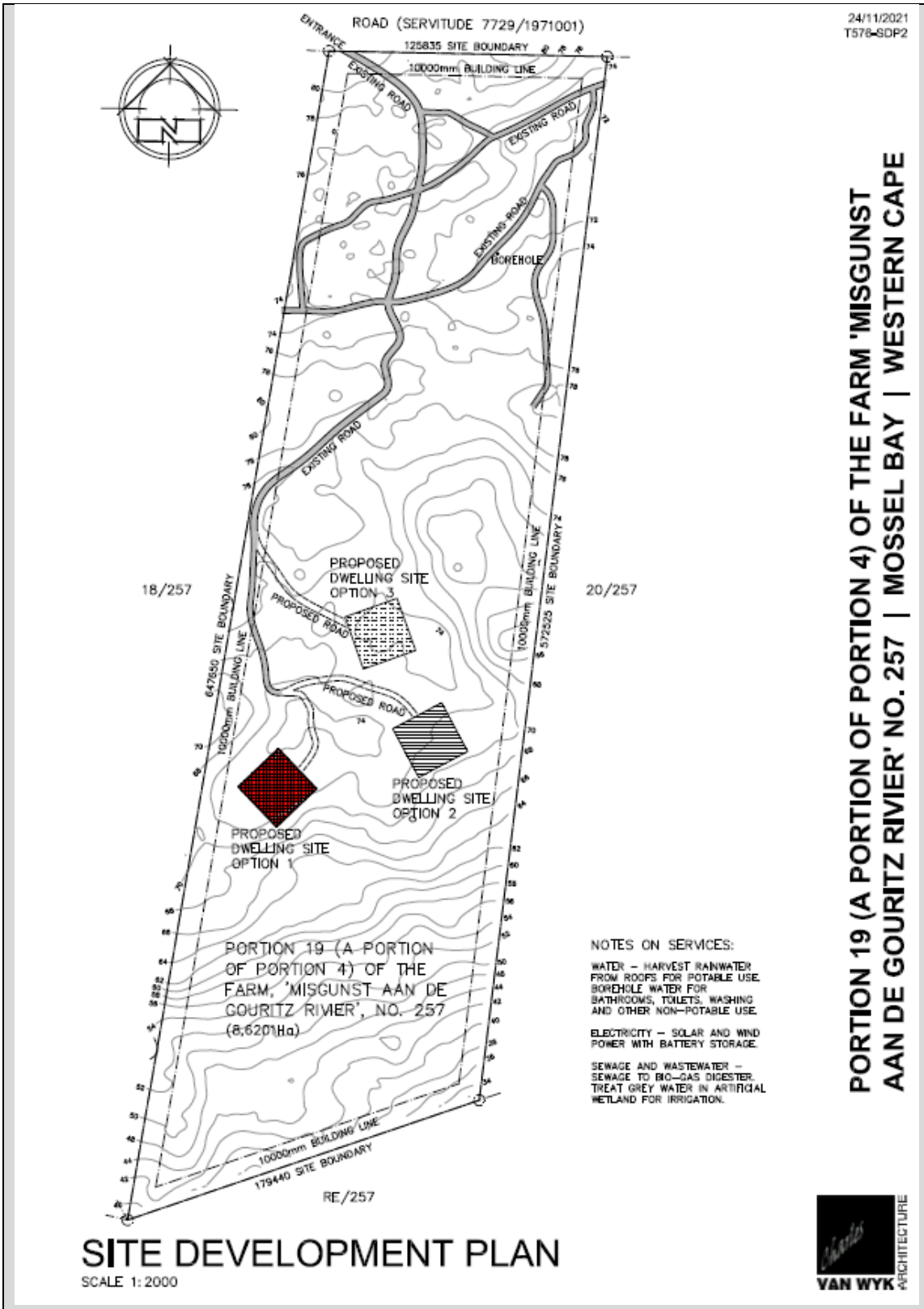


Figure 31: Site Development Plan (Option 1)

House construction

The house structure will consist of a conventional foundation and surface bed structure with lightweight drywall structure above surface bed level. Walls will exist of a combination of fibre cement planks and treated sheet metal.

Figure 2 Typical fibre cement wall cladding

Figure 3 Typical sheet metal wall cladding

The roof will either be a klip-lok or IBR sheet metal profile on a CCA treated timber truss structure.

Figure 4 Typical klip-lok roof sheeting

Figure 5 Typical IBR roof sheeting

Figure 32: Typical building material (Cobus Louw, 2021)

Water:

The expected water usage will be between 1 500 – 1 750 litre / day. Water Usage network will be split between toilet usage and the rest of the residential Usages. The toilet network will be able to function on the borehole water and the rest on harvested fresh water from the roofs.

The recommended freshwater storage capacity for household use will be 50 000 litres.

It is proposed that the residential unit be equipped with the following water saving technology:

· **Dual Flush Toilets**

· **Low flow shower heads** – It is proposed that the residential units be equip with low flow shower heads, as these can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008 - http://eartheasy.com/live_lowflow_aerators.htm). Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the homeowner but must have a flow of less than 7 litres per minute.

· **Low flow faucets** - Low flow faucets use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 litres per minute.

· **Rainwater Tanks** - All houses should be fitted with rainwater collection tanks for use externally (landscaping, washing cars etc). Consideration should be given to provide solar pumps at each rainwater tank to supply the units more effectively. The overflow from tanks should be directed into the stormwater system. All water sources situated externally on buildings should be fed from these rainwater tanks.

· **Geyser and pipe insulation** - Apart from the savings in terms of energy as detailed above, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required. Homeowners must be required to install geyser and pipe insulation; this must be included in their building guidelines.

Sewerage:

The calculated sewerage and grey water generation from the development has been calculated as 500 - 750 litre / day.

It is recommended that all wastewater from the residential units be treated as follows:

- All grey water from bathrooms, laundry and kitchen areas be directly diverted to a constructed / artificial wetland system.
- All black water (organic products) from the bathrooms, laundry and kitchen areas be diverted to a biogas digester with an overflow to the constructed / artificial wetland system soak away system.
- The water from the constructed / artificial wetland system will be used for gardening purposes.

The bio-gas digester will have the following building functions

- mixes the contents for increased gas generation efficiency

- naturally decomposes biodegradable materials without any additional chemicals

- stores the biogas that is generated by this natural decomposition

- generates an internal pressure which allows the biogas to be piped directly to the point of use

- the digester mixing, gas storage and pressurisation are all achieved without any mechanical input at all i.e. No pumps or motors of any kind.

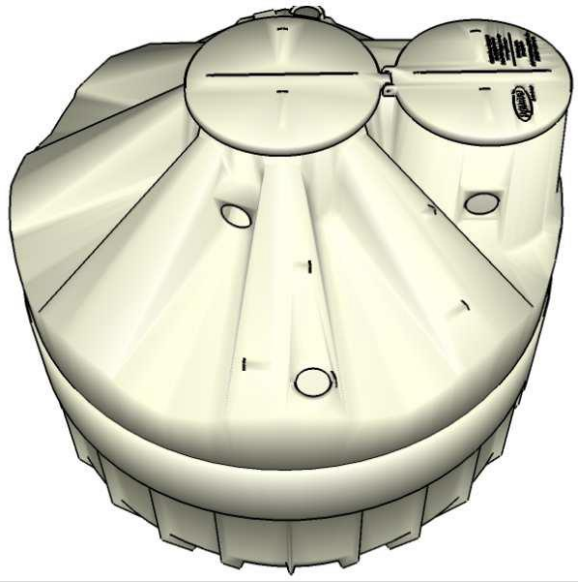


Figure 33: Typical on-site biogas digester (Cobus Louw, 2021)

2. "NO-GO" AREAS

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).

The following no-go areas must be adhered to:

- No development, gardening, landscaping or rehabilitation may take place on or below the +65m MSL.
- No formal pathways, road tracks or vegetation activities should be allowed seawards of the + 65 m contour within the private property.
- No areas outside of the demarcated Option 1 building area may be impacted on during construction.

3. METHODOLOGY TO DETERMINE THE SIGNIFICANCE RATINGS OF THE POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

Criteria for Assessment

These criteria are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989.

These criteria include:

- **Nature of the impact**

This is the appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

- **Extent of the impact**

Describe whether the impact will be: local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region, or will have an impact on a national scale or across international borders.

- **Duration of the impact**

The specialist / EAP should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long term (16-30 years) or permanent.

- **Intensity**

The specialist / EAP should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The study must attempt to quantify the magnitude of the impacts and outline the rationale used.

- **Probability of occurrence**

The specialist / EAP should describe the probability of the impact actually occurring and should be described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

The impacts should also be assessed in terms of the following aspects:

- **Legal requirements**

The specialist / EAP should identify and list the relevant South African legislation and permit requirements pertaining to the development proposals. He / she should provide reference to the procedures required to obtain permits and describe whether the development proposals contravene the applicable legislation.

- **Status of the impact**

The specialist / EAP should determine whether the impacts are negative, positive or neutral ("cost – benefit" analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

- **Accumulative impact**

Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

- **Degree of confidence in predictions**

The specialist / EAP should state what degree of confidence (low, medium or high) is there in the predictions based on the available information and level of knowledge and expertise.

Based on a synthesis of the information contained in the above-described procedure, you are required to assess the potential impacts in terms of the following significance criteria:

No significance: the impacts do not influence the proposed development and/or environment in any way.

Low significance: the impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.

Moderate significance: the impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.

High significance: the impacts will have a major influence on the proposed development and/or environment and will result in the "no-go" option on the development or portions of the

development regardless of any mitigation measures that could be implemented. This level of significance must be well motivated.

4. ASSESSMENT OF EACH IMPACT AND RISK IDENTIFIED FOR EACH ALTERNATIVE

Note: The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

State Impact e.g Odour, Noise, clearanc **Terrestrial Biodiversity / Botanical Impacts** State Impact e.g Odour, Noise, clearanc				
Alternative:	**Alternative 1**	**Alternative 2**	**Alternative 3**	**No Go Option**
PLANNING, DESIGN AND DEVELOPMENT PHASE				
Potential impact and risk:	**Upgrade of the existing two-spoor sandy tracks to the dwelling and cottage and construction of short new section of road to the dwelling**	**Upgrade of the existing two-spoor sandy tracks to the dwelling and cottage and construction of short new section of road to the dwelling**	**Upgrade of the existing two-spoor sandy tracks to the dwelling and cottage and construction of short new section of road to the dwelling**	**Upgrade of the existing two-spoor sandy tracks to the dwelling and cottage and construction of short new section of road to the dwelling**
Nature of impact:	Clearance of vegetation within the Hartenbos Dune Thicket ecosystem type affecting pattern and process	Clearance of vegetation within the Hartenbos Dune Thicket ecosystem type affecting pattern and process	Clearance of vegetation within the Hartenbos Dune Thicket ecosystem type affecting pattern and process	No clearance of vegetation, status quo retained
Extent and duration of impact:	Local, Long Term	Local, Long Term	Local, Long Term	Status quo
Consequence of impact or risk:	Loss of pattern and process	Loss of pattern and process	Loss of pattern and process	None
Probability of occurrence:	High	High	High	None
Degree to which the impact may cause irreplaceable loss of resources:	Low to Very Low	Low to Very Low	Low to Very Low	None

Degree to which the impact can be reversed:	None - Impact would not be reversed since this is the only access to the site	None - Impact would not be reversed since this is the only access to the site	None - Impact would not be reversed since this is the only access to the site	None
Indirect impacts:	None	None	None	None
Cumulative impact prior to mitigation:	Very low -ve	Very low -ve	Very low -ve	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low -ve	Low -ve	Low -ve	None
Degree to which the impact can be avoided:	High	High	High	None
Degree to which the impact can be managed:	Medium	Medium	Medium	None
Degree to which the impact can be mitigated:	Medium	Medium	Medium	None
Proposed mitigation:	Formalization and stabilization of the sandy road using imported hard material or grass blocks	- Formalization and stabilization of the sandy road using imported hard material or grass blocks	- Formalization and stabilization of the sandy road using imported hard material or grass blocks	None
Residual impacts:	None	None	None	None
Cumulative impact post mitigation:	Very low -ve	Very low -ve	Very low -ve	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very low -ve	Very low -ve	Very low -ve	None
Potential impact and risk:	**Construction of a dwelling on the barrier dune at Portion 19 of Farm 257, Mossel Bay**	**Construction of a dwelling on the barrier dune at Portion 19 of Farm 257, Mossel Bay**	**Construction of a dwelling on the barrier dune at Portion 19 of Farm 257, Mossel Bay**	**Construction of a dwelling on the barrier dune at Portion 19 of Farm 257, Mossel Bay**

Nature of impact:	Loss of a limited amount of foredune (barrier dune) vegetation of low sensitivity	Loss of a limited amount of foredune (barrier dune) vegetation of low sensitivity	Loss of a limited amount of foredune (barrier dune) vegetation of low sensitivity	No clearance of vegetation, status quo retained
Extent and duration of impact:	Local, Long Term	Local, Long Term	Local, Long Term	Status quo
Consequence of impact or risk:	Loss of barrier dune vegetation	Loss of barrier dune vegetation	Loss of barrier dune vegetation	None
Probability of occurrence:	High	Medium	Low	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low to Very Low	Low to Very Low	Low to Very Low	None
Degree to which the impact can be reversed:	Not reversible	Not reversible	Not reversible	None
Indirect impacts:	None	None	None	None
Cumulative impact prior to mitigation:	Low -ve	Low -ve	Medium -ve	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low -ve	Low -ve	Medium -ve	None
Degree to which the impact can be avoided:	High	High	High	None
Degree to which the impact can be managed:	Medium	Medium	Medium	None
Degree to which the impact can be mitigated:	Medium	Medium	Medium	None
Proposed mitigation:	Planting of locally indigenous shrubs and herbaceous plants to soften the visual impact and limit movement of sand.	Planting of locally indigenous shrubs and herbaceous plants to soften the visual impact and limit movement of sand.	Removal of all woody alien plants	None

Residual impacts:	None	None	None	None
Cumulative impact post mitigation:	Low -ve	Low -ve	Low -ve	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very low -ve	Very low -ve	Low -ve	None
OPERATIONAL PHASE				
Potential impact and risk:	None	None	None	None
Nature of impact:	None	None	None	None
Extent and duration of impact:	None	None	None	None
Consequence of impact or risk:	None	None	None	None
Probability of occurrence:	None	None	None	None
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	None
Degree to which the impact can be reversed:	None	None	None	None
Indirect impacts:	None	None	None	None
Cumulative impact prior to mitigation:	None	None	None	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None	None	None	None
Degree to which the impact can be avoided:	None	None	None	None
Degree to which the impact can be managed:	None	None	None	None

Degree to which the impact can be mitigated:	None	None	None	None
Proposed mitigation:	None	None	None	None
Residual impacts:	None	None	None	None
Cumulative impact post mitigation:	None	None	None	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None	None	None	None
DECOMMISSIONING AND CLOSURE PHASE				
Since this application is for the development of a residential dwelling which is allowed for in terms of the existing land use rights of the property, it is unlikely that it will be decommissioned in the near future. As such there are no impacts associated with decommissioning currently identified, however, any legislative requirements valid at the time that decommissioning may occur, should be followed.				
Potential impact and risk:				
Nature of impact:				
Extent and duration of impact:				
Consequence of impact or risk:				
Probability of occurrence:				
Degree to which the impact may cause irreplaceable loss of resources:				
Degree to which the impact can be reversed:				
Indirect impacts:				
Cumulative impact prior to mitigation:				

Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)				
Degree to which the impact can be avoided:				
Degree to which the impact can be managed:				
Degree to which the impact can be mitigated:				
Proposed mitigation:				
Residual impacts:				
Cumulative impact post mitigation:				
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)				

State Impact e.g Odour, Noise, clearanc **Coastal Processes** State Impact e.g Odour, Noise, clearanc
PLANNING, DESIGN AND DEVELOPMENT PHASE
Comparative Impact Assessment as presented by the Coastal Engineer:

	Impact of development on the prevailing coastal processes	Impact of the coastal processes on the development	Impact of the development on the Fransmanshoek managed conservancy	Establishment cost (Including veg. management)	Maintenance cost (Including veg. management)
Residential development on an approximate 1225 m^2 footprint					
Option 1	**LOW**[1]	**LOW**[2]	**LOW**[1]	**LOW**[3]	**N/A**[5]
Option 2	**LOW**[1]	**LOW**[2]	**LOW**[1]	**MEDIUM**[4]	**N/A**[5]
Option 3	**LOW**[1]	**LOW**[2]	**LOW**[1]	**MEDIUM**[4]	**N/A**[5]
Management to establish coastal dune vegetation as a buffer area					
Option 1 (1.0 ha)	**POSITIVE**[6]	**LOW**[2]	**POSITIVE**[6]	**LOW**[8]	**LOW**[8]
Option 2 (1.3 ha)	**POSITIVE**[6]	**MEDIUM**[7]	**POSITIVE**[6]	**MEDIUM**[7]	**MEDIUM**[7]
Option 3 (1.1 ha)	**POSITIVE**[6]	**MEDIUM**[7]	**POSITIVE**[6]	**MEDIUM**[7]	**MEDIUM**[7]
Access roads					
Option 1	**LOW**[2]	**LOW**[2]	**POSITIVE**[9]	**MEDIUM**[10]	**LOW**[9]
Option 2	**LOW**[2]	**LOW**[2]	**POSITIVE**[9]	**MEDIUM**[10]	**LOW**[9]
Option 3	**LOW**[2]	**LOW**[2]	**POSITIVE**[9]	**MEDIUM**[10]	**LOW**[9]

Mitigation Measures: 1. The building footprint area consists of existing well-established dune vegetation which contributes to the vegetated ecosystem within the coastal dune system. An approximate area of 1 225 m^2 of dune habitat will be removed for the footprint. 2. The development area is located outside the main components of the prevailing natural sediment budget and pathway. Little direct impact is foreseen. 3. The proposed developable area is reasonably flat and relatively little earthworks will be needed to prepare the building platform. 4. The proposed developable area for Options 2 and 3 will need more earthworks (than for Option 1) to build up the building platform to a suitable level. Cut-and-fill action will be required with little if any extra material necessary. 5. Maintenance costs of the buildings and services will depend on the design and material used and common to all options. 6. The buffer area consists of existing well-established dune vegetation which contributes to the existing vegetated ecosystem within the coastal dune system. This area will be enhanced through ongoing and focussed management through a maintenance management plan, thereby adding a large area of coastal fynbos habitat to the conservancy. 7. Both options 2 and 3 are located within or downwind of an existing sparsely vegetated dune blow-out area. This will require active management of the wind-blown sand to establish an effective buffer dune over the medium term. This vegetated dune will prevent wind-blown sand from impacting on the development by preventing further blow-out of the local sand and trapping that small portion that blows northwards (see Figure 5 and Table 2.1 in the Coastal Engineers Report). 8. The proposed buffer area already consists of a vegetated dune area and the required managed vegetated area needs little intervention barring removal of alien plants and planting of indigenous coastal fynbos. 9. 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. 10. The current roads are located within a relic dune field hence the sandy road surface and steep slopes over the dune ridges will require specialist design and road construction specialists. 11. Active management of alien vegetation along the route and immediately adjacent to the development along with the re-establishment of indigenous coastal fynbos will stabilise the sandy environment and pro-actively reduce the risk to the development from run-away fires.				
OPERATIONAL PHASE				
Potential impact and risk:	None	None	None	None

Nature of impact:	None	None	None	None
Extent and duration of impact:	None	None	None	None
Consequence of impact or risk:	None	None	None	None
Probability of occurrence:	None	None	None	None
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	None
Degree to which the impact can be reversed:	None	None	None	None
Indirect impacts:	None	None	None	None
Cumulative impact prior to mitigation:	None	None	None	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None	None	None	None
Degree to which the impact can be avoided:	None	None	None	None
Degree to which the impact can be managed:	None	None	None	None
Degree to which the impact can be mitigated:	None	None	None	None
Proposed mitigation:	None	None	None	None
Residual impacts:	None	None	None	None
Cumulative impact post mitigation:	None	None	None	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None	None	None	None
DECOMMISSIONING AND CLOSURE PHASE				

Since this application is for the development of a residential dwelling which is allowed for in terms of the existing land use rights of the property, it is unlikely that it will be decommissioned in the near future. As such there are no impacts associated with decommissioning currently identified, however, any legislative requirements valid at the time that decommissioning may occur, should be followed.				
Potential impact and risk:				
Nature of impact:				
Extent and duration of impact:				
Consequence of impact or risk:				
Probability of occurrence:				
Degree to which the impact may cause irreplaceable loss of resources:				
Degree to which the impact can be reversed:				
Indirect impacts:				
Cumulative impact prior to mitigation:				
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)				
Degree to which the impact can be avoided:				
Degree to which the impact can be managed:				
Degree to which the impact can be mitigated:				
Proposed mitigation:				
Residual impacts:				

Cumulative impact post mitigation:				
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)				

State Impact e.g Odour, Noise, clearanc **Noise** State Impact e.g Odour, Noise, clearanc				
Alternative:	**Alternative 1**	**Alternative 2**	**Alternative 3**	**No Go Option**
PLANNING, DESIGN AND DEVELOPMENT PHASE				
Potential impact and risk:	Nuisance to other landowners	Nuisance to other landowners	Nuisance to other landowners	None
Nature of impact:	Construction noise	Construction noise	Construction noise	None
Extent and duration of impact:	Site specific, short term	Site specific, short term	Site specific, short term	None
Consequence of impact or risk:	Nuisance to neighbours	Nuisance to neighbours	Nuisance to neighbours	None
Probability of occurrence:	Unlikely due to location	Unlikely due to location	Unlikely due to location	None
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	None
Degree to which the impact can be reversed:	Medium	Medium	Medium	None
Indirect impacts:	None	None	None	None
Cumulative impact prior to mitigation:	Low -ve	Low -ve	Low -ve	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low -ve	Low -ve	Low -ve	None

Degree to which the impact can be avoided:	Medium	Medium	Medium	None
Degree to which the impact can be managed:	Medium	Medium	Medium	None
Degree to which the impact can be mitigated:	Medium	Medium	Medium	None
Proposed mitigation:	Construction work must take place during normal work hours	Construction work must take place during normal work hours	Construction work must take place during normal work hours	None
Residual impacts:	None	None	None	None
Cumulative impact post mitigation:	Low -ve	Low -ve	Low -ve	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very Low -ve	Very Low -ve	Very Low -ve	None
OPERATIONAL PHASE				
Potential impact and risk:	None	None	None	None
Nature of impact:	None	None	None	None
Extent and duration of impact:	None	None	None	None
Consequence of impact or risk:	None	None	None	None
Probability of occurrence:	None	None	None	None
Degree to which the impact may cause irreplaceable loss of resources:	None	None	None	None
Degree to which the impact can be reversed:	None	None	None	None
Indirect impacts:	None	None	None	None

Cumulative impact prior to mitigation:	None	None	None	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None	None	None	None
Degree to which the impact can be avoided:	None	None	None	None
Degree to which the impact can be managed:	None	None	None	None
Degree to which the impact can be mitigated:	None	None	None	None
Proposed mitigation:	None	None	None	None
Residual impacts:	None	None	None	None
Cumulative impact post mitigation:	None	None	None	None
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	None	None	None	None
DECOMMISSIONING AND CLOSURE PHASE				
Since this application is for the development of a residential dwelling which is allowed for in terms of the existing land use rights of the property, it is unlikely that it will be decommissioned in the near future. As such there are no impacts associated with decommissioning currently identified, however, any legislative requirements valid at the time that decommissioning may occur, should be followed.				
Potential impact and risk:				
Nature of impact:				
Extent and duration of impact:				
Consequence of impact or risk:				
Probability of occurrence:				

Degree to which the impact may cause irreplaceable loss of resources:				
Degree to which the impact can be reversed:				
Indirect impacts:				
Cumulative impact prior to mitigation:				
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)				
Degree to which the impact can be avoided:				
Degree to which the impact can be managed:				
Degree to which the impact can be mitigated:				
Proposed mitigation:				
Residual impacts:				
Cumulative impact post mitigation:				
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)				

SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.

The findings of the specialists have led to the site location of the preferred Alternative 1 Option 1.

Botanical & Terrestrial Biodiversity:

The vegetation on the property consists of two distinct types that grade into one another. The vegetation found on the foredunes is Cape Seashore Vegetation as classified by Mucina et al. (2006 in Mucina & Rutherford, 2006). This vegetation occurs above the high-water mark inland to the high primary dunes. The second type is Hartenbos Dune Thicket, a newly described type (Grobler et al. 2018) and mapped by SANBI (2018) that replaces the former classification of the vegetation as Groot Brak Dune Strandveld (Rebelo et al. 2006 in Rutherford & Mucina, 2006).

In the study area **Hartenbos Dune Thicket** is found on the 'inland' 50 percent of the property. It occurs on the undulating dunes and is described by Grobler et al. (2018) as follows: "A mosaic of low (1—3m) thicket, occurring in small bush clumps dominated by small trees and woody shrubs, in a mosaic of low (1—2m) asteraceous fynbos. Thicket clumps are best developed in fire-protected dune slacks, and the fynbos shrubland occurs on the upper dune slopes and crests." These authors also refer to the occurrence of succulent karroid elements, but these were not found in the study area.

The dune thicket would not be influenced in any way by the proposed dwelling footprint. However, the access road runs through the Hartenbos Dune Thicket. A limited amount of further clearing of dune thicket would be required to formalize the access road but in general this vegetation would not be significantly negatively impacted.

Cape Seashore Vegetation varies along the Cape West Coast and Cape Southern Coast depending on the degree of disturbance of the beaches and whether there is rock outcropping at the surface or not. Where it occurs, the vegetation is herbaceous or consists of dwarf-shrub vegetation, sometimes with succulent species (Mucina et al. 2006).

At the study site, Cape Seashore Vegetation is poorly developed since the dunes above the high-water mark are mobile due to strong winds either from the northwest, southwest or southeast.

The species diversity of the vegetation on the foredunes and within the dune field, with only a few prominent species accounting for more than 90 percent of the plants present.

Conservation Status:

Fransmanshoek is a conservancy and limited use is permitted. The entire area is a Critical Biodiversity Area 1 (CBA1) according to the Western Cape Biodiversity Spatial Plan [WCBSP] (CapeNature, 2017; Pence, 2017; Pool-Stanvliet, 2017). The classification, as shown is supported since this is generally an ecologically sensitive area; Portion 19 of Farm 257 is more-or-less centrally located in the declared CBA1. The two habitat types present are not listed as threatened ecosystems (Government Gazette, 2011).

The only concern is that the level of infestation by alien invasive trees is very high, particularly in the Hartenbos Dune Thicket and this needs concerted effort by the Fransmanshoek Conservancy to systematically remove the alien plants and return the area to its natural state.

No plant species of conservation concern (threatened Red List species) were recorded during the survey.

The National Web-based Screening Tool (Government Gazette, 2020; Enviro Insight, 2020) was applied to determine the sensitivity of the site, bearing in mind that it has drawn on the regional biodiversity spatial plan (WCBSP, 2017 – CapeNature 2017) as described above, for its data. Focus was placed on (1) the Plant Species Sensitivity Theme and (2) the Terrestrial Biodiversity Sensitivity Theme. The output for the Plant Species Theme Sensitivity (map) is given in Figure 45 below, together with the list of plant species generated for the specified land parcel. The Plant Species Theme Sensitivity according to the screening tool is **Medium**.

The output for the Terrestrial Biodiversity Theme Sensitivity (map) is given in Figure 46 below. The terrestrial biodiversity sensitivity is, according to the screening tool, **Very High,** based on the presence of Critical Biodiversity Areas and a Freshwater Ecosystem Priority Area.

In essence, the screening tool provides no more useful information than that obtained from the WCBSP 2017, except that it gives a list of sensitive species for the Plant Species Theme Sensitivity. However, none of the listed species occur in the area where the proposed development would occur so in that sense it may be concluded that the site itself is not sensitive with respect to plant species. That conclusion was previously reached without the application of the screening tool!

Discussion of Results:

The proposed sites for the construction of a dwelling are located on the 'barrier dune'. The waypoints for Options 1 & 2 are located on the dune crest whereas Option 3 is located in a depression landward of the active littoral zone, where the dune 'breaks away' on a steep slope to the east to a point that is vegetated with alien *Acacia saligna* and *Searsia crenata* (Hartenbos Dune Thicket).

Development Option 1 (preferred) and Option 2 sites are in close proximity to one another and consequently have the same vegetation. The vegetation consists of tussocks of Marram grass interspersed with scattered mid-high shrubs of *Seriphium plumosum*, erect mid-high to tall shrubs of *Passerina rigida* and open areas where stands of *Lessertia canescens* are found.

There is no difference between the sensitivity of the Option 1 and Option 2 sites and the impact of construction on these sites would be similar i.e. low negative from a botanical perspective. In contrast, Option 3 is located in a depression and the barrier dune vegetation grades into Hartenbos Dune Thicket. This site is the least suitable of the three options and is not recommended.

Impact of dwelling:

The proposed dwelling (whichever option is chosen) and surrounding 'garden' would have a **Low Negative** impact at any one of the three alternative sites considered. The sites are all in the same barrier dune zone and the position is determined not by the vegetation but by the desire of the landowner / property developer to have a sea view. The vegetation at all the sites is as described above; a grass-shrub mix with low plant diversity and low botanical sensitivity. The grass species is exotic Marram grass and the shrubs are common. On balance, the preferred site (Option 1) and the Option 2 site would be acceptable but the Option 3 site is not recommended due to its topography and its position in the ecotone between the barrier dune (foredune) and the Hartenbos Dune Thicket on the dunes located further inland

Conclusions and Recommendations:

The proposed dwelling would be constructed at a site on Portion 19 of Farm 257, Mossel Bay, where the vegetation is made partly of alien Marram grass and partly of scattered indigenous species, notably *Seriphium plumosum*, *Passerina rigida* and *Lessertia canescens*. The entire area of the Fransmanshoek Peninsula is declared a CBA1 zone, but the proposed dwelling would have a **low to very low impact** on the existing habitat and would be in keeping with the conservation objectives of the Fransmanshoek Conservancy.

It is recommended that the dwelling should be built at the preferred site (Option 1) or Option 2 whereas the Option 3 site would not be desirable. The anticipated impact after mitigation would be **Very Low Negative** for both Options 1 and 2.

Coastal Engineering:

The property and the proposed dwelling site options are located within 1000m of the high water mark of the sea, thus they are considered to fall within the Coastal Protection Zone as defined by the NEM:ICMA. In addition two of the proposed dwelling site alternatives are located within the 2018 DEA&DP modelled littoral active zone.

The qualitative impact assessment in the coastal engineering study has determined that the littoral active zone buffer is located on the 65m MSL contour which is lower than that modelled by DEA&DP.

Excerpt from the report states:

Key findings are that the Visbaai coastline is in a dynamic state of equilibrium as deduced for the 77 years assessment period. In contrast, the exposed sand area within the Fransmanshoek Dune Field is shrinking as areas become stabilised by vegetation. The analysis shows that revegetation at an estimated average rate of 0.5 ha per year has occurred over the period 1969 to 2019. Large areas of the remainder of the dune field are well covered by pioneer grasses and coastal fynbos. The dune field is functioning as a relic sand sink and that little 'new' sand is feeding into the dune field from the beach.

The analysis results lead to a **recommended development coastal processes buffer line located along the +65 m MSL contour line**. This line also translates to the recommended position of the landward edge of the coastal processes active zone for the property and allows for uninhibited mobile dune sand movement along the SW to NE wind-blown sand pathway for as long as there are exposed sandy areas within the dune field. Storm erosion and climate change related guidelines depicted as Coastal Management Lines fall within this buffer area.

The topographic information shows that there is a natural plateau located north of the +70 m MSL contour on the property. The western side of this area (Plateau 1) is stabilised by dune vegetation with no windblown sand moving into or off this area. The eastern- and northern side of this area (Plateau 2) consists of an exposed sand blow-out.

The coastline stability analysis shows that the coastline at the sites is 'dynamically stable' with no long-term erosion or accretion (build-up) trends detectable. In contrast, the exposed sand area within the Fransmanshoek Dune Field shrunk as areas became stabilised by vegetation. Large areas of the remainder of the dune field are already well covered by pioneer grasses and coastal fynbos.

The comparative impact assessment shows that building on the natural plateau area, Plateau 1 depicted as Option 1, will have the lowest environmental impact with an added positive benefit of adding coastal fynbos through active coastal vegetation management on 1 ha around the building footprint to ensure an appropriate vegetated buffer interface with the surrounding dune field.

Option 1 is recommended.

The mitigation action is to actively implement the relevant management actions as contained in the existing Fransmanshoek Conservancy plan. This includes controlled removal of invasive vegetation and replacing it with appropriate coastal fynbos. This can only be achieved through active management according to a specialist designed maintenance management plan.

Aquatic Compliance Statement:

The site falls within Primary Catchment K (Kromme) area and in quaternary catchment K10A. No freshwater features are indicated to occur within the footprint of the property or within close proximity to the property.

Based on the results of the desktop review and the site survey, the sensitivity of aquatic biodiversity on Portion 19 of Farm 257 can be regarded as **Low**. The main factors influencing the statement include the following:

- While the SQC in which the site falls is a FEPA, the site falls well outside the catchment area of the river reach for which the FEPA status was determined; and
- No freshwater features were identified within the footprint area of the site or within close proximity (i.e. within 2 km) of the site.

Terrestrial Fauna:

The Department of Forestry, Fisheries and the Environment (DFFE) screening tool (performed on 16 November 2021) identified the site as having a **Medium** Animal Species Theme sensitivity.

For this proposed development, these species identified in the screening tool are the following:

- *Aneuryphymus montanus* – Yellow-winged Agile Grasshopper (grasshopper)
- *Lepidochrysops littoralis* – Coastal Blue (butterfly)
- *Circus ranivorus* – African Marsh Harrier (bird)
- *Circus maurus* – Black Harrier (bird)
- *Neotis denhami* – Denham's Bustard (bird)
- Sensitive Species 7 (which cannot be disclosed)

Based on the results of the desktop study and site survey, the sensitivity of the study site (Portion 19 of Farm 257) in terms of terrestrial animals can be regarded as LOW. This assessment is based on the following:

- The absence of georeferenced records for the highlighted species in the study site or surrounding areas;
- The lack of observations of these species during the site survey; and
- The habitats present not being suitable for the highlighted species to occur.

Heritage Background Information Document:

The subject property is situated within a smallholding complex straddling the Fransmanshoek peninsula situated ±34 km southwest of the Mossel Bay town centre, ±6,6 km northeast of the Gouritz River mouth/ village and ±1,9 km southeast from the coastal village of Vlees Bay. The study area forms part of a partly transformed coastal landscape underlain by sandy soils and interspersed predominantly by holiday homes set within indigenous coastal vegetation.

Vehicular access to the property is from the main gravel road extending across the peninsula between Vlees Bay and Vleespunt and via a series of narrow, sandy jeep tracks traversing an adjoining property. Several similar tracks were noted. All smallholdings within the complex are zoned "Agricultural Zone I", a primary right of which includes the construction of a primary dwelling (no restriction in terms of siting or size of built footprint)1. None of the smallholdings within the direct proximity are used for agricultural purposes.

During field work undertaken on 13th July 2020 the property was found to be vacant and criss-crossed by a series of narrow jeep tracks, some of which appears to have been made recently (refer to Section 5). The northern portion of the property is densely overgrown by predominantly indigenous coastal

shrubs whilst the southern portion consists of partly exposed dunes overgrown by coastal grass species. Survey pegs indicating the position of possible building footprints for the primary dwelling were noted.

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 by adhered to. While many smallholdings within the complex remain vacant, several have been developed – presumably mostly for holiday accommodation.

During field work it was found that the three alternative building footprints are located on dunes and therefore underlain by sandy soils – no archaeological occurrences were noted. Possible impacts of recently-completed and proposed tracks as well as engineering infrastructure (such as the proposed artificial wetland) on potential archaeological resources are however unknown.

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*".

While of high local socio-historic cultural significance the historic themes outlined in Section 4 of the 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.

Heritage Impact Assessment:

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 subsurface 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.

HYDROGEOLOGY

UNSATURATED ZONE

The unsaturated zone refers to the portion of the geological/soil profile that is located above the static groundwater elevation or water table. Based on the drilling results of borehole, the unsaturated zone is predominantly composed of unconsolidated sand at surface followed by consolidated sand and calcrete.

The unsaturated zone affects both the quality and quantity of the underlying groundwater. The type of material forming the unsaturated zone as well as the permeability and texture thereof will significantly influence aquifer recharge as well as the mass transport of surface contamination to the underlying aquifer(s). Factors like ion exchange, retardation, biodegradation and dispersion all play a role in the unsaturated zone.

The thickness of the unsaturated zone is determined by subtracting the static water level elevation in the project area from the surface elevation, or simply by measuring the depth of the groundwater level below surface. The thickness of the unsaturated zone at Misgunst is estimated to range between 30 and 50 meters.

SATURATED ZONE

The saturated zone, as the name suggests, is the portion of the geological/soil profile that is located below the static groundwater elevation or water table. The depth to the saturated zone is therefore equal to the thickness of the unsaturated zone, which can range between 30 and 50 meters below surface in the Misgunst area.

The saturated zone is important as it forms the groundwater zone or system on which groundwater users rely for their water supply.

TRANSMISSIVITY AND STORATIVITY OF THE AQUIFER

A constant rate pumping test was performed on the Misgunst borehole to calculate representative aquifer parameters (transmissivity or hydraulic conductivity and apply them to estimate sustainable yield of the borehole.

SUSTAINABLE YIELD ESTIMATION

An aquifer test was performed on the borehole by Groundwater Complete in March 2020. The pumping test was conducted for a 12-hour period, which was considered sufficient given:

- The blow yield of the borehole during drilling of more than 3 600 liters per hour; and

- the limited yield of only about 1 250 liters per hour for 10 hours per day required from the borehole.

GROUNDWATER QUALITY

Groundwater quality from Misgunst-FMHK1 was analysed by SANAS-accredited Aquatico Laboratories on February 4, 2020.

The groundwater has high overall salinity as is expected from a borehole in the dunes near the coast. The dominating ions are sodium and chloride, which far exceed guidelines for potable water, but nitrate also exceeds concentrations for potable water as stated in the SANS 241/2015 water quality guidelines. The groundwater quality from FMHK01 plots in field 8 of the expanded Durov diagram and the Stiff diagram also confirms the strong domination by sodium and chloride in the water.

The water will thus be applied as is for domestic use (i.e. washing, bathing, showering) because there are no parameters (e.g. Fe, Mn) that indicate a negative effect on aesthetic aspects if applied for domestic use but not for potable purposes.

The origin of the high salinity groundwater is considered to be mainly a result of the leaching to the groundwater of salt spray from the ocean deposited onto the dunes. In situ salinity from the Nardouw Formation probably also contribute but considering the significant recharge to the dune system the salt spray component is expected to have the highest contribution to groundwater salinity.

GROUNDWATER VULNERABILITY

The Groundwater Vulnerability Classification System used in this investigation was developed as a first order assessment tool to aid in the determination of an aquifer's vulnerability/susceptibility to groundwater contamination. This system incorporates the wellknown and widely used Parsons Aquifer Classification System as well as drinking water quality guidelines as stated by the Department of Water Affairs and Forestry. This system is especially useful in situations where limited groundwater related information is available. The project area achieved a score of 4 and the underlying aquifer can therefore be regarded as having a LOW vulnerability.

AQUIFER CLASSIFICATION

For the purpose of this study an aquifer is defined as a geological formation or group of formations that can yield groundwater in economically useable quantities. Aquifer classification according to the Parsons Classification system.

According to the Parsons Classification system, the Misgunst aquifer is regarded as a minor- and in some cases a non-aquifer system.

AQUIFER PROTECTION CLASSIFICATION

The combination of Aquifer Vulnerability Classification rating and Aquifer System management Classification provides a protection level referred to as Groundwater Quality Management Classification (GQM).

The GQM for the Misgunst aquifer calculates to 2, which indicates a low level of protection.

BGCMA has confirmed that no Water Use License Application is required for the borehole (see Appendix E3).

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr

Botanical & Terrestrial Biodiversity:

- Formalization and stabilization of the sandy road using imported hard material or grass blocks;
- Planting of locally indigenous shrubs and herbaceous plants to soften the visual impact and limit movement of sand.

- Alien invasive management.

Coastal Engineering:

- The preparation of the building platform on the approved site should be done with a minimal impact on the surrounding dune vegetation. To achieve this the 'no go' areas should be carefully demarcated by a relevant expert and effective temporary fencing erected and the area effectively protected from people and other activities associated with the construction process.
- The indigenous dune vegetation located within the building footprint needs to be harvested and transplanted to identified areas within the managed vegetated area. This should be carried out under expert supervision.
- No formal pathways, road tracks or vegetation activities should be allowed seawards of the + 65 m contour within the private property.
- A sound vegetation maintenance management plan, as specified in the separate specialist report by the botanist, should be implemented to complement the Conservancy management plan.

Heritage:

- 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.

3.	List the specialist investigations and the impact management measures that will **not** be implemented and provide an explanation as to why these measures will not be implemented.

Not applicable.

4.	Explain how the proposed development will impact the surrounding communities.

The proposed development will have a **Negligible to Low impact** on surrounding communities.

5.	Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.

Coastal processes:

An assessment of the implication of climate change on the coastline and dune field with reference to the WC: DEA&DP Coastal Management Lines was undertaken.

The seaward boundary of the property lies at an elevation of + 40 m relative to Mean Sea Level (MSL), the midpoint of the property lies at an elevation of + 72m MSL, which forms a natural plateau. The northern boundary is at a level of +78 m MSL. This means that the property is located well away from the beach and thus beyond the reach of storm erosion and the influence of any sea level rise due to climate change.

The analysis results lead to a recommended development coastal processes buffer line located along the +65 m MSL contour line. This line also translates to the recommended position of the landward edge of the coastal processes active zone for the property and allows for uninhibited mobile dune sand movement along the SW to NE wind-blown sand pathway for as long as there are exposed sandy areas within the dune field. Storm erosion and climate change related guidelines depicted as Coastal Management Lines fall within this buffer area.

Municipal services:

The development of off-grid services (water, electricity & sewage) limits the dependence on municipal service infrastructure and allows the applicant to be more sustainable. Climate change impacts on municipal services will increase, as will demand and as such the option to remain off-grid will make the applicant more resilient, and more conservative in resource usage.

6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.

No, the specialists in their various disciplines, have not provided any conflicting recommendations.

7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.

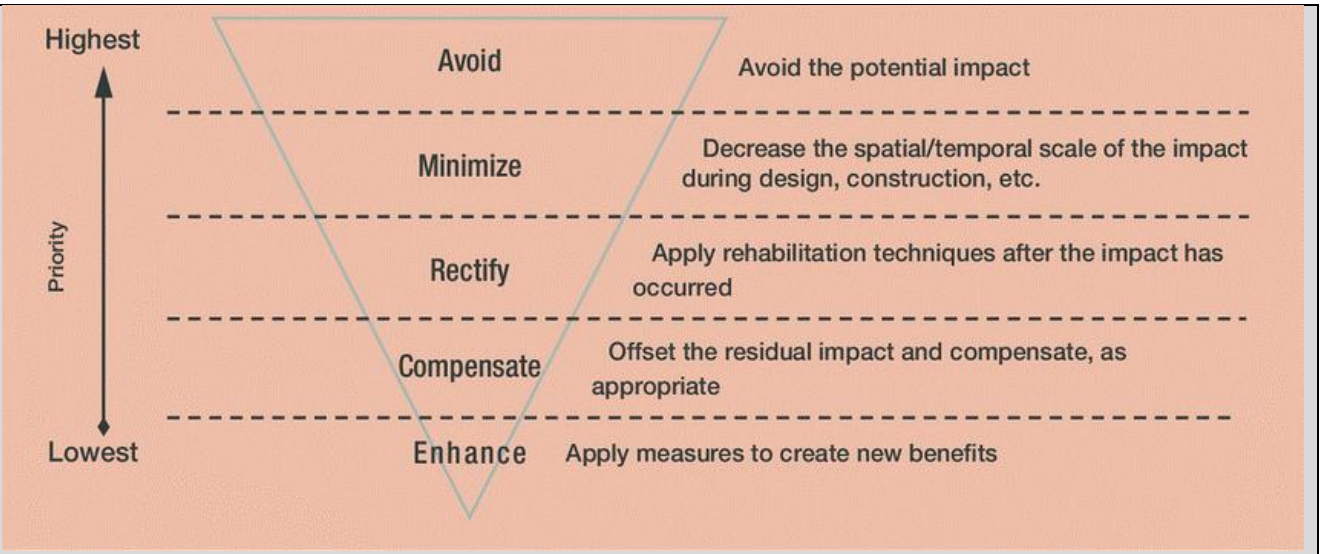
The mitigation measures and recommendations of the various specialists compliment each other in the management of the potential impacts. The clearance of vegetation in a controlled manner with the appropriate rehabilitation and ongoing management of alien invasive vegetation are key components of the predominant mitigations proposed. The aims is to limit the exposure of open sand and prevent degradation associated with wind erosion to cause long lasting damage to vegetation and interruption of coastal processes.

All of the recommendations and mitigations will be implemented.

8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.

The preferred Option 1 site was chosen as a result of initial environmental screening and subsequent assessments by the relevant specialists. The resultant location avoids the most sensitive areas as determined by the specialists, and any other potential impacts are mitigated in order to ensure that the development remains sustainable.

The area around the proposed dwelling will further be rehabilitated as recommended in order to rectify construction impacts.



The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

SECTION J: GENERAL

1. ENVIRONMENTAL IMPACT STATEMENT

1.1.	Provide a summary of the key findings of the EIA.

Botanical & Terrestrial Biodiversity:

The proposed sites for the construction of a dwelling are located on the 'barrier dune'. The waypoints for Options 1 & 2 are located on the dune crest whereas Option 3 is located in a depression landward of the active littoral zone, where the dune 'breaks away' on a steep slope to the east to a point that is vegetated with alien *Acacia saligna* and *Searsia crenata* (Hartenbos Dune Thicket).

Development Option 1 (preferred) and Option 2 sites are in close proximity to one another and consequently have the same vegetation. The vegetation consists of tussocks of Marram grass interspersed with scattered mid-high shrubs of *Seriphium plumosum*, erect mid-high to tall shrubs of *Passerina rigida* and open areas where stands of *Lessertia canescens* are found.

There is no difference between the sensitivity of the Option 1 and Option 2 sites and the impact of construction on these sites would be similar i.e. low negative from a botanical perspective. In contrast, Option 3 is located in a depression and the barrier dune vegetation grades into Hartenbos Dune Thicket. This site is the least suitable of the three options and is not recommended.

The proposed dwelling would be constructed at a site on Portion 19 of Farm 257, Mossel Bay, where the vegetation is made partly of alien Marram grass and partly of scattered indigenous species, notably *Seriphium plumosum*, *Passerina rigida* and *Lessertia canescens*. The entire area of the Fransmanshoek Peninsula is declared a CBA1 zone, but the proposed dwelling would have a **low to**

very low impact on the existing habitat and would be in keeping with the conservation objectives of the Fransmanshoek Conservancy.

It is recommended that the dwelling should be built at the preferred site (Option 1) or Option 2 whereas the Option 3 site would not be desirable. The anticipated impact after mitigation would be **Very Low Negative** for both Options 1 and 2.

Coastal Engineering:

Key findings are that the Visbaai coastline is in a dynamic state of equilibrium as deduced for the 77 years assessment period. In contrast, the exposed sand area within the Fransmanshoek Dune Field is shrinking as areas become stabilised by vegetation. The analysis shows that revegetation at an estimated average rate of 0.5 ha per year has occurred over the period 1969 to 2019. Large areas of the remainder of the dune field are well covered by pioneer grasses and coastal fynbos. The dune field is functioning as a relic sand sink and that little 'new' sand is feeding into the dune field from the beach.

The analysis results lead to a **recommended development coastal processes buffer line located along the +65 m MSL contour line**. This line also translates to the recommended position of the landward edge of the coastal processes active zone for the property and allows for uninhibited mobile dune sand movement along the SW to NE wind-blown sand pathway for as long as there are exposed sandy areas within the dune field. Storm erosion and climate change related guidelines depicted as Coastal Management Lines fall within this buffer area.

The topographic information shows that there is a natural plateau located north of the +70 m MSL contour on the property. The western side of this area (Plateau 1) is stabilised by dune vegetation with no windblown sand moving into or off this area. The eastern- and northern side of this area (Plateau 2) consists of an exposed sand blow-out.

The coastline stability analysis shows that the coastline at the sites is 'dynamically stable' with no long-term erosion or accretion (build-up) trends detectable. In contrast, the exposed sand area within the Fransmanshoek Dune Field shrunk as areas became stabilised by vegetation. Large areas of the remainder of the dune field are already well covered by pioneer grasses and coastal fynbos.

The comparative impact assessment shows that building on the natural plateau area, Plateau 1 depicted as Option 1, will have the lowest environmental impact with an added positive benefit of adding coastal fynbos through active coastal vegetation management on 1 ha around the building footprint to ensure an appropriate vegetated buffer interface with the surrounding dune field.

Option 1 is recommended.

Aquatic Compliance Statement:

Based on the results of the desktop review and the site survey, the sensitivity of aquatic biodiversity on Portion 19 of Farm 257 can be regarded as **Low**. The main factors influencing the statement include the following:

- While the SQC in which the site falls is a FEPA, the site falls well outside the catchment area of the river reach for which the FEPA status was determined; and
- No freshwater features were identified within the footprint area of the site or within close proximity (i.e. within 2 km) of the site.

Terrestrial Fauna:

The Department of Forestry, Fisheries and the Environment (DFFE) screening tool (performed on 16 November 2021) identified the site as having a **Medium** Animal Species Theme sensitivity.

For this proposed development, these species identified in the screening tool are the following:

- *Aneuryphymus montanus* – Yellow-winged Agile Grasshopper (grasshopper)
- *Lepidochrysops littoralis* – Coastal Blue (butterfly)
- *Circus ranivorus* – African Marsh Harrier (bird)
- *Circus maurus* – Black Harrier (bird)
- *Neotis denhami* – Denham's Bustard (bird)
- Sensitive Species 7 (which cannot be disclosed)

Based on the results of the desktop study and site survey, the sensitivity of the study site (Portion 19 of Farm 257) in terms of terrestrial animals can be regarded as LOW. This assessment is based on the following:

- The absence of georeferenced records for the highlighted species in the study site or surrounding areas;
- The lack of observations of these species during the site survey; and
- The habitats present not being suitable for the highlighted species to occur.

Heritage Background Information Document:

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*".

While of high local socio-historic cultural significance the historic themes outlined in Section 4 of the 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.

Heritage Impact Assessment:

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 subsurface sediments cannot be ruled out entirely, it is not anticipated that significant archaeological resources are present in the affected area.

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

Hydrogeology:

The geohydrological environment at Misgunst can be summarised as follows:

- Misgunst is underlain by Cape Supergroup sedimentary and quaternary geological formations.

- No geophysics was used in the placement of the borehole.

- A blow yield of 3600 litres per hour was reported after drilling was completed down to 70 mbs.

- The effective recharge is estimated to be in excess of 30% of the MAP.

- The static groundwater level depth for the borehole is about 42 mbs.

- A 24-hour pump and recovery test were conducted on the borehole.

- A sustainable yield was calculated from the pumping test to be 1460 litres per hour, or 35 m3 per day.

- The borehole will be operated at 1 250 litres per hour for 8 hours a day (10 m3/day). The household only plans to use a maximum of 10m3 per day.

- The groundwater is dominated by calcium and sodium anions and chloride and nitrate cations and the salinity is too high for potable use. The high salinity of the groundwater is attributed to leachate of sea spray on the dunes to the water table.

- The project area achieved a vulnerability score of 4 and the underlying aquifer can therefore be regarded as having a LOW vulnerability.

- The GQM for the Misgunst aquifer calculates to 2, which indicates a low level of protection.

- The impact of the borehole extraction on the groundwater environment is expected to be insignificant due to the high effective recharge, the distance from neighbouring user and low extraction rate from the borehole.

The overall impact significance of developing Alternative 1 (Option1) has been assessed by the various specialists as having a Low to Very Low negative or negligible impact on the receiving environment, including the Littoral Active Zone.

The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The **best practicable environmental option (BPEO)** thus being on the 'verge' of each of the two ecosystems.

1.2.	Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)

Please see attached.

1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.

The following impacts have been identified:

Positive:

- Supporting the Fransmanshoek Conservancy as an active member.
- Supporting the local economy during construction phase, albeit on a small scale.
- Active alien invasive vegetation clearing.
- Impact of development on the prevailing coastal processes.
- Impact of the development on the Fransmanshoek managed conservancy.

Negative:

- Loss of Hartenbos Dune Thicket.
- Loss of a limited amount of foredune (barrier dune) vegetation of low sensitivity.
- Temporary noise impacts during construction.
- Impact of development on the prevailing coastal processes.
- Impact of the coastal processes on the development.
- Impact of the development on the Fransmanshoek managed conservancy.
- Establishment cost (Including veg. management).
- Maintenance cost (Including veg. management).

Botanical & Terrestrial Biodiversity:

The access roads are currently sandy two-spoor tracks that wind through the 'inland' dunes from the Fransmanshoek Main Road (OP4980) to the property. The two-spoor roads would have to be formalized in some way and that would have an impact on the sandy soil but only limited impact on the Hartenbos Dune Thicket. Minimal further removal of thicket vegetation is envisaged, so the resulting impact would be **Low Negative** without mitigation. If the recommended mitigation of removal of woody alien trees and the removal of stacked, dead and dry branches of cleared alien trees is implemented, the impact of the roads would be **Very Low Negative** . The proposed new road section to the main dwelling would traverse deep sand with minimal vegetation. The impact would be **Very Low Ne**gative.

Table 1: Impact and Significance of the access roads on Hartenbos Dune Thicket at Fransmanshoek Conservancy to gain access to Portion 19 of Farm 257, Mossel Bay.

CRITERIA	'NO GO' ALTERNATIVE	Upgrade of the existing two-spoor sandy tracks to the dwelling and cottage and construction of short new section of road to the dwelling	
Nature of direct impact (local scale)	**Loss of Hartenbos Dune Thicket**		
		WITHOUT MITIGATION	WITH MITIGATION
Extent	Local	Local	Local
Duration	Long-term	Long-term	Long-term
Intensity	Low	Low	Very Low
Probability of occurrence	High	High	High
Confidence	High	High	High
Significance	Low Negative	Low Negative	Very Low Negative
Nature of Cumulative impact	**Loss of Hartenbos Dune Thicket**		
Cumulative impact prior to mitigation	N/A	Low negative	Very Low Negative
Degree to which impact can be reversed	Impact would not be reversed since this is the only access to the site		
Degree to which impact may cause irreplaceable loss of resources	Low to Very low		
Degree to which impact can be mitigated	Medium		
Proposed mitigation	Formalization and stabilization of the sandy road using imported hard material or grass blocks		
Cumulative impact post mitigation	Low Negative		
Significance of cumulative impact (broad scale) after mitigation	Low Negative		

The proposed dwelling (whichever option is chosen) and surrounding 'garden' would have a **Low Negative** impact at any one of the three alternative sites considered. The sites are all in the same barrier dune zone and the position is determined not by the vegetation but by the desire of the landowner / property developer to have a sea view. The vegetation at all the sites is as described above; a grass-shrub mix with low plant diversity and low botanical and terrestrial biodiversity sensitivity. The grass species is exotic Marram grass, and the shrubs are common. On balance, the

preferred site (Option 1) and the Option 2 site would be acceptable, but the Option 3 site is not recommended due to its topography and its position in the ecotone between the barrier dune (foredune) and the Hartenbos Dune Thicket on the dunes located further inland.

Table 2: Impact and Significance – on barrier dune vegetation and ecotonal vegetation at Portion 19 of Farm 257, Mossel Bay, of the proposed main dwelling.

CRITERIA	'NO GO' ALTERNATIVE	Construction of a dwelling on the barrier dune at Portion 19 of Farm 257, Mossel Bay					
Nature of direct impact (local scale)		Loss of a limited amount of foredune (barrier dune) vegetation of low sensitivity					
		Option 1 (preferred)		Option 2		Option 3	
		WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION
Extent	Local	Local	Local	Local	Local	Local	Local
Duration	Long-term	Long-term	Long-term	Long-term	Long-term	Long-term	Long-term
Intensity	Low	Low	Low	Low			
Probability of occurrence	Low	High	High	Medium	Medium	Low	Low
Confidence	High	High	High	High	High	High	High
Significance	Low Negative	Low Negative	Very Low Negative	Low Negative	Very Low Negative	Medium Negative	Low Negative
Nature of Cumulative impact	Loss of vegetation on the barrier dune						
Cumulative impact prior to mitigation	N/A	Low Negative	Low Negative	Low Negative	Low Negative	Medium Negative	Low Negative
Degree to which impact can be reversed	N/A	Not reversible		Not reversible		Not reversible	
Degree to which impact may cause irreplaceable loss of resources	N/A	Low to Very low		Low to Very low		Low to Very low	
Degree to which impact can be mitigated	N/A	Medium		Medium		Medium	
Proposed mitigation	None	Planting of locally indigenous shrubs and herbaceous plants to soften the visual impact and limit movement of sand.		Planting of locally indigenous shrubs and herbaceous plants to soften the visual impact and limit movement of sand.		Removal of all woody alien plants	
Cumulative impact post mitigation	None	Very Low Negative		Very Low Negative		Medium negative	
Significance of cumulative impact (broad scale) after mitigation	None	Very Low Negative		Very Low Negative		Medium negative	

Coastal Engineering:

It is this coastal engineer's considered opinion that positioning the proposed residence and outbuildings on Option 1 is the best option. As summarized in Table 7.1, the facts show that Plateau 1, on which the footprint for Option 1 is situated, is the most stable of all the identified options and will require the least intervention to safeguard the development from wind-blown sand and/or blow-out due to the prevailing winds.

Taking a 'no regret16' approach means that Option 1 is also preferred above Options 2 and 3. This is because it will be more costly to establish both the required structures and the required vegetated buffer system to prevent further blow-out of the open expanse of sand on Plateau 2. Furthermore ongoing and active buffer dune management will be required on the interface between the edge of the coastal processes active zone (Contour +65 m) and the development footprints of both Options 2 and 3 due to the flat slope upwind of Plateau 2.

Table 3: Comparative impact assessment Coastal Processes

	Impact of development on the prevailing coastal processes	Impact of the coastal processes on the development	Impact of the development on the Fransmanshoek managed conservancy	Establishment cost (Including veg. management)	Maintenance cost (Including veg. management)
Residential development on an approximate 1225 m^2 footprint					
Option 1	**LOW[1]**	**LOW[2]**	**LOW[1]**	**LOW[3]**	**N/A[5]**
Option 2	**LOW[1]**	**LOW[2]**	**LOW[1]**	**MEDIUM[4]**	**N/A[5]**
Option 3	**LOW[1]**	**LOW[2]**	**LOW[1]**	**MEDIUM[4]**	**N/A[5]**
Management to establish coastal dune vegetation as a buffer area					
Option 1 (1.0 ha)	**POSITIVE[6]**	**LOW[2]**	**POSITIVE[6]**	**LOW[8]**	**LOW[8]**
Option 2 (1.3 ha)	**POSITIVE[6]**	**MEDIUM[7]**	**POSITIVE[6]**	**MEDIUM[7]**	**MEDIUM[7]**
Option 3 (1.1 ha)	**POSITIVE[6]**	**MEDIUM[7]**	**POSITIVE[6]**	**MEDIUM[7]**	**MEDIUM[7]**
Access roads					
Option 1	**LOW[2]**	**LOW[2]**	**POSITIVE[9]**	**MEDIUM[10]**	**LOW[9]**
Option 2	**LOW[2]**	**LOW[2]**	**POSITIVE[9]**	**MEDIUM[10]**	**LOW[9]**
Option 3	**LOW[2]**	**LOW[2]**	**POSITIVE[9]**	**MEDIUM[10]**	**LOW[9]**

2. RECOMMENDATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr

All of the mitigation measures and recommendations provided by the specialists will be included in the EMPr. They have been broadly summarised below as outcomes.

The following impact management measures have been included in the EMPr:

- Protection of the coastal environment by implementing the following:
  - No disturbance of vegetation and substrate below the +65m MSL contour;
  - Harvesting of indigenous vegetation from the building footprint and material to be used in the rehabilitation of disturbed areas and in the thicket buffer area;
  - Alien invasive management.

- Prevent blow outs on the access roads;
- Protocols for heritage / archaeological items unearthed during construction.

2.2.	Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.

The following item as per the coastal engineer must be conditional:

- The implementation of a sound coastal vegetation maintenance management plan in the area landwards of the + 65 m MSL aimed at managing the coastal fynbos habitat at a high level of integrity.

2.3.	Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.

The development will have a Negligible to Low impact on the environment overall. There is no reason that it should not be authorised.

The property is zoned as Agriculture I which allows for the development of a primary residential dwelling. The site selection has undergone initial survey by the specialists and then later assessed in terms of the 2014 NEMA EIA Regulations.

Alternative 1 Option 1 is located above the ground truthed **active** coastal process buffer line (littoral active zone) by the coastal engineer. The specialist has confirmed that the impact of the dwelling at this location will be Low.

The vegetation type is Hartenbos Dune Thicket, which is listed as Least Concern with SANBI. Alternative 1 Option 1, is considered to be of a Very Low to Low impact on this vegetation type.

The site presents two primary ecosystems, namely the thicket and dune systems. Whereas the top 50% thicket is deemed sensitive from a botanical perspective, the bottom 50% dune system is deemed sensitive from a coastal process perspective, namely the coastal protection zone and the littoral active zone.

Given the primary rights, as well as the sensitive features of the site, the aim has been to carefully consider and weigh-up alternatives that would achieve a balanced outcome, that would not be biased towards one or the other sensitive feature unnecessarily. To this end the alternatives were all concentrated along the 'interface' of the intact thicket habitat and the dune habitat. The best practicable environmental option (BPEO) thus being on the 'verge' of each of the two ecosystems. This is clearly evident by the outcomes of the Botanical and Coastal Engineer impact reports.

The addition of another dwelling within the Fransmanshoek Conservancy means that the FMH will receive additional membership fees to support their conservation activities.

The following must be conditional:

- The implementation of a sound coastal vegetation maintenance management plan in the area landwards of the + 65 m MSL aimed at managing the coastal fynbos habitat at a high level of integrity.
- Appointment of a suitably qualified Environmental Control Officer (ECO) for the clearance of the dwelling site;
- Compliance with the Environmental Management Programme (EMPr).

2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.

Botanical & Terrestrial Biodiversity:

The site is accessible using a 4x4 vehicle but is inaccessible using a 2x4 or sedan vehicle. Access was limited to a certain point and from there the survey was carried out on foot. A second limitation was determining the exact footprint of the proposed dwelling. The landowner pegged the site with poles

but, even so, it was not clear in the field exactly where each footprint option was located. The precision of the footprint was, however, not critical from a botanical and a terrestrial biodiversity perspective. All the footprint options are located on the stabilizing dune as opposed to being located in Hartenbos Dune Thicket on the more stable inland dunes.

No other limitations were experienced, and no assumptions were made.

Coastal Engineering:

Limitations of the study

The aerial image and photographic analysis that forms the basis of the site stability assessment, conclusions and recommendations are based on the availability of historical and recent data and information. Due to poor resolution of such historic material it is required to make use of much interpretation of landscapes and features as well as the technical skill to undertake comparative image analysis that is shaped via experiential learning. As such only a broad idea of the relevant dynamics can be reached. However, this approach has proven to be useful in identifying long-term trends that are important when attempting to understand natural processes and their potential impact on and potential response to developmental and / or management actions.

Groundwater:

The following assumptions were made in terms of groundwater use and surface area:

 By far the most significant ''use'' of groundwater at Misgunst will be the water pumped from the borehole for domestic use.

 There will be virtually no seepage water returning to the groundwater.

It is important to note that the abovementioned equation for pump test analysis was designed for pump test interpretation in a primary porosity aquifer environment with the following assumptions:

- The aquifer is a homogeneous medium,

- Of infinite extent,

- No recharge is considered, and

- An observation borehole is used for water level recording at a distance from the pumped borehole.

Although few of these assumptions apply to Misgunst-BH01, the methods/equations could still be used as long as the assumptions and 'shortcomings' are recognized and taken into account.

Heritage Impact Assessment:

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.

This section provides a brief overview of *specific assumptions and limitations* having an impact on this environmental application process:

- It is assumed that the information on which this report is based (project information as well as existing information) is **correct, factual and truthful.**
- The proposed development is **in line** with the statutory planning vision for the area and thus it is assumed that issues such as the cumulative impact of development in terms of character of the area and its resources, have been taken into account during the strategic planning for the area.
- It is assumed that all the relevant **mitigation measures** and agreements specified in this report will be implemented in order to ensure minimal negative impacts and maximum environmental benefits.
- It is assumed that Stakeholders and Interested and Affected Parties notified during the initial public participation process will submit all relevant **comments within the designated** review and comment period.

2.5.	The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.

- Construction should commence within five (05) years from date of authorisation;
- Construction should be concluded at least three (03) years from commencement;
- Monitoring should include the following:
  - A seasonal assessment of the integrity of the coastal fynbos area within Portion 19, and especially around the development footprint, access roads and other associated elements. Appropriate responses should be according to the maintenance management plan.
  - Construction Completion Statement on handover of the site back to the applicant;
  - Six (06) months post construction audit
  - Final audit two (2) years post construction.
- Final Completion of coastal fynbos planting must take place five (05) years from completion of construction.

3. WATER

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.

The development will not be making use of municipal water services.

The expected water usage will be between 1 500 – 1 750 litre / day. Water Usage network will be split between toilet usage and the rest of the residential Usages. The toilet network will be able to function on the borehole water and the rest on harvested fresh water from the roofs.

The recommended freshwater storage capacity for household use will be 50 000 litres.

It is proposed that the residential unit be equipped with the following water saving technology:

· **Dual Flush Toilets**

· **Low flow shower heads** – It is proposed that the residential units be equip with low flow shower heads, as these can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008 - http://eartheasy.com/live_lowflow_aerators.htm). Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the homeowner but must have a flow of less than 7 litres per minute.

· **Low flow faucets** - Low flow faucets use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 litres per minute.

· **Rainwater Tanks** - All houses should be fitted with rainwater collection tanks for use externally (landscaping, washing cars etc). Consideration should be given to provide solar pumps at each rainwater tank to supply the units more effectively. The overflow from tanks should be directed into the stormwater system. All water sources situated externally on buildings should be fed from these rainwater tanks.

· **Geyser and pipe insulation** - Apart from the savings in terms of energy as detailed above, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required. Homeowners must be required to install geyser and pipe insulation; this must be included in their building guidelines.

Sewerage:

The calculated sewerage and grey water generation from the development has been calculated as 500 - 750 litre / day.

It is recommended that all wastewater from the residential units be treated as follows:

- All grey water from bathrooms, laundry and kitchen areas be directly diverted to a constructed / artificial wetland system.
- All black water (organic products) from the bathrooms, laundry and kitchen areas be diverted to a biogas digester with an overflow to the constructed / artificial wetland system soak away system.
- The water from the constructed / artificial wetland system will be used for gardening purposes.

The bio-gas digester will have the following building functions

- mixes the contents for increased gas generation efficiency

- naturally decomposes biodegradable materials without any additional chemicals

- stores the biogas that is generated by this natural decomposition

- generates an internal pressure which allows the biogas to be piped directly to the point of use

- the digester mixing, gas storage and pressurisation are all achieved without any mechanical input at all i.e. No pumps or motors of any kind.

4. WASTE

Explain what measures have been taken to reduce, reuse or recycle waste.

Effective management of household waste contributes to a more sustainable implementation of landfill sites and their management. Sorting of recyclable materials at the source, i.e. in each household, causes less backlog at the landfill site and decreases the availability of material so required by scavengers to the dump site. Using biodegradable waste in a garden compost heap or an earthworm farm is far more supportive of the environment than disposing of it in the general waste.

Normal household waste will be generated during the operation phase of the development. According to the National Waste Information Baseline Report (2012) Fiehn and Ball (2005) estimated per capita waste generation in the Western Cape as 675kg per year or 1.85kg per day. Based on

this figure and a minimum estimate of 4 pax living on site, there will be a generation of ±7.4kg per day. It must be noted that the dwelling will not be utilised on a permanent basis in the immediate future but may become permanent residence for 2 pax later on.

Recycling should be strongly encouraged by the development to minimise the amount of domestic waste generated. General municipal waste will be collected as per the municipal requirements at the nearby township of Vleesbaai.

The following actions should be implemented:

- Recycling;
- Composting of organic material.

5. ENERGY EFFICIENCY

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.

The dwelling will have off grid electricity provision. This will be in the form of solar panels and a sma scale biogas plant.

The following energy saving should be implemented:

- Solar heated water system;
- Energy efficient lighting;
- Energy efficient appliances;
- Solar cooling systems;
- Evaporative cooling systems;
- Geyser and pipe insulation.

SECTION K: DECLARATIONS

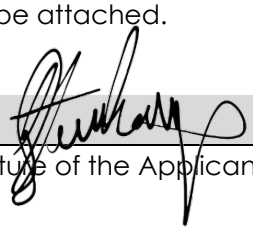
1. DECLARATION OF THE APPLICANT

Note: Duplicate this section where there is more than one Applicant.

I **Mr Gerhard Steenekamp.**, ID number **7106215295088** in my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
  - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
  - Legitimate costs in respect of specialist(s) reviews; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;
- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.



2022/05/09

Signature of the Applicant: Date:

Aquifer Resource Management (Pty.) Ltd.

Name of company (if applicable):

2. DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I **Ms Melissa Mackay**, EAPASA Registration number **2019/1446.** as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
    - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
    - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all 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 prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;

Melissa Mackay

Digitally signed by Melissa Mackay
DN: cn=Melissa Mackay, o=Cape EAPrac, ou, email=mel@cape-eaprac.co.za, c=ZA
Date: 2022.05.09 15:44:41 +02'00'

2022/05/09

Signature of the EAP: Date:

Cape Environmental Assessment Practitioners (Cape EAPrac)

Name of company (if applicable):

3. DECLARATION OF THE REVIEW EAP

I ....., EAPASA Registration number ..... as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Click or tap to enter a date.

Signature of the EAP: Date:

Name of company (if applicable):

4. DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

PLEASE SEE DECLARATIONS PROVIDED BELOW FROM THE SPECIALIST REPORTS

I **.....**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Click or tap to enter a date.

Signature of the EAP: Date:

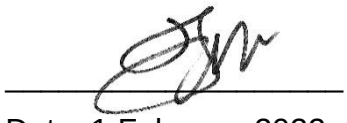
Name of company (if applicable):

DECLARATION OF SPECIALIST INDEPENDENCE

We, Mr Willem Matthee and Prof Jan A. Venter, hereby declare that:

- we are acting as independent specialists regarding this application;
- we do not have any interest, hidden or otherwise, in the outcome of this application, apart from financial compensation for the work done to survey the proposed development area and compile this report;
- surveying the site for this faunal compliance statement was done objectively, and that this report and the facts therein contained (regardless of its impact on the application approval process) will not be affected by any outside factors;
- we have the required expertise to perform surveys and produce compliance statements as it pertains to the faunal aspect of this proposed development
- we will comply with the relevant Acts, regulations and legislation;
- we have not, and will not, engage in conflicting interests while performing our duties for this activity, and have no influence over the decision-making authorities regarding their accepting or rejecting of this proposed development;
- we undertake to disclose to the applicant and competent authority all material and information within my possession that may influence the decision-making process regarding the proposed development;
- all particulars furnished by us in this form are true and correct, and that it is an offense to present a false declaration, and that such a false declaration is punishable in terms of Section 24F of the Act; and that
- this document is to be viewed as a whole, and not misquoted out of context.

Date: 1 February 2022



Date: 1 February 2022

DATE	REVISION	STATUS	PREPARED BY	CHECKED AND APPROVED BY
1 February 2022	0	Approved for submission	Willem Matthee	Prof Jan A. Venter (SACNASP Registration Number. 400111/14)
				

DECLARATION OF SPECIALIST INDEPENDANCE

- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);
- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;
- I do not have any influence over decisions made by the governing authorities;
- I undertake to disclose all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by a competent authority to such a relevant authority and the applicant;
- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity;
- This document and all information contained herein is and will remain the intellectual property of Confluent Environmental. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigators.
- All the particulars furnished by me in this document are true and correct.

Specialist: Dr. James Dabrowski (Ph.D., Pr.Sci.Nat. Water Resources)

Date: 29 October 2020

Declaration of independence:

I David Jury McDonald, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

in terms of the general requirement to be independent:

- other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the specialist:

Bergwind Botanical Surveys & Tours CC

Name of company:

Date: 25 September 2020; amended 28 October 2021 and 7 March 2022

Declaration of Independence

I, **Lauriston Barwell**, declare that I am contracted as specialist consultant by Aquifer Resource Management (Pty) Ltd for a specialist coastal engineering report as input to the professional team on the siting and design of the proposed residential house, outbuildings and access roads and specifically the associated interface with the dune dynamics at the abovementioned property The access road alignment and design as well as the structural design of the building structures and associated water and sanitation services are done by Consulting Engineer, Cobus Louw Pr. Eng.

I declare that:

- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this project, including knowledge of Act No. 36 of 2014: National Environmental Management: Integrated Coastal Management Amendment Act, 2014 regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing:
    - any decision to be taken with respect to the application by the competent authority; and
    - the objectivity of any report, plan or document to be prepared by me for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Lauriston Barwell

5. DECLARATION OF THE REVIEW SPECIALIST

I ....., as the appointed Review Specialist hereby declare/affirm that:

- I have reviewed all the work produced by the Specialist(s):
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Click or tap to enter a date.

Signature of the EAP: Date:

Name of company (if applicable):