LORNAY
ENVIRONMENTAL CONSULTING

IN PROCESS
BASIC ASSESSMENT REPORT

PROPOSED EXPANSION OF ROMANSBAAI ABALONE FARM ON REMAINDER OF PORTION 2 OF THE FARM 711, GANSBAAI

Prepared for

AQUNION

19 May 2025

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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):	
EIA Application Reference Number:	
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)

PROPOSED EXPANSION OF ROMANSBAAI ABALONE FARM ON PORTION 2 OF THE FARM 711, GANSBAAI, CALEDON RD

Overview of the Project

The Romansbaai Abalone Farm, located on Portion 2 of Farm No. 711 in Gansbaai, Western Cape, is a long-established aquaculture facility specializing in the cultivation of abalone.

In response to increasing global demand for abalone, Aqunion (Pty) Ltd, the operator of the facility, has proposed an expansion to enhance production capacity while prioritizing environmental sustainability and operational efficiency. The intent of this expansion is to increase the production capacity of the farm by adding new additional infrastructure to accommodate a greater production output, addressing both market needs and ecological considerations. This

initiative is also aligned with the company's commitment to achieving a more substantial presence in the international aquaculture market.

Lornay Environmental Consulting has been appointed by Aqunion (Pty) Ltd, hereafter referred to as "the applicant," to apply for Environmental Authorisation in accordance with the National Environmental Management Act (NEMA, Act 107 of 1998) and the Environmental Impact Assessment (EIA) Regulations (2014), as amended. The application pertains to the proposed expansion of an abalone farm located on Portion 2 of Farm 711 in Gansbaai.

Project Proposal

The proposed expansion of the Romansbaai Abalone Farm involves a strategic enhancement of its operational capacity to meet increasing global demand for high-quality abalone. The primary components of the project include the construction of a new production area with additional grow-out tanks, the establishment of a lined seawater reservoir, the installation of new pipelines, and the integration of a solar power array to support sustainable operations. These infrastructure upgrades aim to increase the farm's annual abalone production by an additional 150 tons (wet weight), boosting total production capacity while adhering to environmental best practices.

Currently, the farm occupies an area of approximately 57.5 ha, with a development footprint of 16 ha dedicated to operational activities. To facilitate the proposed expansion, the farm plans to increase the development footprint by 6.9 ha, resulting in a total operational footprint of 22.9 ha. This leaves 34.6 ha of the property undeveloped, ensuring sufficient space for ecological preservation and future adaptability.

Evolution of the Alternatives

The evolution of alternatives for the proposed expansion was a thorough process that balanced technical feasibility, ecological preservation, and alignment with ongoing operational requirements. Each alternative was assessed through the application of the mitigation hierarchy, avoidance, minimization, restoration, and offsetting to identify a development layout that would minimize environmental impacts while meeting project's goals. This assessment was undertaken with close collaboration with botanical specialists to identify and mitigate potential ecological constraints.

Alternative 1

Alternative 1 proposed a total development footprint of 9.6 ha, including a phased expansion of the production area, expansion of the existing pumphouse, construction of a lined seawater reservoir, installation of additional pipelines, and a solar array. This alternative aimed to increase abalone production by 300 tons (wet weight) through two phases:

1. **Production Area**

The initial intent of the proposal was to construct a production area that will be carried into 2 phase (Phase 1 and Phase 2) with the overall proposed 3 ha development footprint. The production area, this is where the abalone is grown, and the site development footprint included the following specifications:

→ **Phase 1**: with coverage footprint of **1.5 ha**

- Production capacity increase: 150 tons (wet weight)
- Number of tanks: 1 850
- Number of baskets: 12 950
- Seawater usage: 2 400 m^3/hour
- Aeration fans / blower room: 4 units
- Split/grading station: 1 unit

→ **Phase 2**: with coverage footprint of **1.5 ha**

- Production capacity increase: 150 tons (wet weight)
- Number of tanks: 1 850
- Number of baskets: 12 950
- Seawater usage: 2 400 m^3/hour
- Aeration fans / blower room: 4 units
- Split/grading station: 1 unit

2. Lined Seawater Reservoir:

→ Storage capacity: 41 000 m^3

→ Surface area: 20 000m^2 (2 ha)

→ Depth: 3,5 meters

→ Fill-up time: 8 hours

→ Coverage footprint: 20 000m2 (2 ha)

3. Solar Array:

→ Power generation capacity: 4 MW (backup)

→ Coverage footprint: **40000 m^2 (4 ha)**

4. Expansion of the existing pumphouse:

→ The existing pumphouse will be expanded by 140 m^2 to house the 4 new pipelines used to abstract seawater
→ Coverage footprint: **140 m^2**

5. 4 additional Pipelines:

→ Four additional pipelines will be installed for intaking of the seawater to the new proposed lined reservoir.

→ The pipeline will be placed alongside the existing network of pipeline situated within a disturbed area.

→ Each pipeline will be

- Length: 600 meters
- Diameter: 500 mm
- Total area per pipeline = **300 m^2** / pipeline

Alternative 2:

Alternative 2 was a previously preferred layout and consists of the same expansion as alternative 1 and was therefore not considered as the preferred alternatives due to site constraints and specialist input. The first being that the production area (grow-out platform) was proposed to be placed to align with the existing production areas on the property which would otherwise require infilling and levelling off the ground to support Phase 2 as well as . The second was that certain areas proposed for development fall within the mapped CBAs on the property. Alternative 2 contains the same specification as Alternative 1, with only minor changes to the location of the production area phases (Phase 1 and Phase). The alternative also involves the construction of Phase 1 and Phase 2 with the proposed development footprint of 3 ha situated adjacent to the exiting production areas:

1. Production Area

→ **Phase 1**: with coverage footprint of **1.5 ha**

- Production capacity increase: 150 tons (wet weight)
- Number of tanks: 1 850
- Number of baskets: 12 950
- Seawater usage: 2 400 m^3/hour
- Aeration fans / blower room: 4 units
- Split/grading station: 1 unit

→ **Phase 2**: with coverage footprint of **1.5 ha**

- Production capacity increase: 150 tons (wet weight)
- Number of tanks: 1 850
- Number of baskets: 12 950
- Seawater usage: 2 400 m^3/hour
- Aeration fans / blower room: 4 units
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2. Lined Seawater Reservoir:

→ Storage capacity: 41 000 m^3

→ Surface area: 20 000m^2 (2 ha)

→ Depth: 3,5 meters

→ Fill-up time: 8 hours

→ Coverage footprint: 20 000 m^2 (2 ha)

3. Solar Array:

→ Power generation capacity: 4 MW (backup)

→ Coverage footprint: **40000 m² (4 ha)**

4. Expansion of the existing pumphouse:

→ The existing pumphouse will be expanded by 140 m² to house the 4 new pipelines used to abstract seawater

→ Coverage footprint: **140 m²**

5. 4 additional Pipelines:

→ Four additional pipelines will be installed for intaking of the seawater to the new proposed lined reservoir.

→ The pipeline will be placed alongside the existing network of pipeline situated within a disturbed area.

→ Each pipeline consists of the following dimensions:

- Length: 600 meters
- Diameter: 500 mm
- Total area per pipeline = **300 m²** / pipeline

Alternative 3: No-go

The option of maintaining the status quo, i.e. no expansion, was also investigated.

Alternative 4: Preferred

Alternative 4 emerged as the most environmentally and operationally balanced solution chosen through specialist involvements. This alternative sees the reduction in the proposed production area's footprint from 3 ha to 2 ha and the shifting of the platform to areas of low to medium ecological sensitivity. The footprint of the seawater reservoir is reduced from 2 ha to 0.8 ha, although the reservoir site remains within a highly sensitive botanical area. It is important to note that the location of the proposed seawater reservoir is confined to higher areas on the farm, in order to facilitate gravity-fed water flow to the production area. However, the reduction in footprint size of the sea water reservoir minimises the impact on site by reducing the significance of impacts from a high negative rating (prior to mitigation) to a medium negative rating after mitigation measures are implemented.

	Description	Volume	Size (m²)
1.	New production area/ grow out	150 tons (wet weight)	20000
2.	Line seawater reservoir	41 000 m²	8000
3.	Solar array	4MW	40000
4.	Pumphouse		140
5.	4 additional pipelines		1200
		Total size	**69 340 (6.9 ha)**

		Alternative 1	Alternative 2	Alternative 4 Final Preferred
Production area / grow out platform	Platform 1	1.5	1.5	2
	Platform 2	1.5	1.5	
Reservoir		2	2	0.8000
Solar		4	4	4
Pumphouse		0.014	0.014	0.014
Pipelines (4 new)		0.12	0.12	0.12
TOTAL		**~9.134**	**~9.134**	**6.934**

BIODIVERSITY OFFSET APPLICABILITY ASSESSMENT

According to the updated SA Vegetation Map (2024), the subject property is situated within the Southwestern Strandveld vegetation type, previously referred to as Overberg Dune Strandveld. Although its current threat status is classified as unknown, the previously classified Overberg Dune Strandveld vegetation type was listed as Endangered in the National List of Ecosystems that are Threatened and in Need of Protection (2022).

Due to the inherent nature of abalone farming and the reliance on a constant supply for seawater, the operations must be located in close proximity to the sea. In addition, infrastructure to facilitate the continual abstraction and discharge of seawater is mandatory and will be by virtue of its function, located within the high-water mark. Due to the fact that the proposal is for the expansion of existing operations, the bulk of this infrastructure is already in place with only minor expansions required and therefore from a site location perspective, expansion of existing operations vs developing a new farm, is preferred. Less construction activities will be required in sensitive areas in an expansion scenario compared to the development of an entire new farm elsewhere. However, along with the benefits associated with expansion, there are also challenges and one of which is that the expansion activities need to be placed in certain predetermined areas, as far as possible, in order to efficiently link into existing infrastructure. i.e the new grow out areas need to be located in close proximity to the existing structures in order to link up pipelines and electricity as well as for operational efficiency. This means that the scope for the areas where the expansion can be placed is fairly limited. Another consideration in this application is the applicant drive to explore innovative mechanisms to reduce reliance on the electrical grid, due to its cost. The addition of the temporary seawater holding reservoir is one such mechanism. The seawater is pumped to the reservoir from the sea during low tariff hours and then gravity fed to the rest of the farm. In order to achieve the gravity feed the reservoir must be located at the highest point on the farm which happens to be high botanical sensitivity area. With the evolution of Alternative 4, the reservoir has been reduced significantly in size and shifted as closely as possible to existing infrastructure in an attempt to reduce the terrestrial impact.

Challenges and Constraints

Several site-specific factors affect the placement of expansion activities. The proposed seawater reservoir must be situated in an area of higher elevation to fulfil its purpose and allow for the gravity feed of seawater to the rest of the farm. The gravity feed system is one of the many ways in which the operator is attempting to reduce the cost associated with pumping water across the farm. This restriction however means that the reservoir is located in a sensitive botanical area, however with the evolution of the layout, the overall disturbance area has been significantly reduced from 2 ha to 8000 m^2.

The proposed solar array overlaps with areas classified as Critical Biodiversity Areas (CBAs). Relocation of the solar array to less sensitive areas is difficult due to the undulating topography and the need for a north facing slope, as well as to link into existing infrastructure. Situating the solar array at the preferred site ensures it remains integrated with the existing development footprint, allowing for better control and minimising fragmentation of the site. There is also a small Milkwood Forest which further restricts the shifting of the solar array. However, it is also important to add that the solar array will be ground mounted and raised at a minimum, 1 m above ground level. This means that the natural vegetation will not be removed to operate the solar array and as per botanical comment, the habitat is able to persist under such conditions.

Implementing a Biodiversity Offset is not considered a feasible option for this project and is discussed further in this report.

See Appendix L for full report.

SUMMARY OF THE SPECIALISTS

The screening tool report was generated, and the following themes were indicated for the subject property:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Based on the findings of the above and the Specialist Assessments recommended in the Screening Tool report, the following specialists were appointed as part of the NEMA process and informed the evolution of alternatives:

- → Heritage Impact Assessment (J. Kaplan)
- → Visual Impact Assessment (S.C Lategan)
- → Archaeological Impact Assessment (J. Kaplan)
- → Palaeontological Impact Assessment (John Pether)
- → Terrestrial Impact Assessment (N. Helme)
- → Animal Species Compliance Statement (J. Venter)

The alternatives evolved in line with the specialist input:

Terrestrial Biodiversity Assessment

The Terrestrial Biodiversity Assessment confirmed the following:

- → Approximately 14 hectares of the 50-hectare property are classified as high botanical sensitivity.
- → The vegetation type on-site is Overberg Dune Strandveld, which is Endangered on a national scale.
- → At least five plant Species of Conservation Concern (SoCC) were identified within four of the five proposed footprint areas.

Despite these findings, the specialist concluded that viable populations of the recorded SoCC are expected to persist within the undeveloped portions of the property. The report emphasized that the ecological functionality of vegetation within the PV array area can be maintained if vegetation height is managed through brush-cutting at approximately 1 meter.

Botanical Impacts

- → Loss of Overberg Dune Strandveld vegetation and identified SoCC within the development footprint, particularly at the locations for the proposed seawater reservoir and grow-out tanks.

→ Potential fragmentation of habitats; however, the development footprint was refined and reduced based on specialist input, significantly mitigating the impact on high-sensitivity areas.

Animal Species Compliance Statement

The compliance statement confirmed the absence of sensitive animal species and habitats on the site. Based on a combination of desktop research and field verification, no species requiring further assessment were identified.

Heritage Impact Assessment

A Notice of Intent to Develop (NID) was submitted to Heritage Western Cape. A Heritage Impact Assessment comprising of an Archaeological Impact Assessment, Palaeontological Impact Assessment, Visual Impact Assessment on the Cultural Landscape was requested. The assessment was compiled by Agency for Cultural Resource Management (ACRM). The Heritage Impact Assessment has been submitted to Heritage Western Cape and the decision is pending.

Archaeological Impact Assessment

Potentially important shell midden deposits (in the proposed seawater intake pipeline), and Later Stone Age campsites (in the proposed solar plant, grow out tanks & storage dam) may be uncovered vegetation clearing operations, and construction phase excavations, including cut and fill, landscaping, and shaping of the dune profile.

Unmarked Khoisan burials may also be uncovered during construction phase excavations.

Palaeontological Impact Assessment

The installation of a Solar Energy Facility involves shallow excavations for cabling. Typically, the main excavations are the shallow trenches for connecting cabling, while the solar panel arrays are supported on driven posts or concrete sleepers and the transformers/inverters, and a Battery Energy Storage System are located on shallowly embedded concrete slabs. It is assumed that the depths of earthworks entailed in creating level areas for the aquaculture tanks and dam would be up to 2-3m. Earthworks will mainly affect the Qg dune coversands, but may intersect the underlying, older Waenhuiskrans Fm. aeolianites where the coversands are thin. Fossil bones are overall sparse in the Qg coversands and those which may be discovered are expected to be of latest Quaternary age and mainly to be species of extant fauna.

The fossil bones that may occur in the Waenhuiskrans Fm. are, like the later coversands, also mainly comprised of representatives of extant fauna, but unexpected species of a different fauna are more likely to occur, as a result of phases of different ecological and palaeoclimatic conditions in the past, as well as the bones of some species which became extinct in the geologically recent past.

The overall, default palaeontological sensitivity of unconsolidated coversand deposits is classified as LOW/Blue by the SAHRIS Palaeo-Sensitivity map.

The Klein Brak Fm. is not rated on the SAHRIS palaeontological sensitivity map but is assigned CLEAR/Unclassified. Due to the open coast setting of the seashore of the Project Area only extant species are expected and a LOW sensitivity may be assigned to the raised beach deposits. Furthermore, the additional pipelines will be installed along an already disturbed route through the beach deposits. An impact on the fossil heritage of the Klein Brak Fm. is not expected.

Visual Impact Assessment

According to Lategan (2024), the expansion of the Romansbaai Aqunion Abalone Farm will not have an impact of great significance on the Cultural Heritage Landscape. The topography of the area with its steep coastal edge and hills to the west, creates an area with a high visual absorption level. The abalone farm is furthermore situated in a depression which screens the facility from the surrounding area. `The overall visual impact is thus low, and the heritage landscape will not be altered through the expansion of the facility' (Lategan 2024).

The overall visual impact of the proposed abalone farm expansion is low and not of such a nature that it will result in a deterioration of the cultural landscape (Lategan, 2024). No mitigation measures are therefore deemed necessary.

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 IAmpact 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**	Included in BAR
Appendix B:	**Appendix B1:**	**Site development plan(s)**	✓
	Appendix	**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 E:	**Final comment/ROD from HWC**	✓
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)** **APP G1a Terrestrial Biodiversity Impact Assessment** **APP G1b Terrestrial Biodiversity Impact Assessment** **APP G2 Terrestrial Animal Species Compliance** **APP G3 Marine Coastal Impact Assessment** **APP G4 Heritage Impact Assessment (PIA, AIA, VIA)** **APP G5 Visual Impact Assessment**		✓
Appendix H:	**EMPr**		✓
Appendix I:	**Screening tool report**		✓
Appendix J:	**Cape Nature lease**		✓
Appendix K:	**Proof of Compliance monitoring**		✓
Appendix L:	**Biodiversity Offset Applicability**		✓

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:	Aqunion (Pty) Ltd		
Name of contact person for Applicant/Proponent (if other):	Rowan Yearsley		
Company/ Trading name/State Department/Organ of State:	Aqunion (Pty) Ltd		
Company Registration Number:	1995/001834/07		
Postal address:	PO Box 1086		
	HERMANUS	Postal code: 7200	
Telephone:	028 312 1106	Cell: -	
E-mail:	rowan@aqunion.co.za	Fax: -	
Company of EAP:	Lornay Environmental Consulting		
EAP name:	Michelle Naylor		
Postal address:	Unit F, Hemel en Aarde Valley		
	HERMANUS	Postal code: 7200	
Telephone:	083 245 6556	Cell: 083 245 6556	
E-mail:	michelle@lornay.co.za	Fax: -	
Qualifications:	Master of Science (Rhodes University)		
EAPASA registration no:	EAPASA. 2019/698,., SACNASP., IAIASA		
Duplicate this section where there is more than one landowner Name of landowner:	Aqunion Property Company Proprietary Limited		
Name of contact person for landowner (if other):	-		
Postal address:	-		
	-	Postal code:-	
Telephone:	-	Cell:-	
E-mail:	-	Fax: -	
Name of Person in control of the land:	Aqunion Property Company Proprietary Limited		
Name of contact person for person in control of the land:	-		
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:	Overstrand Municipality	
Contact person:	C. Arendse	
Postal address:	P.O BOX 26	
	Gansbaai	Postal code:
Telephone	028 384 8300	Cell:
E-mail:	gbenvironmental@overstrand.gov.za	Fax: ( )

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

1.	Is the proposed development (please tick):	New		Expansion	X
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
Romansbaai Abalone Farm is an existing and operational Abalone Farm in Gansbaai. The proposed site for the expansion of the farm is situated in an area classified as a greenfield site, although the site has been impacted by day-to-day activities					
~~3.~~	**~~For Linear activities or developments~~**				
~~3.1.~~	~~Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:~~				
~~N/A~~					
~~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)~~	~~º~~	~~‘~~	~~“~~	
	~~Longitude (E)~~	~~º~~	~~‘~~	~~“~~	
	~~Middle-point co-ordinates for all alternatives~~				
	~~Latitude (S)~~	~~º~~	~~‘~~	~~“~~	
	~~Longitude (E)~~	~~º~~	~~‘~~	~~“~~	
	~~End point co-ordinates for all alternatives~~				
	~~Latitude (S)~~	~~º~~	~~‘~~	~~“~~	
	~~Longitude (E)~~	~~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):	**575000 m² (57.50ha)**
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	Approximately **160 000 m²** **(16 ha)**

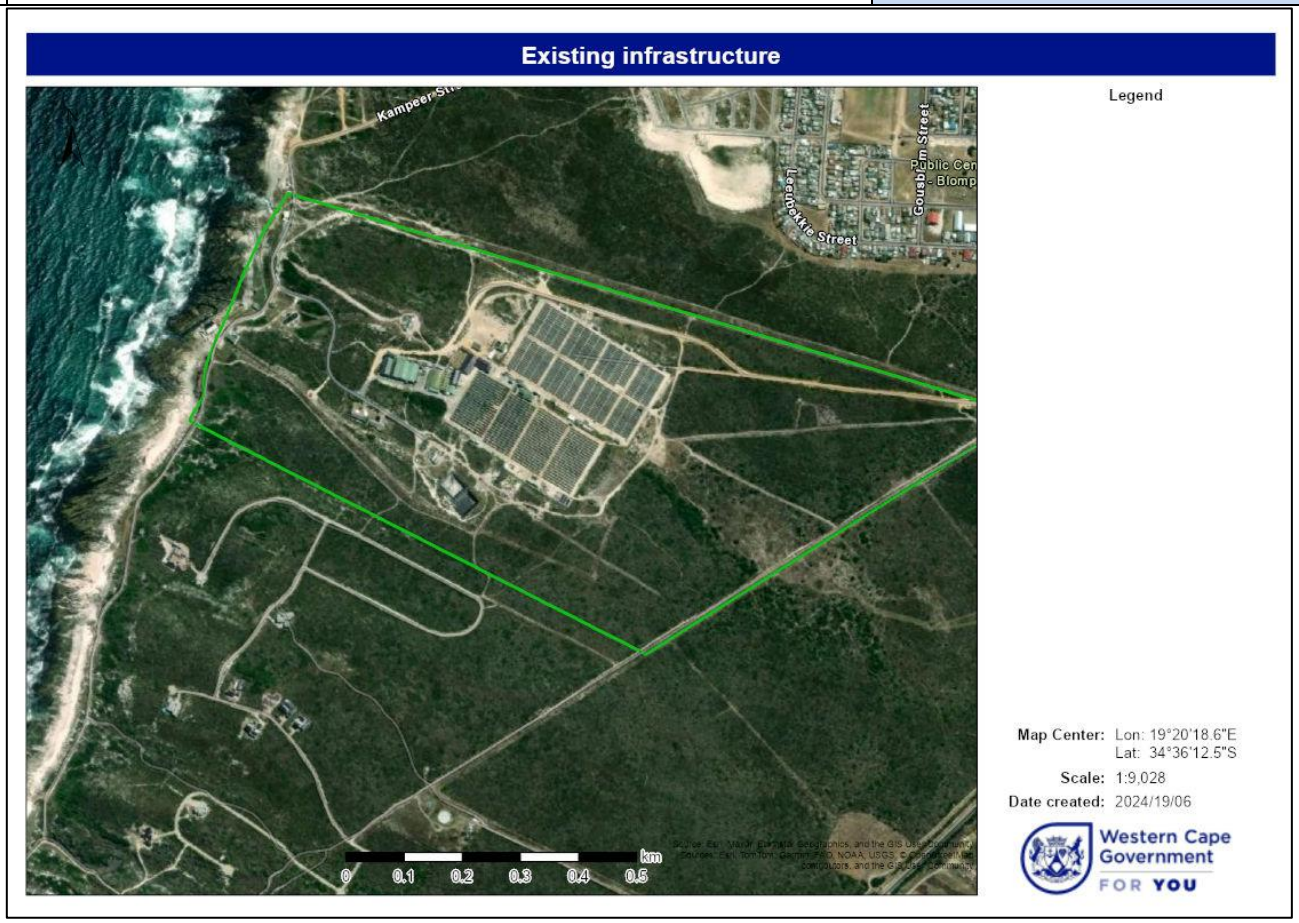


Figure 1: Aerial view showing the existing infrastructure and operations on the subject property.

4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:

The holder is submitting an application to expand existing operations at Romansbaai Abalone Farm, situated on Portion 2 of the Farm No. 711. The expansion of the existing production and grow out area to increase the production output by 150 tons / annum is proposed. In order to accommodate this, the existing pumphouse will be increased in size to allow for the increased abstraction of sea water. Additional sea water pipelines will also be added to transport the seawater to the farm. A lined seawater reservoir is also proposed to temporarily hold seawater which can be used during peak electricity tariff periods or during electricity outages.

The following is proposed:

Production Area (New grow out platform):

→ Additional production area: **20000m² (2 ha)**

→ Production additions:

- Production capacity increase: 150 tons (wet weight)
- Number of tanks: 1 850
- Number of baskets: 12 950
- Seawater usage: 2 400 m^3/hour
- Aeration fans / blower room: 4 units
- Split/grading station: 1 unit

Lined Seawater Reservoir:

→ Storage capacity: 41 000 m^3

→ Surface area: 8000 m^2 (0.8 ha)

→ Depth: 3,5 meters

→ Fill-up time: 8 hours

→ Coverage footprint: **8000 m^2 (0.8 ha)**

Solar Array:

→ Power generation capacity: 4 MW (backup)

→ Coverage footprint: **40000 m^2 (4 ha)**

Expansion of the existing pumphouse:

→ The existing pumphouse of approximately 450m^2 will be expanded by 140 m^2 for the installation of 4 new pumps that will connect the new additional pipelines.

→ Coverage footprint: **140 m^2**

4 additional Pipelines:

→ Four additional pipelines will be installed for intaking of the seawater to the new proposed lined reservoir.

→ The pipeline will be placed alongside the existing network of pipeline situated within a disturbed area.

→ Each pipeline will be

- Length: 600 meters
- Diameter: 500 mm

- Total area per pipeline = **300 m²** / pipeline
- Total area required for 4 new pipelines is **1200m²**

Table 1: Total additional footprint summary

No.	Description	Volume	Size (m²)
1.	Production area / grow out	150 tons / annum	20000
2.	Lined seawater reservoir	41 000 m³	8000
3.	Solar array	4 MW	40000
4.	Pumphouse expansion		140
5.	4 additional pipelines		1200
		Total size	**69 340 (6.9 ha)**

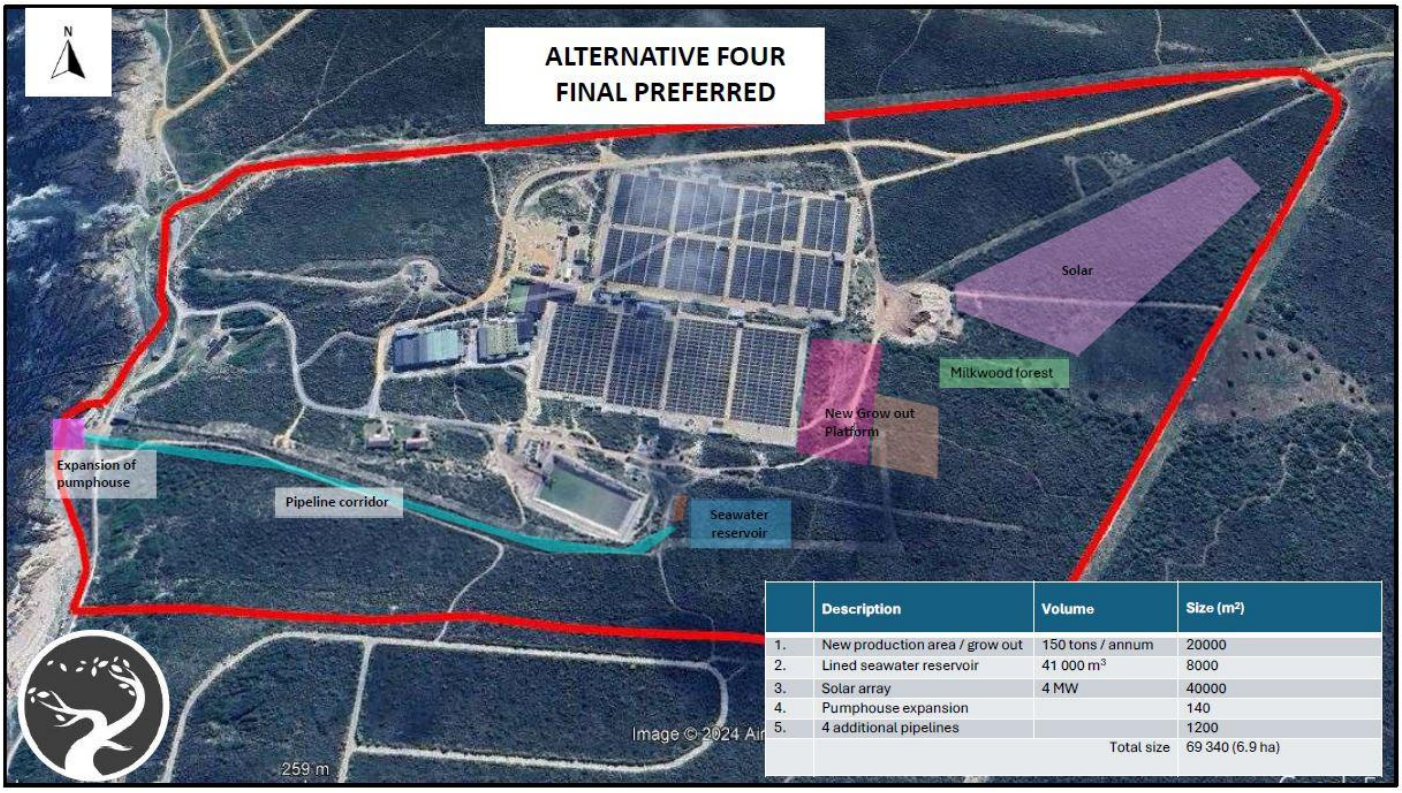


Figure 2. Proposed layout of expansion activities on the property

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).

Romansbaai Abalone Farm is situated on the Remainder of Portion 2 of Farm No. 711, between Gansbaai and Danger Point (refer to **Figure 2**). The proposed expansion aims to increase abalone production capacity from the current 450 tons (wet weight) by an additional 150 tons (wet weight) annually, resulting in a total production output of 600 tons per year. The expansion will span approximately 6.9 ha, adding to the existing 16 ha developed area on the 57.5 ha property. This initiative is designed to enhance operational capacity of the farm and meeting growing market demands.

Figure 3: Locality of Romansbaai Abalone Farm

1. **Increase in Production Capacity**

   → This will be achieved by adding new production area of grow-out tanks, targeting an annual production increase of 150 tons (wet weight).
   → The proposed development footprint: **2 ha**

2. **Construction of a Lined Reservoir**

   → A lined seawater reservoir will be developed to hold seawater for short periods during power outages or high tariff periods, and will be executed as follows:

   - The reservoir will cover a footprint of about **0.8 ha**
   - The reservoir will have a storage capacity of **41 000 m^3**

3. **Solar Power Array**

   → To support energy efficiency and sustainability of the farm, an above ground solar power array will be installed as part of the expansion proposal:

   - The solar installation will cover an area of **4 ha**, utilizing brush-cut vegetation removal only.

- The system will generate 4 MW of electricity, significantly reducing reliance on grid power and lowering the environmental footprint of the farm. The generated power will only be used on site.

4. Expansion of the Existing Pumphouse

→ The existing pumphouse occupies an area of approximately 450m^2 and consists of 7 pumps and 7 pipelines installed for the supply of seawater to the existing production area. This will be expanded by approximately **140 m²** to accommodate additional infrastructure for increased water intake (**Figure 3-1 & Figure 3-2**):

- A total of 4 new pumps and 4 pipelines will be installed at the pumphouse
    - 1 new pump and 1 new pipeline will be fitted within the existing pumphouse
    - 3 new pumps and 3 pipelines will be installed within the proposed expanded pumphouse

5. Installation of Additional Pipelines

→ **4 new pipelines** will be installed from the pumphouse to connect the new lined seawater reservoir and directly to the production area:

- Each pipeline will be 600 meters long and 500 mm in diameter.
- The combined water extraction rate will be 1600 m^3 per hour.
- Pipeline installation will not require major ground excavation, as they will be laid alongside the existing pipeline in a previously disturbed area (**Figure 4**).

6. Seawater Intake and Discharge Systems

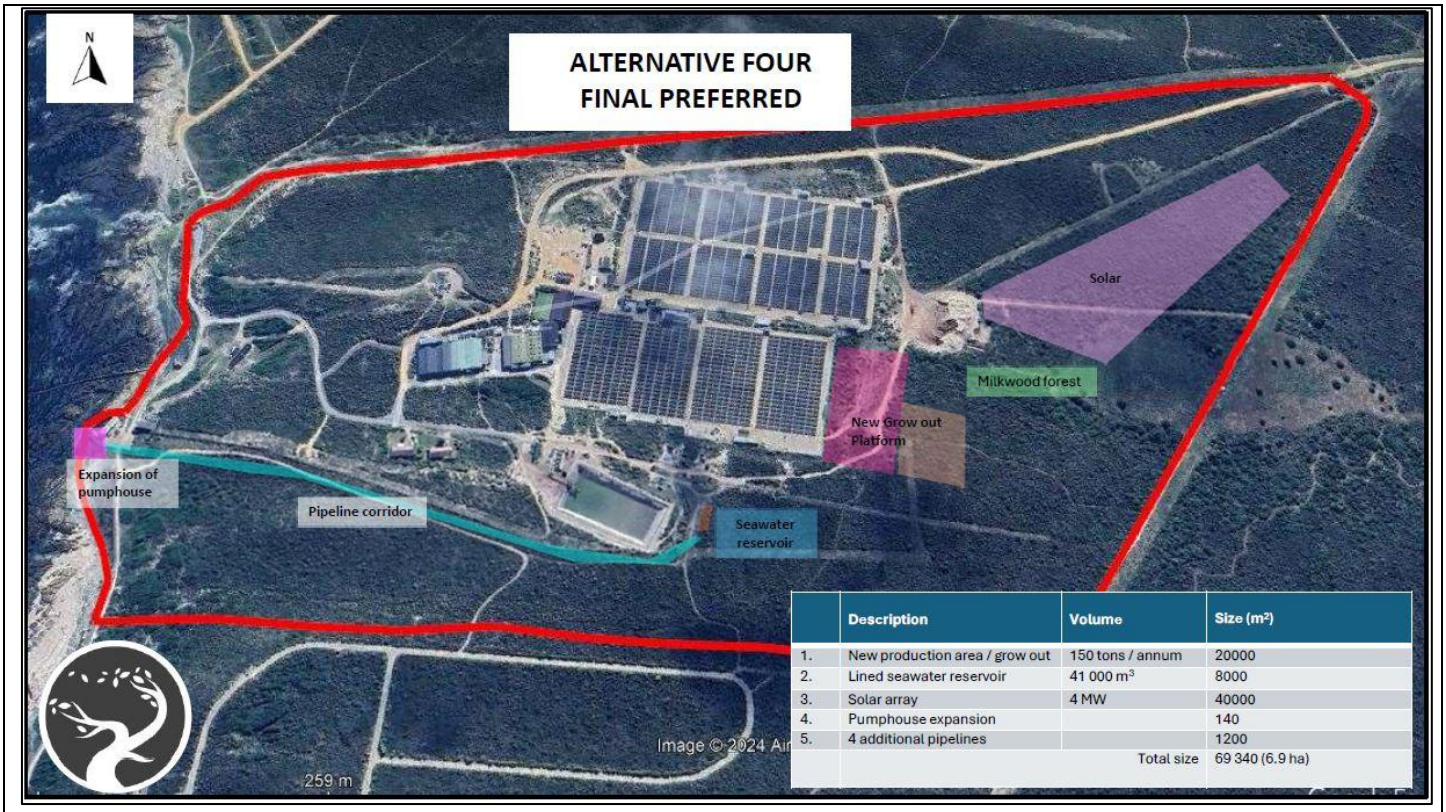
→ The expansion of the abalone farm will require the abstraction of more seawater which will be facilitated through the expansion of the pumphouse. The additional seawater intake will therefore result in an increase in effluent water discharge. Ecologically, the operation of an abalone farm can be considered to be a low impact activity with negligible impacts on the environment when compared with other land-based agricultural activities. The effluent water, which is the circulated seawater which gets discharged back to the marine environment, has been found to have a negligible to zero impact on the marine environment (Probyn et al. 2014).

→ The discharge is undertaken in line with the Department of Forestry, Fisheries and the Environments (DFFE) General Discharge Authorisation (GDA) issued in terms of Section 69(2) of the National Environmental Management Act: Integrated Coastal Management Act (Act No. 24 of 2008). No amendment to the GDA is required to accommodate the increased seawater discharge.

- The current intake system will be upgraded to abstract a larger volume of water per hour, while the discharge volume will be increased from 230 880 m³ to 270 000 m³ annually.
- The farm operates under the General Discharge Act, which covers the expanded discharge needs without requiring additional coastal water discharge permits.

Figure 3-1. Photo showing existing pumphouse and seawater abstraction lines

Figure 3-2: View of the existing pumphouse (green) and the area outlined in red, which is proposed for expansion to accommodate the installation of new pipelines. One pipeline will be integrated into the existing pumphouse infrastructure, as illustrated.



	Description	Volume	Size (m²)
1.	New production area / grow out	150 tons / annum	20000
2.	Lined seawater reservoir	41 000 m³	8000
3.	Solar array	4 MW	40000
4.	Pumphouse expansion		140
5.	4 additional pipelines		1200
		Total size	69 340 (6.9 ha)

Figure 4: The new pipelines, depicted in yellow, will be installed from the pumphouse to the proposed seawater reservoir and then to the new production area (phases 1 and 2), as illustrated. The new pipelines will be installed in the existing pipeline corridor where the existing pipelines are installed.

Infrastructure Services

1. **Electricity Supply**

   → The farm is allocated 2.4 MVA of municipal electricity, but current usage stands at 1.7 MVA, leaving a surplus capacity of 0.7 MVA.

   → No additional confirmation from the local authority is required for electrical services, as the existing capacity is sufficient for the proposed expansion.

2. **Sewage and Effluent Management**

   → Existing bulk sewage and water reticulation systems are capable of handling up to 350 people, accommodating the additional 350 jobs that will be created through the expansion.

   → These systems, which include potable water supply, toilets, and wastewater treatment infrastructure, are adequately designed, and no further upgrades or modifications are needed to accommodate the proposed expansion

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

There is an existing access road via Van Dyk Road to the farm. No new or additional access is required.

4.6.	SG Digit code(s) of the proposed site(s) for all alternatives: C01300000000071100002

4.7.	Coordinates of the proposed site(s) for all alternatives:			
	Latitude (S)	34º	36'	12.49"
	Longitude (E)	19º	20'	32.54"

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 x

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 x	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 x	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 x
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 x
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	NO x
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	YES x	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	NO x
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 x

3. Other legislation

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

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	**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)**:**
Overstrand Municipality by Law on Municipal Land Use Planning, 2015	Overstrand Municipality	Consent Use for Aquaculture on Agriculture Zone 1	In place
Overstrand Municipality Spatial Development Framework, 2020	Overstrand Municipality	Comment	In place
General Discharge Authorisation in terms of Section 69(2) of the National Environmental	Department of Forestry, Fisheries	License	In place

Management Act: Integrated Coastal Management Act (Act No. 24 of 2008).	and the Environment (DFFE)		
National Heritage Resources Act 25 of 1999 (NHRA) Act 25 of 1999 (NHRA)	Heritage Western Cape	Comment	Pending
The Sea-Shore Act, (Act 21 of 1935)	Cape Nature	Lease agreement already on place	

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.

EIA Guideline and Information Document Series, dated March 2013	Applied to various components in the Basic Assessment process. The following guidelines were considered throughout this Basic Assessment process: • Guidelines for EIA Requirements • Guidelines for Public Participation • Guidelines on Alternatives • Guideline on Need and Desirability • Guideline for Involving Biodiversity Specialists in EIA Processes • Guideline for Environmental Management Plans
GN No. 326 – Appendices 1 and 4 relating to the information requirements in the BAR and EMPr	Provincial Department of Environmental Affairs and Development Planning
Environmental Impact Assessment Guideline for Aquaculture in South Africa (Notice No. 101 of 2013).	DFFE

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

Agricultural Theme – High Sensitivity – The activity involves the expansion of an existing agricultural facility, specifically an Abalone Farm. The activity is in line with the agricultural theme and therefore no further assessment is required.

Animal Species Theme – High Sensitivity –– Terrestrial Animal Species Compliance has been undertaken by Jan Venter of Wildlife Conservation Decision Support. A total of seven animal species of concern was identified by the screening tool. One additional species, Cape dwarf chameleon, *Bradypodion pumilum*, was identified and added during the desktop study. The expansion is situated within an area already impacted by the day-to-day operations of the existing Abalone Farm. The adjacent property has been artificially stocked with various species of small antelope which access the land, these will not be impacted by the expansion. The areas proposed for the expansion link directly to the existing operations and have been impacted by fringe activities. Based on the findings of the site survey, none of the identified species of concern were observed within the proposed development footprint. Therefore, the proposed expansion will not affect potential breeding sites or foraging habitats of the animal species identified in the assessment.

Aquatic Biodiversity Theme – Very High Sensitivity – There are no freshwater indicators on site, this has been verified through on-site sensitivity verification by the EAP as well as findings by the Terrestrial / Botanical specialist, where no wetland indicator species are identified. The expansion of the pumphouse will take place below the high-water mark of the sea, but is a small-scale expansion to existing disturbed zone. No further assessment required under this theme.

Archaeological and Cultural Heritage Theme – Very high sensitivity – in line with the requirements of the National Heritage Resources Act, a Notice of Intent to Develop was submitted to Heritage Western Cape as part of the BAR process. HWC confirmed that a Heritage Impact Assessment with AIA, PIA, VIA and comments from SAHRA Maritime Underwater Culture Unite, is required. These assessments have been completed and are included herein. Mitigation measures have been incorporated in the EMP.

Civil Aviation Theme – High sensitivity – the proposed development is the expansion of existing activities and therefore no additional impacts are expected to this theme. No further assessment required.

Defence Theme – Low. No impacts envisaged. No further assessment required

Palaeontology – very high - PIA completed and findings outlined herein. Mitigation measures have been incorporated into the EMP.

Plant Species Theme – Medium – A terrestrial biodiversity assessment covering the Plant Species Theme has been completed for the site.

Terrestrial Biodiversity Theme – Very high – Botanical Assessment was undertaken. The proposed expansion occurs next to the existing operation facilities of the farm and some areas are already disturbed by day-to- day operations. The assessment incorporated the plant species theme under this theme. About 14ha of the 50ha property surveyed is of High botanical sensitivity, and the underlying vegetation type (Overberg Dune Strandveld) is gazetted as Endangered on a national basis. At least five plant Species of Conservation Concern (SoCC) were recorded in four of the five footprint areas, but viable populations of all SoCC will remain on undeveloped parts of the property, and most of them will survive in the PV area if the vegetation in this area is brushcut to about 1m tall. Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for production area (grow-out tanks) and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar. No large-scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels, it may be trimmed on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby. All these mitigation measures, amongst others are incorporated in the EMP.

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.
1	The development and related operation of facilities or infrastructure for the generation of electricity from a renewable resource where— (i) the electricity output is more than 10 megawatts but less than 20 megawatts; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.	A 4-ha ground mounted solar array is proposed. The combined solar infrastructure will generate no more than 4 MW of power. The power generated will be used on site only to supplement existing municipal supply.
9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water - (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where - (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	Intake and effluent pipelines will be installed and essential to operations and will flow from the pumphouse, across the farm and back out to sea. Pipelines will be located adjacent to existing pipelines. Four new pipelines to new production area to join into existing network – 4 lines @ 600 m x 500 mm, delivering 1600 m^3 / hour – located alongside existing pipeline within already disturbed pipeline corridor.
13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	The lined seawater reservoir will be used to store pumped seawater, which can then be gravity fed across the farm during high electricity demand periods or load shedding. There will be no dam wall. Seawater reservoir will have a total capacity of 41 000 m^3 and will cover a total footprint of about 20 000 m^2, 3.5 m depth, 227m x 83m
15	The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding - (i) the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (ii) the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (iii) the development of temporary structures within the beach zone where such structures will be removed within 6 weeks of the commencement of development and where coral or indigenous vegetation will not be cleared; or (iv) activities listed	4 new pipelines will be installed at the pumphouse 600 m x 500 mm, delivering 1600 m^3 / hour each – located alongside existing pipeline within already disturbed pipeline corridor, extended from expanded pumphouse

	in activity 14 in Listing Notice 2 of 2014, in which case that activity applies.	
17	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.	Intake and effluent pipelines will be installed and essential to operations and will flow from the pumphouse, across the farm and back out to sea. Pipelines will be located adjacent to existing pipelines. Additional pipelines to new production area to join into existing network – 4 lines @ 600 m x 500 mm, delivering 1600 m3 / hour – located alongside existing pipeline within already disturbed pipeline corridor.
19A	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 highwater mark of the sea or an estuary, whichever distance is the greater; or (iii) the sea; - but excluding where such infilling, depositing, dredging, excavation, removal or moving – (f) will occur behind a development setback; (g) is for maintenance purposes undertaken in accordance with a maintenance management plan; (h) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	Intake and effluent pipelines will be installed and essential to operations and will flow from the pumphouse, across the farm and back out to sea. Pipelines will be located adjacent to existing pipelines. Additional pipelines to new production area to join into existing network – 4 lines @ 600 m x 500 mm, delivering 1600 m3 / hour – located alongside existing pipeline within already disturbed pipeline corridor.
27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.	Vegetation clearance amounting to approximately 6.9 ha will be required as a result of the proposed expansion
30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	Some vegetation belonging to the Overberg Dune Strandveld group will be removed as a result of the proposed development, this vegetation type is classified as En.
34	The expansion of existing facilities or infrastructure for any process or activity where such expansion will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution, excluding— (i) where the facility, infrastructure, process or activity	Notice will be given to the DFFE of the expansion; however the farm operates under the General Discharge Authorisation (GDA) in terms of Section 69(2) of the ICMA.

	is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (ii) the expansion of existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or (iii) the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day.	
41	The expansion and related operation of facilities, infrastructure or structures for aquaculture of— (i) finfish, crustaceans, reptiles or amphibians, where the annual production output of such facility, infrastructure or structures will be increased by 20 000 kg (wet weight) or more; (ii) molluscs and echinoderms where the annual production output of such facility, infrastructure or structures will be increased by 30 000 kg (wet weight) or more; or (iii) aquatic plants where the annual production output of such facility, infrastructure or structures will be increased by 60 000 kg (wet weight) or more; excluding where the expansion of facilities, infrastructure or structures is for purposes of sea-based cage culture in which case activity 42 in this Notice will applies.	The annual production increase of the farm will be increased by 150 tons (150000 kg).
43	The expansion and related operation of hatcheries or agri-industrial facilities outside industrial complexes, where the development footprint of the hatcheries or agri-industrial facilities will be increased by 2 000 square metres or more.	The farm has an existing hatchery on site which may need to be enlarged to accommodate the proposed increase in production.
45	The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure— (i) has an internal diameter of 0,36 metres or more; or (ii) has a peak throughput of 120 litres per second or more; and (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;	Additions and expansion of existing infrastructure is required - seawater
52	The expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres, excluding such expansions within existing ports or harbours where there will be no increase in the development footprint of the port or harbour and excluding	The pump house will be increased in size by approximately 140 m^2 and the additional water pipelines will be installed from the pump house.

	activities listed in activity 23 in Listing Notice 3 of 2014, in which case that activity applies.	
54	The expansion of facilities— (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 where the development footprint is expanded by 50 square metres or more.	The pump house will be increased in size by approximately 140 m^2 and the additional water pipelines will be installed from the pump house.
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.
12	The clearance of an area of 300 square metres or more of indigenous vegetation i. Western Cape 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.	Clearance of vegetation classified as En to accommodate the proposed expansion
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.

Following the assessment of three design layout alternatives and a No-Go Option, Alternative 4 has been selected as the preferred layout alternative for the proposed expansion of the Romansbaai Abalone Farm. This alternative has been refined through iterative planning, specialist input, and consideration of environmental sensitivities, and is submitted for consideration and approval.
The following is proposed under Alternative 4:

Production Area (New grow out platform):

- → Additional production area: **20 000m² (2 ha)**
- → Production additions:
  - Production capacity increase: 150 tons (wet weight)
  - Number of tanks: 1 850
  - Number of baskets: 12 950
  - Seawater usage: 2 400 m³/hour
  - Aeration fans / blower room: 4 units
  - Split/grading station: 1 unit

Lined Seawater Reservoir:

- → Storage capacity: 41 000 m³
- → Surface area: 8000 m² (0.8 ha)
- → Depth: 3,5 meters
- → Fill-up time: 8 hours
- → Coverage footprint: **8000 m² (0.8 ha)**

Solar Array:

- → Power generation capacity: 4 MW (backup)
- → Coverage footprint: **40000 m² (4 ha)**

Expansion of the existing pumphouse:

- → The existing pumphouse of approximately 450m² will be expanded by 140 m² for the installation of 4 new pumps that will connect the new additional pipelines.
- → Coverage footprint: **140 m²**

4 additional Pipelines:

- → Four additional pipelines will be installed for intaking of the seawater to the new proposed lined reservoir.

→ The pipeline will be placed alongside the existing network of pipeline situated within a disturbed area.

→ Each pipeline will be

- Length: 600 meters
- Diameter: 500 mm
- Total area per pipeline = **300 m²** / pipeline
- Total area required for 4 new pipelines is **1200m²**

Table 1: Total additional footprint summary for Alternative 4 – Preferred layout alternative

No.	Description	Volume	Size (m²)
1.	Production area / grow out	150 tons / annum	20000
2.	Lined seawater reservoir	41 000 m³	8000
3.	Solar array	4 MW	40000
4.	Pumphouse expansion		140
5.	4 additional pipelines		1200
	Total size		**69 340 (6.9 ha)**

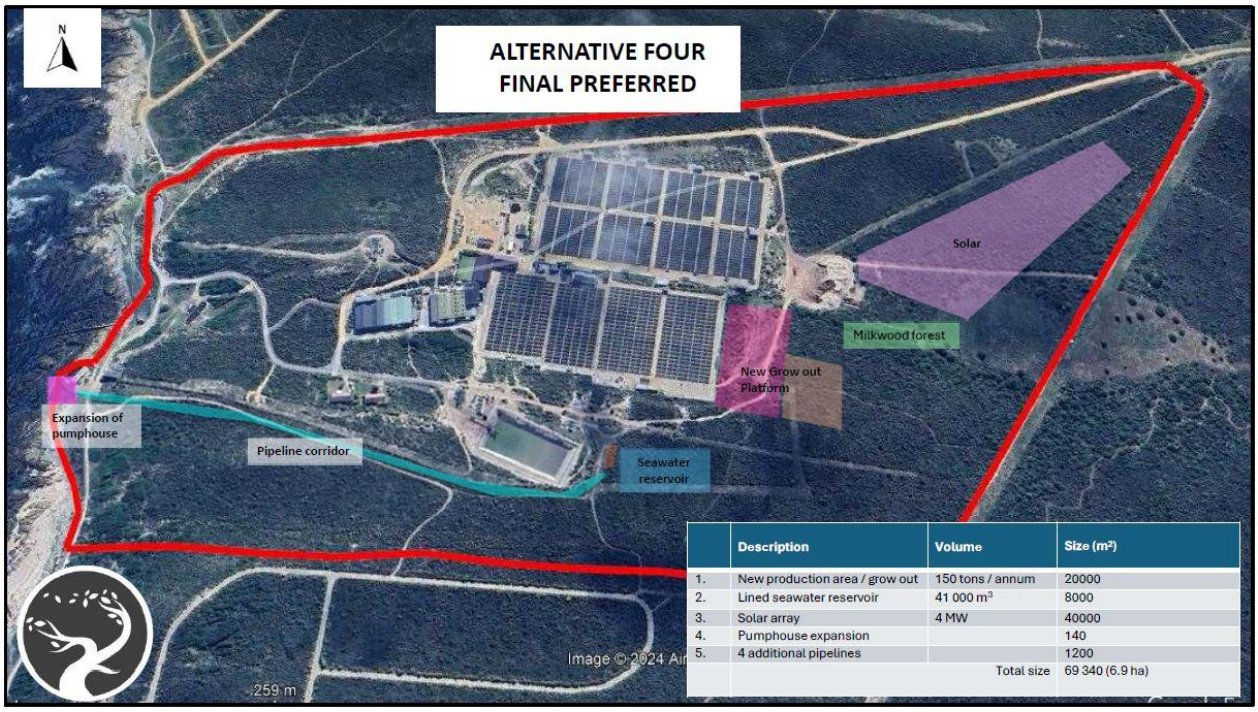


Figure 2. Proposed layout of expansion activities on the property

INFRASTRUCTURE SERVICES

Electricity

The Romansbaai Abalone Farm is currently allocated and financially responsible for 2.4 MVA of electricity. The current electricity usage stands at 1.7 MVA, demonstrating that there is sufficient capacity available for the proposed expansion. Given this surplus capacity, there is no need for additional confirmation from the local authority regarding electricity services. In addition, one of the primary aims of the expansion application is to reduce reliance on the electrical grid through the calculated use of seawater from the reservoir as well as supplementary solar power.

Sewage

The Romansbaai Abalone Farm's existing bulk sewage and water reticulation facilities are adequately designed to accommodate up to 350 people. This encompasses the necessary infrastructure for water supply, toilets, and wastewater treatment. The current capacity of these facilities is sufficient to support the planned expansion, which is projected to create an additional 350 jobs. Therefore, no further upgrades or modifications are required for the sewage and water reticulation systems to accommodate the expansion.

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 proposed development is operating under a Consent Use for Aquaculture under the Agricultural Zone 1, as detailed in the Notice of Intent (NOI) and Application Form. There is an Environmental Authorisation in place for the existing Abalone Farm, along with the various required permits in terms of the Marine Living Resources Act (Act 18 of 1998). The expansion plans outlined in the proposed development primarily focus on enhancing the operational facilities within the confines of the Romansbaai Abalone Farm's existing property and operational infrastructure. Since the expansion is contained within the boundaries of the current approvals, it adheres to the established land use rights.

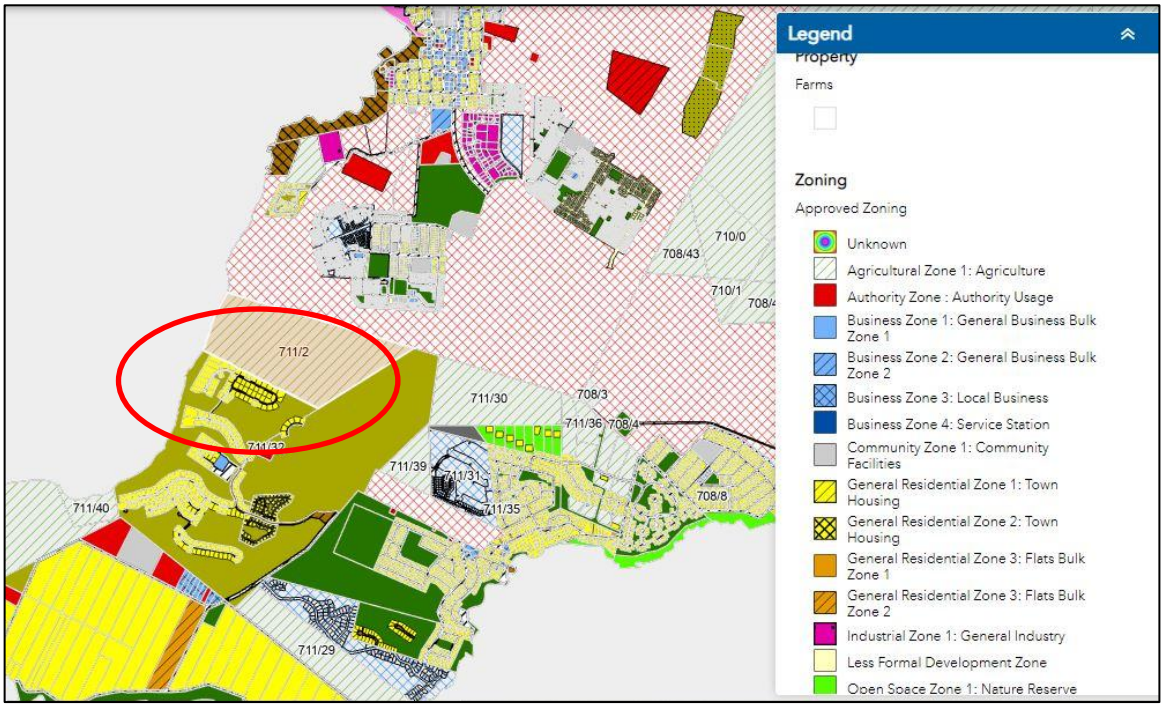


Figure 5: The property falls within Agricultural zone 1: Agriculture.

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.

N/A

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

The Extract form the Western Cape PSDF:

"The rural economy incudes but is not limited to farming; fishing and aquaculture Mining; Forestry; Commodity and Servicing; ECO and Agri-tourism; Outdoor recreation and events ; Infrastructure and service Delivery; and diverse Natural Resource related activities (e.g extraction rehabilitation harvesting, etc). Agriculture is going through a difficult transition period with its traditional export market in recession, escalating pressure on operating margins (i.e. input costs escalations exceed commodity price increases), more stringent international and national compliance requirements, and instability in the labour market.

The PSDF strategy for opening up opportunities in the rural space- economy has two dimensions, namely:

i. Accommodating a greater diversity of compatible land use activities on farms and in the rural landscape in general. Compatible activities are those that do not compromise biodiversity, farming activities, cultural and scenic landscapes, and are an appropriate scale and form to fit in with their context in the rural landscape (as specified in the to be updated 2009 PSDF rural land use planning and management guidelines).
ii. Channelling public investment in rural development initiatives (i.e. land reform, agrarian transformation, environmental rehabilitation, enterprise development, etc.) to areas where it can offer real and sustained improvements to beneficiaries and the rural community.

The proposed expansion of the Romansbaai Abalone Farm falls within the realm of aquaculture, which is identified as one of the components of the rural economy in the PSDF. Aquaculture is deemed as a compatible activity that does not compromise biodiversity, farming activities, or cultural and scenic landscapes. By expanding the existing operational facilities within the designated agricultural zone, the development fits into the context of the rural landscape while contributing to economic growth of the area.

The proposed development aligns with the Provincial Spatial Development Framework (PSDF) by contributing to the goals outlined for the rural economy, such as job provisions for the rural community. The PSDF recognizes the challenges faced by the agricultural sector, including factors such as recession in export markets, increasing input costs, and stricter compliance requirements. In response to these challenges, the PSDF emphasizes the need to diversify land use activities in rural areas and channel investments towards initiatives that offer real and sustained improvements to the rural community.

4.2	The Integrated Development Plan of the local municipality.

Extract from the 2017 – 2021 Overstrand IDP: "the aquaculture industry is one of the fastest growing industries in the area with well-established farms with the major players extending their farms to increase tonnage. The Overstrand is host to an aqua hub with huge potential for established export market and one of the largest employers in the municipality. Significant focus has been given to the sector to ensure that jobs are maintained and that Overstrand remains the leader in exporting and growing the product. The Southern coastal line of the Overstrand produces the best quality product in the world and boosting export value and expansion of manufacturing which is key to employment creation. The thriving agriculture sector includes the ever-growing wine industry and with the decline in the sector, the sector shed a significant number of jobs over the years."

Extract from the Overstrand Municipality IDP (2024) "The Agriculture, Forestry and Fishing sector comprised R268.1 million (or 6.4 per cent) of the Municipality's GDP in 2015. It displayed moderate growth of 1.8 per cent for the period 2005 - 2015, but growth has nevertheless slowed marginally in the post-recessionary period (the sector experienced a growth rate of 1.1 per cent over the period 2010 – 2015). This sector is the second smallest sector in Overstrand's local economy. Agriculture, forestry and fishing employed 10.4 percent of the Municipality's workforce in 2015. Employment growth over the period 2005 – 2015 has contracted by 0.9 per cent per annum on average. Employment picked up significantly after the recession and grew at a rate of 3.8 per cent per annum on average since 2010. On net employment, 663 jobs have been lost since 2005 - not all of the jobs lost prior to and during the recession have been recovered. The labour force in the primary sector is characterised by a relatively large proportion of low- and semi-skilled labour (Western Cape Provincial Treasury, 2016 Socio-Economic profile)."

4.3.	The Spatial Development Framework of the local municipality.

EXTRACT FROM THE OVERSTRAND MUNICIPALITY 2020 "As outlined in detail in the status quo analysis section pertaining to the town of Greater Gansbaai, it is an extensive linear developed settlement, divided for the purpose of this MSDF into tree areas (i.e. De Kelders, Gansbaai Proper and Franskraal). Its primary functions are that of a fishing centre, residential, retirement and holiday town(refer Plan 64-66).

5.10.2.1 Local Spatial Development and Growth Management Principles

i. Promote:
- A balanced land use mix, making adequate provision for commercial as well as service industrial growth related to fishing and mari-culture;
- Tourism development based on the ecological and heritage value of the region; - the fishing industry and marine-culture;
- The role of the coastal villages as holiday resorts, retirement villages; and
- The provision of a balanced mix of residential housing stock to address the full range of socio-economic groupings from subsidized housing to housing options for the middle- and upper-income groups.

ii. Restrict:
- Urban development to within the demarcated urban edge

iii. Maintain:
→ The unique character of the villages in formed by the provisions of the Draft HPOZs and EMOZs;
→ The dominance of the natural environment and viewsheds as the visual backdrop to the villages informed by specifically Heritage Landscapes of Significance HPOZ as well as Draft EMOZs;
→ The biodiversity open space corridors based on implementation of the Draft Urban Conservation EMOZs; - the heritage aspects of the "Old Harbour", in particular the slipway, as well as the sites of the old fishermen's cottages (Refer HPOZs)."

The proposed expansion of the Romansbaai Abalone Farm seeks to increase production by 350 tons annually, with key infrastructural additions such as a lined seawater reservoir, a solar power array, expansion of the pumphouse and installation of new pipelines. This proposal directly aligns with the service industrial growth and mariculture promotion objectives mentioned in the SDF. Moreover, the expansion is within the existing urban edge, which complies with the SDF's stipulation to restrict urban growth beyond the urban boundary.

4.4.	The Environmental Management Framework applicable to the area.

Romansbaai Abalone Farm and the property on which it is established is situated entirely within the Coastal Protection Zone (CPZ). The production and farming of Abalone is such that it requires a constant supply of seawater and therefore placing such facilities away from the coast is not possible.

According to the Overstrand Municipality Environmental Management Framework (EMF), this zone is designated for the protection and sustainable management of sensitive coastal ecosystems, including Environmental Management Overlay Zones (EMOZ).

Romansbaai Abalone Farm and its proposed expansion complies with the EMF by situating the majority of its built infrastructure above the 30 m contour line, thereby minimizing the disturbance to the sensitive coastal environment as well as reducing the risk to life or infrastructure through storm surges, sea level rise and coastal erosion. Whilst such operations often avoid being elevated from sea level due to the pumping costs associated with this, the placement of

this farms allows for the protection of the natural coastal processes and reduces the risk of impacts related to sea-level rise, storm surges, and erosion. The pumphouse inherently needs to be located in the coastal zone due to the function of it, however only small-scale expansion to existing pumphouse is required and this is directly alongside the existing infrastructure in this zone.

It is important to note that while the property lies within the CPZ, it is located outside of mapped ecological corridors and urban conservation zones, as identified in **Figure 6** below.

It is important to note that Romansbaai Abalone Farm is **Global Gap Accredited** which means that operations are required to meet various global standards, one of which is Environmental Sustainability.

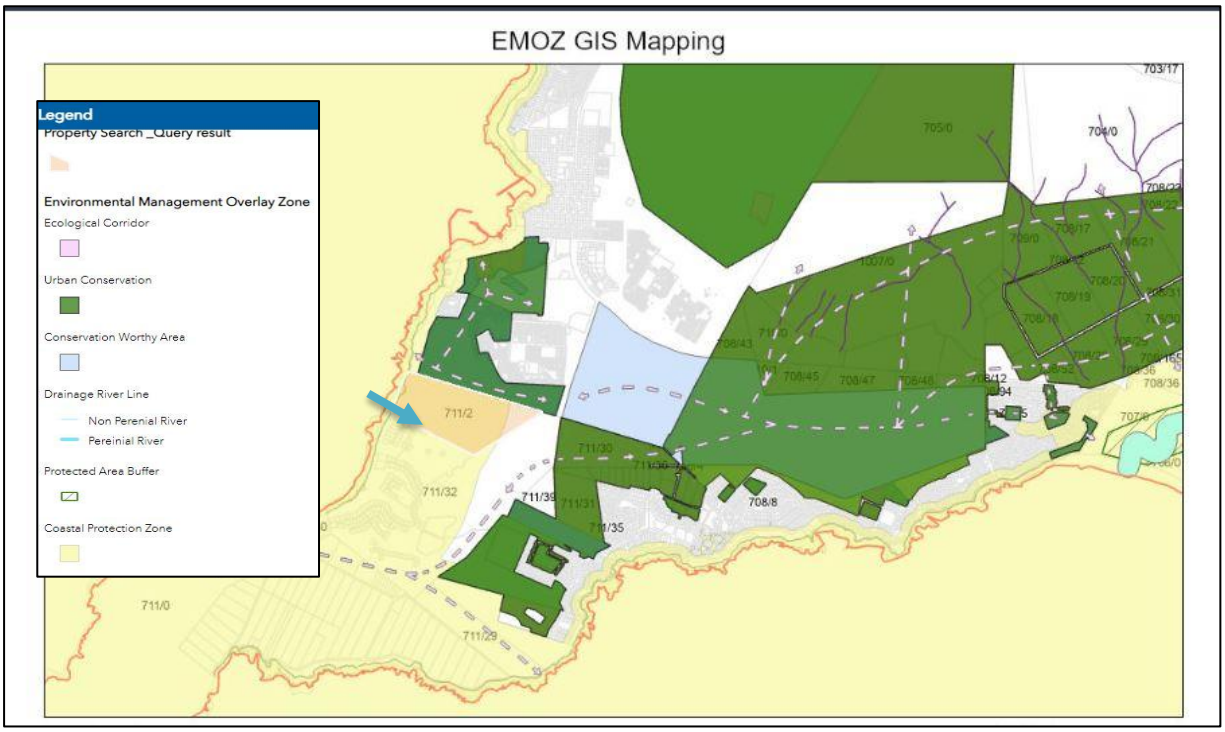


Figure 6: View of the property in relation to the EMOZ.

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

To be included after Public Participation Process.

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

Support of no further investigation from the relevant specialist were incorporated into this assessment.

Extract from the Terrestrial Biodiversity Assessment

Cape Nature Spatial Biodiversity Plan is showing that most of the site is mapped within the Other Natural Areas (ONA), with a fairly large patch of CBA1 (Critical Biodiversity Area) in the northeast, and patches of ESA1 (Ecological Support Areas). The Western Cape Biodiversity Spatial Plan highlights the importance of safeguarding and conserving as well as maintaining biodiversity in these areas;

- Critical Biodiversity Areas (CBAs) are unique and valuable places on Earth that are home to a wide variety of terrestrial and aquatic plant and animal species, including many rare and endangered species. These areas must be kept in a natural or near-natural state to ensure the long-term survival of the biodiversity that they support.

- Ecological Support Areas (ESAs) are areas that support the functioning of Protected Areas or CBAs and are often vital for delivering ecosystem services. They need to be maintained in at least a functional state, but some limited habitat loss may be acceptable.

The site was visited on 27 April 2024. This was at the end of a hot, dry summer, and was thus outside the optimal winter – spring flowering season in this mainly winter rainfall area, and few of the likely geophytes and very few of the annuals were evident or identifiable (apart from the autumn flowering Oxalis, Haemanthus and Brunsvigia), whilst all perennial plants were identifiable. There were thus some seasonal constraints on the accuracy of the botanical findings but given the heavy dominance of perennials in this area – which can be used as indicators of habitat sensitivity - the confidence in the accuracy of the botanical findings is fairly high. The author has undertaken extensive work within the region, which facilitates the making of local and regional comparisons and inferences of habitat quality and conservation value.

According to the SA Vegetation Map the original natural vegetation in the study area is all Overberg Dune Strandveld (Mucina & Rutherford 2018). Based on the botanical specialist ground truthing he would agree with this. No copy of this mapping is provided as it adds little value.

The site has not been burnt for at least twenty years, the vegetation is grazed and fairly lightly trampled (in places) by game (eland, bontebok, springbok and zebra), and has a low density of invasive alien species (<0.5% cover of rooikrans and manitoka; *Acacia cyclops* and *Myoporum sp*.), and most of it can thus be regarded as being in good condition.

The study area was walked, and all plants on site were noted. Photographs of certain plant species were made (using a Fuji mirrorless slr camera) and uploaded to the inaturalist.org website. Satellite imagery dated May 2023 (and earlier) was used to inform this assessment, and for mapping. It is assumed that all-natural vegetation in the dam and growing facility footprints will be permanently lost, and that vegetation in the PV area will be brush-cut and maintained at less than 1m tall, with perhaps a 30% cover loss at the construction phase. The vegetation in the pipeline area is assumed likely to be lost during construction, but most species will return over time (5-10yrs).

At least five plant Species of Conservation Concern (SoCC) were recorded on site, with distribution as per Table 1 in the terrestrial biodiversity assessment report. All have substantial and viable populations on the greater property, but their distribution and abundance vary from footprint to footprint. There is a moderate likelihood of one or two other SoCC being present on the various footprints. Rare local endemic species such as *Cliffortia anthospermoides* (Endangered) do not appear to be present on site and were actively searched for. *Erica irregularis* (Endangered) does not occur south of Gansbaai, although it is common at Grootbos. *Dasispermum grandicarpum* is an inconspicuous, low herb that grows annually from a rootstock (especially now, early in the season), and was until recently known only from Grootbos NR, but has now been recorded from Stanford to Gansbaai (pers. obs.). The species is Redlisted as Data Deficient, but it was not seen in the study areas.

Athanasia quinquedenta ssp. rigens is a shrub Redlisted as Vulnerable, and occurs in coastal sands over limestone from Gansbaai to Stilbaai. Scattered plants occur in three of the study areas.

Agathosma geniculata is a shrub Redlisted as Near Threatened, and occurs in coastal sands from De Kelders to Arniston. The species is common on three of the study areas.

Muraltia pappeana is a shrub Redlisted as Near Threatened and occurs in coastal sands from De Kelders to Riversdale. The species is common throughout most of the study areas.

Cyanchum zeyheri (not flowering, provisional id) is a creeping shrub Redlisted as Vulnerable and occurs in coastal sands and rocky areas from Saldanha to Agulhas and is probably very overlooked. Scattered plants occur in three of the study areas.

Lampranthus fergusoniae is a vygie Redlisted as Vulnerable and is found from Kleinmond to Knysna on coastal sands. Scattered plants occur in three of the study areas.

At least five plant Species of Conservation Concern (SoCC) were recorded in four of the five footprint areas, but viable populations of all SoCC will remain on undeveloped parts of the property, and most of them should survive in the PV area if the vegetation in this area is brushcut to about 1m tall.

- Any approved development footprints should be clearly demarcated on site prior to any development. No disturbance of natural vegetation outside of these demarcated areas should be allowed, either during construction or thereafter.

- All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens *et al* 2021). The main invasive species are rooikrans (*Acacia cyclops)* and manitoka (*Myoporum serratum* and *M tenuifolium*).

- Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for Phases 1 & 2 and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar.

- No large scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels it may be trimmed on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby.

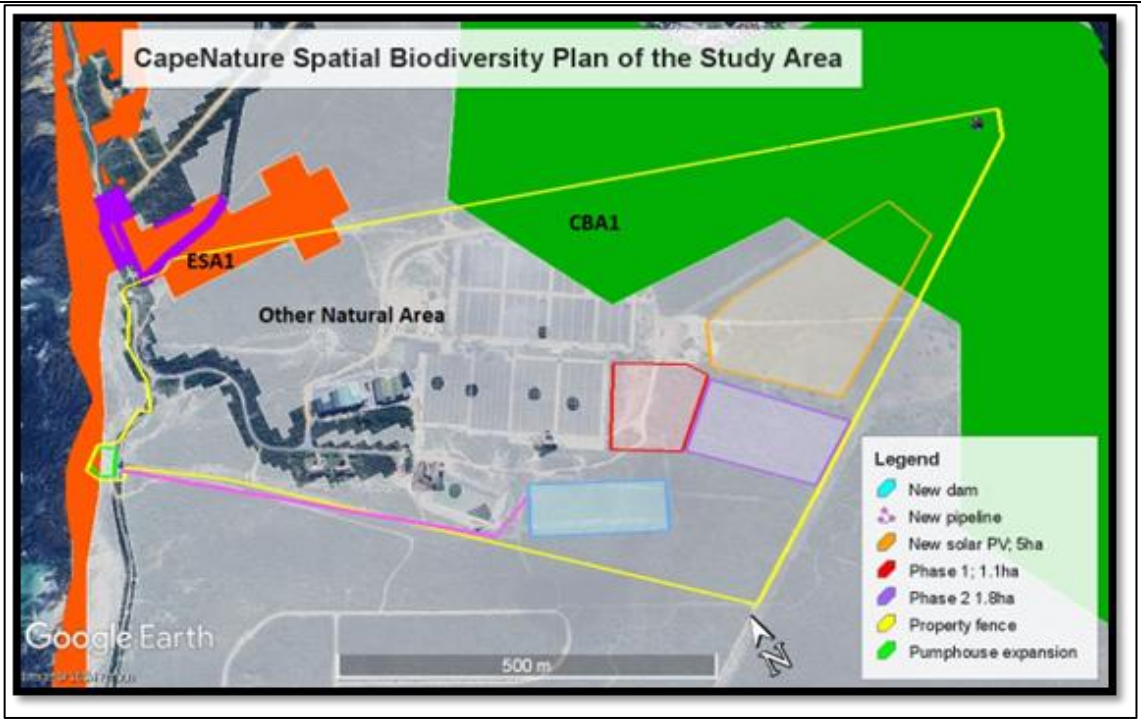


Figure 7: The map illustrates that the majority of the proposed expansion area falls within Other Natural Areas (ONA). A small portion of Ecological Support Area (ESA) is located on the northwestern side, while Critical Biodiversity Area 1 (CBA1) is found on the northeastern side.

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

The site is located within the Coastal Protection Zone (CPZ).

The CPZ aims:

- → To protect the ecological integrity, natural character and the economic, social and aesthetic value of the neighbouring coastal public property;
- → To avoid increasing the effector 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 activity zone;
- → To maintain the productivity of the coastal zone; and
- → To allow authorities to perform rescue and clean-up operations.

The existing intake and effluent channels for the Abalone Farm are already situated within the High-Water Mark (HWM). The proposed expansion will enable additional seawater intake through the expansion of the existing pumphouse and the installation of additional pipelines. These pipelines will be positioned to minimize any potential environmental impact, with the required blasting of bedrock being carefully planned to result in minimal disturbance to the surrounding area. The impacts associated within the installation of the pipelines will be short term and with the implementation of the mitigation measures, they can be managed. The expansion over installation at a new site, reduces the impacts as the expansion area is small and confined to areas directly adjacent to the existing pumphouse which has already been impacted and disturbed by operational activities.

The bulk of the farm's infrastructure, including the proposed expansion area, is located on elevated terrain above the 30 m contour. This elevation includes the expansion area, which is beyond the 30 m contour, providing additional protection from coastal processes. To mitigate the risks associated with climate change, including sea-level rise and storm surges, the preferred development alternative has been designed to situate all bulk infrastructure for the proposed expansion more than 500 meters inland from the HWM and above 30 m contour. The placement of this infrastructure behind (to the northeast of) the existing operations further ensures resilience against coastal hazards while maintaining the integrity and functionality of the project.

Coastal access will not be affected during construction or operation and will be retained as current, where the general public have unrestricted access along the coastline. The placement of the pumphouse within the littoral zone is strategically important, as the distance between the farm and the sea directly impacts operational costs. The electrical costs associated with the pumping of water is one of the largest expenses in the operation of an abalone farm, therefore the further the farm is located from the sea, the substantially higher the pumping cost.

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.

The screening report has not changed.

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

The proposed expansion of the abalone farm is strategically designed to make optimal use of remaining available land on the subject property, maximizing both land efficiency and operational sustainability. This option is preferred over developing a new farm on a greenfield site. The expansion activities will tie into existing operations and infrastructure thereby reducing need for additional infrastructure and keeping expansion activities close to current operations. The core aim of this expansion is to increase the farm's production capacity in response to the growing market demand for abalone exports, while ensuring that the vacant land is effectively utilized to support both agricultural and environmental goals.

One of the main ways the development optimizes vacant land is through the installation of Solar Arrays. These arrays will be installed on unused portions of land, providing an alternative and sustainable energy source to power the farm's operations. This approach not only reduces reliance on traditional electricity sources and fossil fuels but also ensures the farm can maintain continuous operations during power interruptions or load shedding. By utilizing available vacant land for renewable energy infrastructure, the development aligns with broader sustainability objectives and contributes to reducing the farm's carbon footprint.

The proposed expansion is divided into two phases, Phase 1 and Phase 2, which together will significantly increase the farm's production capacity to 300 tons of wet weight abalone production per year. The phased approach allows for the efficient and gradual utilization of available land, ensuring that resources are optimized without overburdening the site. This staged development further demonstrates a careful balance between maximizing land use and maintaining operational growth in a sustainable manner.

In addition to the Solar Arrays, a new seawater reservoir will be constructed as part of the expansion. The reservoir will hold additional seawater drawn through newly proposed pipelines, ensuring the farm has the necessary water supply for uninterrupted operations, even during power outages. This infrastructure plays a vital role in safeguarding the abalone's health and ensuring the long-term sustainability of the farm.

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

The proposed expansion of the abalone farm is designed to significantly optimize the use of existing resources and infrastructure on site, enhancing operational efficiency and sustainability. The development leverages the current facilities, allowing for a strategic upgrade rather than requiring extensive new construction on a greenfield site. This

approach not only maximizes the utility of existing assets but also reduces the need for additional infrastructure in other areas outside the property, aligning with principles of sustainable development and resource efficiency.

A significant component of this optimization is the enhancement of the farm's existing production facilities. The expansion plan includes integrating additional equipment and expansion within the current infrastructure. For example, the existing pumphouse will be expanded, production area will be increased and new pipelines will be installed to facilitate increased seawater intake. This method ensures that the farm can boost its production capacity by 150 tons of wet weight abalone per year without the necessity of constructing entirely new infrastructure. By building upon and improving existing systems, the development minimizes the environmental footprint typically associated with new construction projects. The expansion also represents an "infill type" of development within the current operational footprint through focusing on areas already developed and disturbed by day-to-day operations.

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).

Bulk Sewage and Water Reticulations

The Romansbaai Abalone Farm's existing bulk sewage and water reticulation facilities are adequately designed to accommodate up to 350 people. The current capacity of these facilities is sufficient to support the planned expansion, which is projected to create an additional 350 jobs. Therefore, no further upgrades or modifications are required for the sewage and water reticulation systems to accommodate the expansion.

Electricity

The Romansbaai Abalone Farm is currently allocated and financially responsible for 2.4 MVA of electricity. The current electricity usage stands at 1.7 MVA, demonstrating that there is sufficient capacity available for the proposed expansion. Given this surplus capacity, there is no need for additional confirmation from the local authority regarding electricity services. Given the fact that an abalone farms highest cost relates to electricity due to the constant need to pump seawater, Romansbaai actively seeks renewable options and mechanisms to reduce the pumping costs associated with operations.

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.

In accordance with the Department of Environmental Affairs' Integrated Environmental Management Guideline on Need and Desirability, as articulated in the EIA Regulations, 2014 (as amended), the proposed expansion of the Romansbaai Abalone farm on Portion 2 of Farm 711 in Gansbaai meets the criteria for need and desirability in several critical aspects:

Aquaculture

Marine Aquaculture has been identified as an important sector for development in South Africa as well as at a provincial and local level and is supported by initiatives such as Operation Phakisa. This is linked to a Governmental drive for improved and sustainable utilisation of South Africa's marine resources and coastline which is currently underutilised (Aquaculture).

The Aquaculture industry is one of the fastest growing industries in the Overstrand and also one of the largest employers in the municipality (Overstrand IDP, 2018-2022). The Overberg District Coastal Management Programme (2015) has identified Aquaculture (local economic development and sustainable job creation) as a high priority going

forward, with the Final Situation Analysis Report (2015), identifying Aquaculture, specifically abalone, as an opportunity in the SWOT Analysis for the Overberg through sustainable utilisation of marine living resources and sustainable Aquaculture. Further afield, the Western Cape Joint Planning Initiative (JPI), has identified Aquaculture as a priority JPI for the Overstrand Municipality, for its ability to promote economic growth and development in the municipality. At a National level, the National Aquaculture Policy Framework (2013) has been highlighted as one of the key pillars in achieving the objectives of the National Development Plan (2030) to reduce poverty, unemployment and inequality. This policy framework, aims to, amongst others "promote responsible and sustainable development of globally competitive aquaculture in South Africa and facilitate and support the growth of the aquaculture sector to enable it to contribute to the economic growth, food security and job creation" for South Africa. At full production, the development will provide approximately 350 operational jobs. There will also be opportunities for skills training and Adult Basic Education Training (ABET).

In addition to the socio-economic benefits associated with the proposal, the following aspects should also be considered:

- → The expansion of Romansbaai Abalone Farm will follow the same tried and tested methodology as already operating on site and this have been proven to be successful.
- → Ecologically, the operation of an abalone farm can be considered to be a low impact activity with negligible impacts on the environment when compared with other land-based agricultural activities. For example, the effluent water, which is the circulated seawater which gets discharged back to the marine environment, has been found to have a negligible to zero impact on the marine environment (Probyn *et al*. 2014).
- → Due to the dwindling natural / wild populations of abalone, there is concern relating to the impact of abalone aquaculture on the genetics of the wild stock. However, farms implement management actions to prevent the escape of cultured abalone and spat.
- → The main impacts associated with the expansion of the abalone farm relate to the construction phase.
- → Abalone farming relies on seawater, with a low requirement for freshwater, compared to land based agricultural practices and therefore reduces pressure on natural freshwater resources.
- → There is a high demand for the product on the Asian market. All the stock is exported and this in turn brings foreign capital into the country.

In terms of the renewable power generation, a combination of the high electricity costs of running an abalone farm, as well as the drive for increased renewable energy options, the small-scale solar power generation proposed here is favourable. Reducing the electrical costs of the operation as well as providing an opportunity to feed some of the excess power into the municipal grid is highly advantageous.

Need for the Development

The expansion is driven by a clear market demand for abalone products, which has seen significant growth in recent years. The current production capacity of the farm is insufficient to meet this rising demand, creating a need for increased output to maintain market competitiveness and profitability. By expanding its facilities, the farm will be able to scale up its production by additional 150 tons of abalone annually, addressing the demand gap and supporting the economic viability of the operation.

In addition, the expansion includes the integration of renewable energy solutions and infrastructure upgrades, such as the installation of Solar Arrays and a new seawater reservoir. These enhancements will improve the farm's operational

resilience and efficiency, reducing its reliance on traditional power sources and mitigating the risk of production disruptions due to power outages or load shedding. This approach not only supports the farm's sustainability but also aligns with broader environmental goals of reducing carbon footprints and enhancing energy security.

Desirability of the Development

The desirability of the proposed expansion is underscored by several factors. Firstly, the project represents an efficient use of existing resources and infrastructure, minimizing the need for new land development and reducing overall environmental impact. By focusing on infill development within the current operational area, the expansion avoids additional land disturbance and maintains the integrity of surrounding natural environments.

Furthermore, the project contributes to local and regional economic development by creating job opportunities and increasing the farm's export capacity. This has positive implications for the local economy and supports the sustainability of the regional aquaculture industry.

The proposed development also aligns with the principles of sustainable development outlined in the DEA's Integrated Environmental Management Guideline. It demonstrates a commitment to environmental stewardship through the optimization of existing infrastructure, the adoption of renewable energy technologies, and the enhancement of operational efficiency. These factors collectively enhance the desirability of the expansion by ensuring that the project meets both economic and environmental objectives in a balanced and responsible manner.

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.

N/A

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 Proof of Public Participation document is attached as **Appendix F**.

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

→ DEADP Land Use → DEADP: Coastal Management Unit → Cape Nature → Overberg District Municipality → Overstrand Municipality → Department of Agriculture (DOA) → Department of Forestry, Fisheries and the Environment (DFFE)

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

N/A

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

N/A

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.

Name	Comment	Response
Dr MGM on Erf 70 (I&AP)	• Clarification on the start date and duration of the construction phase. • Details on the geographical extent of the expansion (e.g., east, west, inland, or seaward), including a layout plan of the proposed development. • Information on the height of proposed structures, roads, and the solar installation, and	• The Basic Assessment report has covered these issues and detailed information addressing each point raised, including timelines, a layout plan, an assessment of visual impacts, and clarification on noise and water quality impacts. These details are also incorporated into the Environmental Management Plan.

	their potential visual impact on the surrounding area. • Concerns about potential noise pollution and impacts on ocean water quality, including whether generators will be required as part of the operations	• The proposed site layout plan is attached as Appendix B2. • The solar array will be placed on the Northeast of the farm, the solar will be screened from the public view and will not be visible to adjacent properties. • Noise pollution is expected during the construction phase of the development; however, the impacts are minimum.
Overstrand Municipality	• Expressed no objection to the proposed expansion of the Romansbaai Abalone Farm, provided that all necessary and relevant documents are submitted to the Department of Environmental Affairs and Development Planning (DEA&DP) for approval and reconsideration.	• Noted
DEADP: Coastal Management Unit	• The SD: CM does not object to the proposed expansion, provided it adheres to NEMA and NEM: ICMA requirements, including Sections 62 and 63 of NEM: ICMA for CPZ considerations and Section 28(1) of NEMA for the duty of care to prevent environmental harm. • The applicant must ensure compliance with the DFFE GDA and implement measures to avoid adverse effects on the coastal environment (Section 58 of NEM: ICMA).	• Noted
Cape Nature	**Existing approvals** • Conditions from prior NEMA and municipal planning approvals (e.g., 1996 LUPO consent use, 2008 Botanical Assessment, 2009 Environmental Authorisation) remain relevant unless amended. An audit of the existing Environmental Authorisation (EA) is recommended. • The 1996 approval required undeveloped areas to be managed as a nature reserve, a condition reiterated in municipal planning comments. Overstrand Municipality's Spatial Planning component should be consulted.	**Botanical Assessment dated 2008 by Nick Helme contained these mitigations** • Limestone outcrops will not be impacted • Milkwood's to be avoided • Search and Rescue operations are undertaken in the proposed new production areas before development. • The Dune area to the west must be excluded from any future development. • Adequate ecological connectivity and a corridor of vegetation must be maintained between the eastern and western parts of the site along the northern boundary. About 40m wide. • All these identified areas are excluded from the proposed expansion. **Archeological Impact Assessment (2008) contained these mitigations** • The middens were identified on the southern portion of the farm and this area has been demarcated as a no-go. This mitigation is also included in the 2025 expansion application. **Conditions of Environmental Authorization (2009)** • The 2025 expansion application is in line with the conditions of the EA.

		COMPLIANCE MONITORING CONDUCTED BY DEA&DP OFFICIAL IN 2024 • Compliance monitoring was undertaken on 14 March 2024, and the response from the Department did not find any non-compliance issues, see **Appendix K.** **APPLICATION FOR THE AMENDMENT OF CONDITIONS OF AUTHORIZATION DATED 2013** • The letter was submitted to Overstrand Municipality for amendment of condition of approval in 2013 for the expansion of the farm. • The letter dated September 2013 for applicability of the NEMA Regulations of the expansion of the farm from DEADP stated that the applicant does not require an environmental authorisation in terms of the NEMA EIA Regulations 2010 in order to expand the aquaculture farm, as long as the expansion work on the aquaculture farm remains consistent with the Description of activity section as well as the conditions of the aforementioned environmental authorisation. **Summary** In summary, the 2025 expansion application has been developed with full consideration of the existing NEMA and municipal planning approvals. All relevant conditions from the 2008 assessments, 2009 Environmental Authorisation, and 2013 amendment correspondence remain applicable and are adhered to. The application for consent use and amendment of the site development plan will be undertaken. • The botanical assessment has been updated and the specialist added that: "*No Site Ecological Importance (SEI) was calculated for the various Species of Conservation Concern (SoCC) recorded on site as frankly I don't believe in shoehorning ecological observations (which are never complete in terms of our recording of them or understanding of their abundance and ranges) into neat little boxes merely so that office-bound decision makers can say that this or that is now done. However, an estimate of the site abundance for each SoCC is provided, in the context of the development footprints, the study area, and the region and/or total ranges of these species, which I believe is an equally or even more useful approach, and doesn't*

		require an ecological shoehorn." Helme, (2025).
	Biodiversity and Vegetation • Reviewing the 2024 National Vegetation Map and updating the assessment. • Conducting a spring survey or justifying its omission with precautionary mitigations. • Calculating Site Ecological Importance (SEI) for Species of Conservation Concern (SCCs) per SANBI 2020 guidelines. • Referencing the 2008 botanical assessment to supplement findings. • Five SCCs were recorded (none endangered/critically endangered). Mitigation measures from the 2008 assessment (e.g., avoiding limestone outcrops, Milkwood thickets, and search/rescue of *Lampranthus fergusoniae*) remain relevant.	• Page 11 of the Botanical Assessment (2023) indicates that there are no milkwood thickets or limestone outcrops that will be impacted by the proposed expansion. • The mitigation hierarchy has been applied, and minor adjustments have been made to the proposed site development plan accordingly. It is important to note that the current layout (Alternative 4) represents the final preferred alternative. The positioning of proposed components has been carefully considered to align with existing operational areas of the farm, thereby minimizing further disturbance to the surrounding natural environment on the property.
	Layout and Impact Assessment • The botanical assessment's layout differs from the two BAR alternatives, requiring reassessment of impact significance for both layouts. • Impacts on Phase 2 and the dam (medium to high significance post-mitigation) trigger biodiversity offset requirements. Alternative locations for high-impact components must be explored per the mitigation hierarchy. • Seawater spillage/salinisation from the dam should be assessed as a potential impact. • The applicant must confirm that the mitigation measures associated with the solar PV array can be implemented. We also recommend that the impacts associated with the solar PV array should also be evaluated in the context of the alternative of connecting to the local electricity grid	• The motivation regarding the applicability of the Biodiversity Offset is included under Appendix APP L of the BAR. No offset will be followed for the expansion. • The reservoir is lined with HDPE lining to prevent seawater leakage. Water is abstracted in line with CWDP and GDA the volumes of water abstracted are carefully monitored via pump capacities and the volume of seawater required on the farm is known, should there be a malfunction of the lining, the loss of water will be immediately evident. It is also important to note that the most significant cost associated with the operation of a abalone farm is the electrical pumping cost associated with the abstraction of seawater, therefore it is not in the interest of the farm to "waste" the abstracted seawater. The entire expansion application has been designed in an

	• The impact on the coastal and marine ecosystems must be evaluated in a separate specialist study. • The animal species theme must be addressed by a specialist in accordance with the protocols. • The expansion of the pumphouse is located well below the high water mark as indicated on the DFFE and DEA&DP Coastal Viewers and therefore requires a Sea Shore Lease.	attempt to reduce the costs associated with abstraction of seawater. • The mitigation measures associated with the Solar PV will be strictly adhered to and these are incorporated into the EMPr. The high cost of electricity is one of the farm's largest expenses, the applicant had to look for alternative energy measures to ensure long-term financial viability of the farm through renewable energy measures. • The impact of the development on coastal and marine ecosystem has been addressed into the BAR. • A Terrestrial Animal Site Sensitivity Verification and Species Compliance was conducted. • A lease agreement with Cape Nature is already in place, see Appendix J.
DEADP:	• The expansion must comply with the conditions of the Environmental Authorisation (EA) issued on 03 March 2009 (Ref: E12/2/3/1-E2/11-0262/07). • As the facility is now owned by a new entity, an amendment application is required to transfer EA rights and obligations. • The BAR lists numerous activities; the Environmental Assessment Practitioner (EAP) must refine this to include only relevant listed activities. • The botanical specialist's offset recommendations (for impacts on a critically endangered ecosystem per NEMBA Section 52) are absent from the Environmental Management Programme (EMPr). The EAP must justify their exclusion, given unavoidable impacts.	• The application for the expansion is in line with the conditions of the Environmental Authorisation issued in 2009. • This will be undertaken in due course. • This section has been refined. • The EMPr has been amended and includes this mitigation.
DFFE (Michelle Pretorius)	• Unable to review the documents • Requested that and I&AP database should be updated with the list of DFFE officials who are to review EIAs for aquaculture.	• Noted
Department of Infrastructure (Roads)	• No objection to the application	• Noted.
	• No objection to the proposed development .	• Noted.

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 x
1.2.	Provide the name and or company who conducted the specialist study.		
N/A			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
N/A			
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.		
N/A			

2. Surface water

2.1.	Was a specialist study conducted?	YES	NO x
2.2.	Provide the name and/or company who conducted the specialist study.		
N/A			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
N/A			

3. Coastal Environment

3.1.	Was a specialist study conducted?	YES	NO x
3.2.	Provide the name and/or company who conducted the specialist study.		
N/A – The application is for the expansion of existing infrastructure within an already impacted coastal area.			
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.		
If yes, describe the following: (i) the extent to which the applicant has in the past complied with similar authorisations; N/A (ii) 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 proposal or listed activity is consistent with the purpose for establishing and protecting those areas;			

The expansion of the pumphouse and addition of 4 pipelines will be located within CPP and CPZ, however the location of these structures cannot be avoided due to the inherent nature of abalone farms and their reliance for a constant supply of freshwater. The Application is also for the expansion to existing infrastructure and therefore confined to these specific areas.

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

N/

(iv) the likely socio-economic impact if the listed activity is authorised or is not authorised;

The proposed expansion will generate a significant amount of additional job opportunities for people in the direct area

(v) the likely impact of coastal environmental processes on the proposed development;

In order to avoid the effects of climate change, sea level rise and storm surges, the preferred alternative aims to reduce as far as practically possible, all infrastructure within the 100 m from the high-water mark zone, only essential infrastructure is located within this zone. The Bulk of the farm is located above the 10 m contour and therefore not at risk

(vi) whether the development proposal or listed activity—
(a) 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;

N/A, coastal access is not restricted by the operation of the infrastructure within the CPP and the general public are still able to access and walk along this section of coast – this will not change with the expansion

(b) 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 of NEM: ICMA;

N/A, the farm will operate within the coastal protection zone (CPZ). The CPZ aims:
- 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 proposed development is consistent with the objectives and as reflected in the preferred alternative

(c) 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 of NEM: ICMA;

N/A, Coastal access will not be affected during construction or operation.

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

N/A, the impacts associated within the installation of the new pipelines and expansion of the pumphouse, will be short term and with the implementation of the mitigation measures, they can be managed. During the operational phase, discharge of effluent water will not cause any negative effects on the marine environmental due to the quality of the discharge water

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

N/A, only essential infrastructure is located within 100 m of the high water mark. The bulk of the expansion activities are located above the 30 m contour.

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

N/A – the proposed expansion will take place directly alongside the existing abalone farm and not affect any Greenfield sites.

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

N/A – Abalone farms are one of the main job providers in the Overstrand, an operation of this size will be creating a significant number of jobs for local communities.

(vii) 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;

Yes, the electrical costs associated with the pumping of water is one of the largest expenses in the operation of an abalone farm, therefore the further the farm is located from the sea, the substantially higher the pumping cost. It is not financially feasible to locate an abalone farm off the coast.

(viii) whether the proposed 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

No, however, the area is known for extensive abalone poaching activity and it is expected that the presence of the operations in the area and the associated security infrastructure, may act as a deterrent for poaching in the vicinity.

(ix) the objects of NEM: ICMA, where applicable.

There is an existing lease agreement in place, see **Appendix J**.

Disturbance and Impact minimization

The proposed expansion involves the additional disturbance of approximately 140 m² area within the coastal zone for the expansion of the pumphouse. This expansion will be located directly adjacent to the existing pumphouse. It will include the installation of four new pumps and four pipelines (one new pump will be housed in the existing pumphouse). The excavation required for this extension will involve drilling into the bedrock and using Nonex, a non-explosive rock-breaking agent. This method is chosen to minimize noise and vibration impacts compared to traditional blasting methods. The impact of this excavation will be contained to the immediate area of the expansion, with the broken rock being removed to create a sump that integrates with the existing infrastructure. This careful approach ensures that while there will be excavation and blasting, the extent of disturbance is minimized and managed effectively.

New pipeline: Located within existing pipeline corridor - will be excavated for a depth limited to approximately 1 m, which is necessary to accommodate the new pipelines, each with a diameter of 0.5 m.

Alignment with existing infrastructure

The proposed pipelines will be aligned alongside the existing pipelines and disturbed route of the infrastructure. This alignment is crucial in reducing additional environmental disturbance and ensuring that the new development integrates with the existing infrastructure rather than creating new disturbance. The expansion of the existing pumphouse will allow for the increased seawater intake required for the expansion of the production area on the farm. The project design has been carefully planned to avoid impacts on protected areas, including limestone formations, milkwood trees, and replanted vegetation, which are highlighted in yellow in **Figure 9**.

Preservation of Public Access

The design of the expansion explicitly avoids any alterations to existing public pathways. The project ensures that public access to the coastal area remains unaffected as currently in effect, respecting the principles of maintaining public access as stipulated by Section 63 of the ICMA.

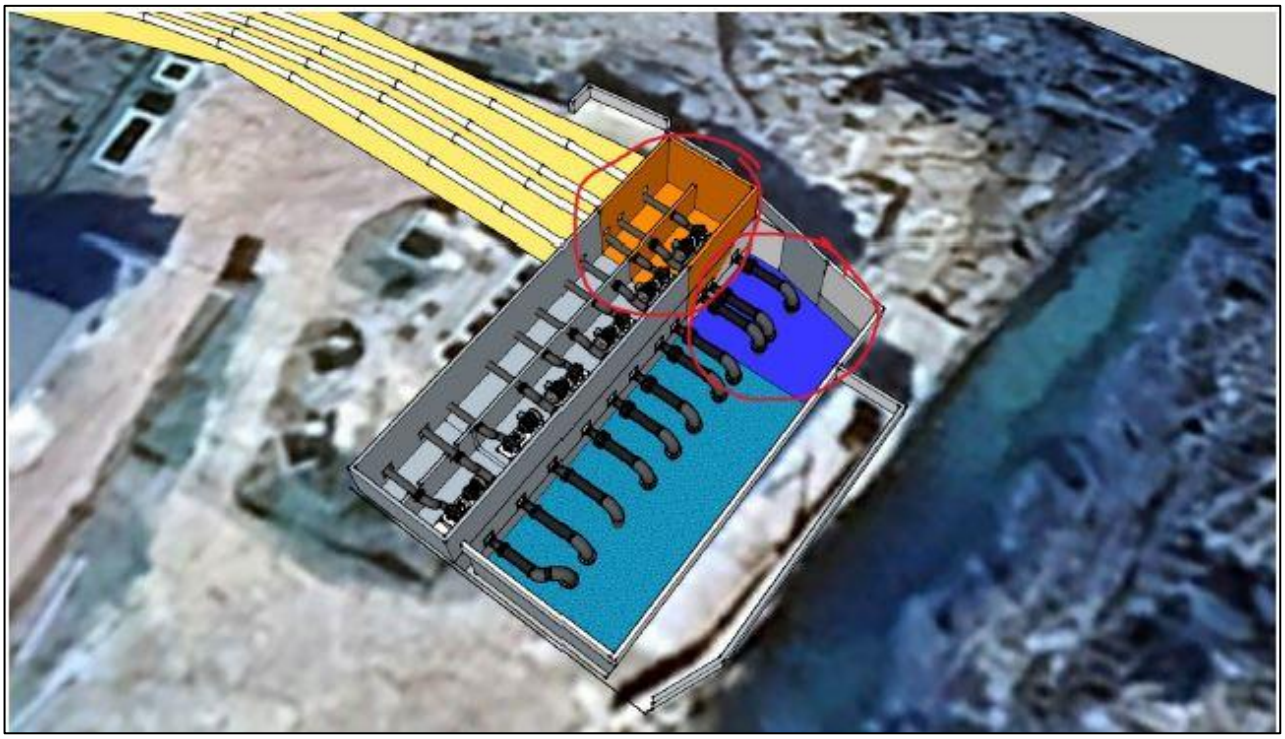


Figure 8: Area illustrated in orange and blue is the area of expansion that will be excavated and blasted for the installation of new pumps to be fitted on the new pipelines. The pipelines in white will be subsurface so as not to restrict public access and movement along the coastline.

Figure 9: The pipeline corridor is indicated in red and the yellow circle indicates the limestone, milkwood and replanted vegetation area.

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

N/A

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.

Abalone Farms inherently rely on a constant supply of fresh seawater and operate mostly on a continued through flow system, where the seawater is pumped onto the farm, runs through the tanks and is then discharged back to sea. The pumphouse and associated infrastructure needs to be located within the high-water mark and CPZ. In the case of Romansbaai Abalone Farm however, the bulk of the infrastructure such as abalone tanks, offices, service infrastructure etc are located high on the farm above the coastal contour and therefore are at low risk of impacts relating to storm surges and sea level rise.

One of the key considerations has been the farm's location relative to climate change risks, such as sea level rise, storm surges, and coastal erosion. The bulk infrastructure, including the proposed production area for the expansion, is strategically situated on elevated ground above the 10-meter contour line, with the new production area being located beyond the 30-meter contour. The positioning of all major infrastructure more than 500 meters inland from the High-Water Mark provides an added layer of protection from the dynamic forces of the coastal environment.

In terms of excavation and blasting, the development involves minimal disturbance alongside the existing pumphouse. Although some bedrock excavation and minor blasting will be necessary to create space for the installation of the pipelines, these activities will be highly localized and controlled to limit environmental impact. Excavation will occur to a depth of 1 m to accommodate the three 0.5 m diameter pipes, ensuring the infrastructure is securely installed without

compromising the surrounding geological features. Blasting, where required, will follow strict environmental protocols to mitigate vibrations and reduce the risk of disrupting nearby sensitive areas, such as the existing limestone formations.

The decision to place the bulk infrastructure behind the existing operations, northeast of the farm and more than 500 meters from the High-Water Mark, aligns with sustainable development principles. By keeping the expanded facilities away from vulnerable coastal areas and critical zones like the Littoral Active Zone, the development not only ensures long-term operational stability but also limits ecological disturbance to sensitive coastal ecosystems.

4. Biodiversity

4.1.	Were specialist studies conducted?	YES x	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
Nick Helme Botanical Surveys			
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 systematic conservation planning, which is supported by Cape Nature BSP, SA vegetation maps, NFEPA, iNaturalist as well as other biodiversity informants have been utilised for the assessment of the study area.

Extracted from the Botanical Specialist report:

SA Vegetation Map shows that the original natural vegetation in the study area is all Overberg Dune Strandveld (Mucina & Rutherford 2018). This was also confirmed through ground truthing by the specialist.

Overberg Dune Strandveld is now gazetted as Endangered on a national basis (Government of South Africa 2022). About 90% of its total original extent remains intact, about 36% is conserved, and the national conservation target is also 36% (Rouget et al 2004), and I am thus unclear on how this can be listed as Endangered, even though it is listed under the B1(iii) criterion (restricted distribution and threatening processes). The unit is known to support relatively few plant Species of Conservation Concern (Raimondo et al 2009), most of which are threatened by habitat loss to urban development and alien invasive vegetation. This unit occurs on nutrient poor, deep, alkaline sands on the coastal lowlands, and the vegetation type does not need fire for optimal ecological functioning, although it can and does occasionally burn (Helme & Rebelo 2016).

The site has not been burnt for at least twenty years, the vegetation is grazed and fairly lightly trampled (in places) by game (eland, bontebok, springbok and zebra), and has a low density of invasive alien species (<0.5% cover of rooikrans and manitoka; *Acacia cyclops* and *Myoporum sp*.), and most of it can thus be regarded as being in good condition.

Photo 1: View of natural Strandveld vegetation in the area proposed for the PV facility, looking southwest (Helme, 2024).

Photo 2: View of High sensitivity Overberg Dune Strandveld on the Phase 2 facility area, looking northwest (Helme, 2024).

Photo 3: View of disturbed, Low sensitivity Overberg Dune Strandveld in the proposed Phase 1 facility area, looking north towards the existing infrastructure (Helme, 2024).

Photo 4: View of High sensitivity Strandveld vegetation in proposed dam area, looking west (Helme, 2024).

Photo 5: View west along proposed pipeline route to existing pumpstation, with brushcut area to the right (north) of the fence (Helme, 2024).

As can be seen in the site photos the natural vegetation on most areas has high structural diversity, with a mix of tall shrubs, small trees, grasses, restios and herbs. Autumn flowering geophytes are also present (*Brunsvigia, Oxalis, Haemanthus*).

Indigenous species noted in the natural vegetation in most of the study areas include *Searsia glauca, S. laevigata, S. lucida, Anthospermum spathulatum*, *A. galiodes, Euclea racemosa, Pterocelastrus tricuspidatus, Thamnochortus insignis, Cynodon dactylon, Carpobrotus acinaciformis, Otholobium bracteolatum, Jordaaniella dubia, Ruschia sarmentosa, Restio eleocharis, R. calcicola, Helichrysum niveum, H. patulum, H. dasyanthum, Cassine peragua, Maytenus lucida, Lachenalia rubida, Ficinia ramosissima, F. indica, F. secunda, Schoenus arenicola, Chaenostoma subspicatum, Phylica ericoides, Metalasia muricata, Salvia aurea, Brunsvigia orientalis, Passerina paleacea, Satyrium carneum, Osteospermum moniliferum, Eriocephalus racemosus, Tetragonia fruticosa, Sideroxylon inerme, Roepera flexuosa, Geranium incanum, Muraltia satureoides, M. pappeana, Haemanthus coccineus, Brunsvigia orientalis, Chironia baccifera, Olea exasperata, Ehrharta villosa, Cineraria geifolia, Asparagus asparagoides, Rumex sagittatus, Oncosiphon suffruticosum, Pentameris pallida, Arctotheca calendula, Athanasia quinqedentata ssp. rigescens, Cassine peragua, Aspalathus hispida, Cotula pruinosa, Tephrosia capensis, Agathosma geniculata, Pelargonium betulinum, Massonia depressa, Solanum guineense, Ifloga repens, Babiana nana, Myrsine africana, Zaluzianskya villosa, Oxalis depressa and Trachyandra ciliata.*

At least five plant Species of Conservation Concern (SoCC) were recorded on site, with distribution as per **Table 1**. All have substantial and viable populations on the greater property, but their distribution and abundance vary from footprint to footprint. There is a moderate likelihood of one or two other SoCC being present on the various footprints. Rare local endemic species such as *Cliffortia anthospermoides* (Endangered) do not appear to be present on site and were actively searched for. Erica *irregularis* (Endangered) does not occur south of Gansbaai, although it is common at Grootbos. *Dasispermum grandicarpum* is an inconspicuous, low herb that grows annually from a rootstock (especially now, early in the season), and was until recently known only from Grootbos NR, but has now been recorded from Stanford to Gansbaai (pers. obs.). The species is Redlisted as Data Deficient, but it was not seen in the study areas.

The table below summarizes the findings of the botanical specialist during the assessment of Alternatives 1 and 2, conducted prior to the evolution of the refined alternative (Alternative 4). The refined alternative (Alternative 4) was informed by the botanical sensitivity map, which highlighted the distribution of Plant Species of Conservation Concern (SoCC) within the study area. The revised site layout, Alternative 4 minimizes impacts on the identified areas of botanical sensitivity and the areas of these plants species of conservation concern. This approach ensures alignment with ecological conservation goals and avoiding highly sensitive areas through application of mitigation hierarchy.

Table 2: Distribution of the plant SOCC in the study areas. No SoCC were recorded in the pumpstation or pipeline areas (Helme, 2024).

Species	***Redlist Status***	***Found where***
Athanasia quinquedentata ssp. *rigens*	VU	PV, Phase 2, Dam
Cynanchum zeyheri	VU	PV, Phase 2, Dam
Muraltia pappeana	Near Threatened	PV, Phase 1, Phase 2, Dam
Agathosma geniculata	Near Threatened	PV, Phase 2, Dam
Lampranthus fergusoniae	VU	PV, Phase 2, Dam

Athanasia quinquedenta ssp. rigens is a shrub Redlisted as Vulnerable, and occurs in coastal sands over limestone from Gansbaai to Stilbaai. Scattered plants occur in three of the study areas.

Agathosma geniculata is a shrub Redlisted as Near Threatened, and occurs in coastal sands from De Kelders to Arniston. The species is common on three of the study areas.

Muraltia pappeana is a shrub Redlisted as Near Threatened, and occurs in coastal sands from De Kelders to Riversdale. The species is common throughout most of the study areas.

Cyanchum zeyheri (not flowering, provisional id) is a creeping shrub Redlisted as Vulnerable, and occurs in coastal sands and rocky areas from Saldanha to Agulhas, and is probably very overlooked. Scattered plants occur in three of the study areas.

Lampranthus fergusoniae is a vygie Redlisted as Vulnerable, and is found from Kleinmond to Knysna on coastal sands. Scattered plants occur in three of the study areas.

The botanical sensitivity of the site, as illustrated in **Figure 11**, indicates two patches of high botanical sensitivity. These areas are primarily located within the proposed photovoltaic (PV) array area and the footprint for the new seawater reservoir. Recognizing the ecological importance of these sensitive areas, the design of the new preferred alternative, Alternative Layout 4, has been refined to reduce environmental impacts. Alternative Layout 4 shifts the proposed production area, including the grow-out tanks, into areas of low and medium botanical sensitivity, avoiding the mapped high-sensitivity patches wherever possible. Compared to previous alternatives, the development footprint in Alternative Layout 4 has been significantly reduced. Initially, the combined Phase 1 and Phase 2 development covered 3 hectares, as proposed in Alternative Layouts 1 and 2. However, the revised design under Alternative Layout 4 now limits the total

development footprint to 2 hectares. This reduction demonstrates a commitment to minimizing the disturbance of indigenous vegetation and reducing overall environmental impact on highly botanical sensitive areas.

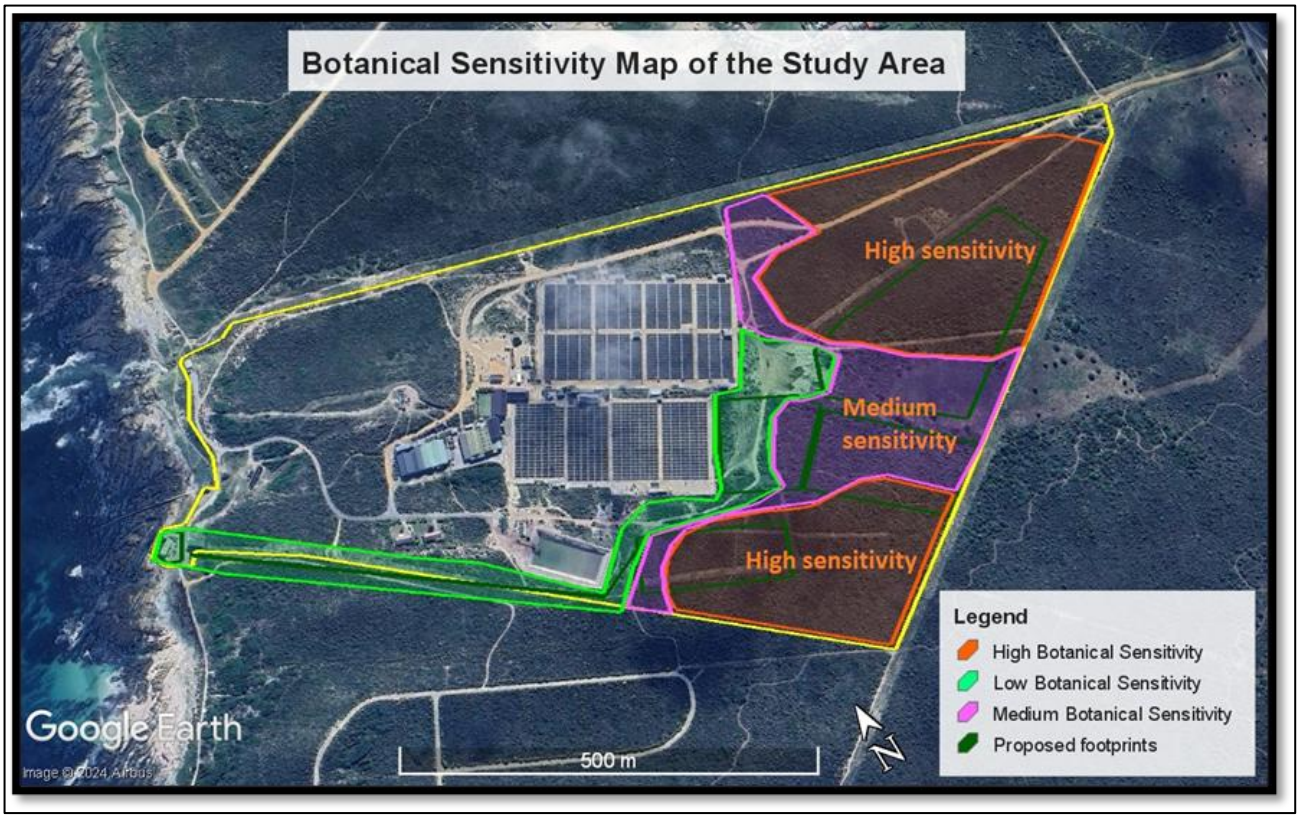


Figure 11: Botanical sensitivity map for the portion of the property (property outline in yellow) (Helme, 2024).

Alternative 1 and Alternative 2: Construction and Post-Construction phase impacts

Construction Phase

The primary construction phase ecological impact of the proposed development would be permanent loss of all Low, Medium and High sensitivity vegetation (gazetted as an Endangered vegetation type) in three of the five footprints, along with associated loss of the site populations of the five recorded plant Species of Conservation Concern in these areas. Areas where vegetation loss will be total are the two growing facilities (Phases 1 & 2) and the new dam.

Temporary vegetation loss would occur in the PV area and the pipeline. In the PV area vegetation loss will be most significant for the larger, taller woody species, which will need to be brush-cut down to less than 1m, whilst the lower growing species should actually benefit from the reduced canopy cover. Total vegetation loss in the PV area is neither desirable nor likely, as the applicant wants to ensure that vegetation cover is largely retained, to limit sand and dust impact. No vegetation loss is likely as a result of the pumphouse expansion.

The proposed PV development would also result in degradation of about 6ha of area mapped as CBA1 (Critical Biodiversity Area 1), with the rest of the footprint impacting on ONA (Other Natural Area). Loss of mapped CBAs and ESAs are not supported, as they are deemed to be irreplaceable habitat and serve multiple ecological functions, for both species, ecological connectivity and for meeting national conservation targets. Loss of CBAs is usually associated with High negative ecological impact.

Botanical significance of this habitat and species loss (before and after mitigation) ranges from **Very Low negative** for the pumpstation expansion to **Medium - High negative** for the dam area. There is little one can do to mitigate the impacts of loss of habitat and SoCC.

The extent of the impacts is deemed to be local and regional, but also national, in that the vegetation types and threatened species are also assessed at a national level.

Table 3: Summary table for construction phase botanical impacts associated with the proposed development.

Development Area	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity	Significance before mitigation	Significance after mitigation
PV area	Local	Long term	Medium	Definite	Low to Medium	Low to Medium -ve	Low to Medium -ve
Phase 1 Area	Local & regional	Permanent	High	Definite	Low	Low -ve	Low -ve
Phase 2 Area	Local & regional	Permanent	High	Definite	High	Medium -ve	Medium -ve
Dam area	Local & regional	Permanent	High	Definite	High	Medium to High -ve	Medium to High -ve
Pipeline	Local	Temporary	Low	Definite	Low	Low -ve	Low -ve
Pumphouse expansion	Local	Permanent	Very Low	Definite	Very Low	Very Low -ve	Very Low -ve
No Go	Local	Unknown and variable	Neutral to low negative	Unknown	Low	Neutral to Low negative	Neutral to Low negative

Operational Phase Botanical Impacts

Operational phase impacts will take effect as soon as the natural vegetation on the site is lost or disturbed, and will persist in perpetuity, or as long as the area is not fully rehabilitated (not likely within 30yrs). Operational phase impacts include loss of current high levels ecological connectivity across the study areas, and associated habitat fragmentation. The construction may also result in alien Argentine ant introduction, with associated negative ecological impacts on seed dispersal for up to 25% of the remaining indigenous plant species within 50m of any construction.

The overall habitat fragmentation and loss of ecological connectivity impact is likely to be **Medium negative** at the property scale (before and after mitigation), as the development will result in loss or degradation of almost 50% of the remaining natural vegetation on the property.

Table 4: Summary table for operational phase botanical associated with the proposed development.

Development Area	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity	Significance before mitigation	Significance after mitigation
PV area	Local	Long term	Medium	Likely	Low to Medium	Low to Medium -ve	Low to Medium -ve
Phase 1 Area	Local & regional	Permanent	High	Definite	Low	Low to Medium -ve	Low to Medium -ve
Phase 2 Area	Local & regional	Permanent	High	Definite	High	Medium -ve	Medium -ve
Dam area	Local & regional	Permanent	High	Definite	High	Medium -ve	Medium -ve
Pipeline	Local	Temporary	Low	Likely	Low	Low -ve	Low -ve
Pumphouse expansion	Local	Permanent	Very Low	Definite	Very Low	Very Low -ve	Very Low -ve
No Go	Local	Unknown and variable	Neutral to low negative	Unknown	Low	Neutral to Low negative	Neutral to Low negative

Alternative 4 (Preferred): New refined layout

The newly refined development layout (Alternative 4) represents a significant improvement over the previous alternatives (Alternative 1 and Alternative 2) in terms of environmental sensitivity and reduced spatial impact. The total development footprint in this layout has been reduced to 6.9 ha, which is considerably smaller than the 9.6 ha proposed in both Alternative 1 and Alternative 2. The new preferred layout (alternative 4) limits the production area to low and medium sensitivity areas by avoiding areas of high botanical sensitivity as well as the milkwood forest. Furthermore, the development footprint for the production area has been reduced from 3.5 ha to 2 ha. The new seawater reservoir proposed is still situated within the high sensitive area since the elevation of the topography in that location is high, for gravity feed for the new production area. The sea water reservoir development footprint is reduced from 2 ha to 0.8 ha.

The only changes from Alternative 1 and 2 are that the latest layout (Alternative 4) reduces the botanical significance for the Phase 2 production (grow out) area from Medium negative to Low to Medium negative, and that the seawater reservoir area drops in significance from Medium to High negative to Medium negative.

The milkwood area will not be impacted by the proposed development footprint under this Layout Alternative.

The overall reduced botanical impact (Low to Medium negative, with the seawater reservoir being Medium negative) reduces the quantum of the possible biodiversity offset that may be required.

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.

It is important to note that this project commenced in October 2023, with the first round of public participation taking place in October 2024. Therefore, all preliminary assessments were undertaken using the 2017 BSP. The 2023 BSP was gazetted in December 2024 only.

According to the **2017 BSP,** a Critical Biodiversity Area 1 (CBA1) intersects the northwestern part of the property. This area has been proposed for the raised solar array and therefore will result in some disturbance to this area. However, it is important to note that because the PV Array will be raised off the ground, at a minimum of 1 m above the grounds, most the habitat can remain fairly intact beneath it. Partial shading caused by the solar panels may occur however, most species in this area are expected to persist (See Botanical Impact Assessment).

The option of moving the solar array southwards, completely out of the CBA area, as well as the area mapped of high botanical sensitivity was considered, however, the presence of milkwood forest located southwards of the solar array limited this. In addition, the solar array requires the correct slope for orientation purposes and therefore its location is fairly restricted on topography alone.

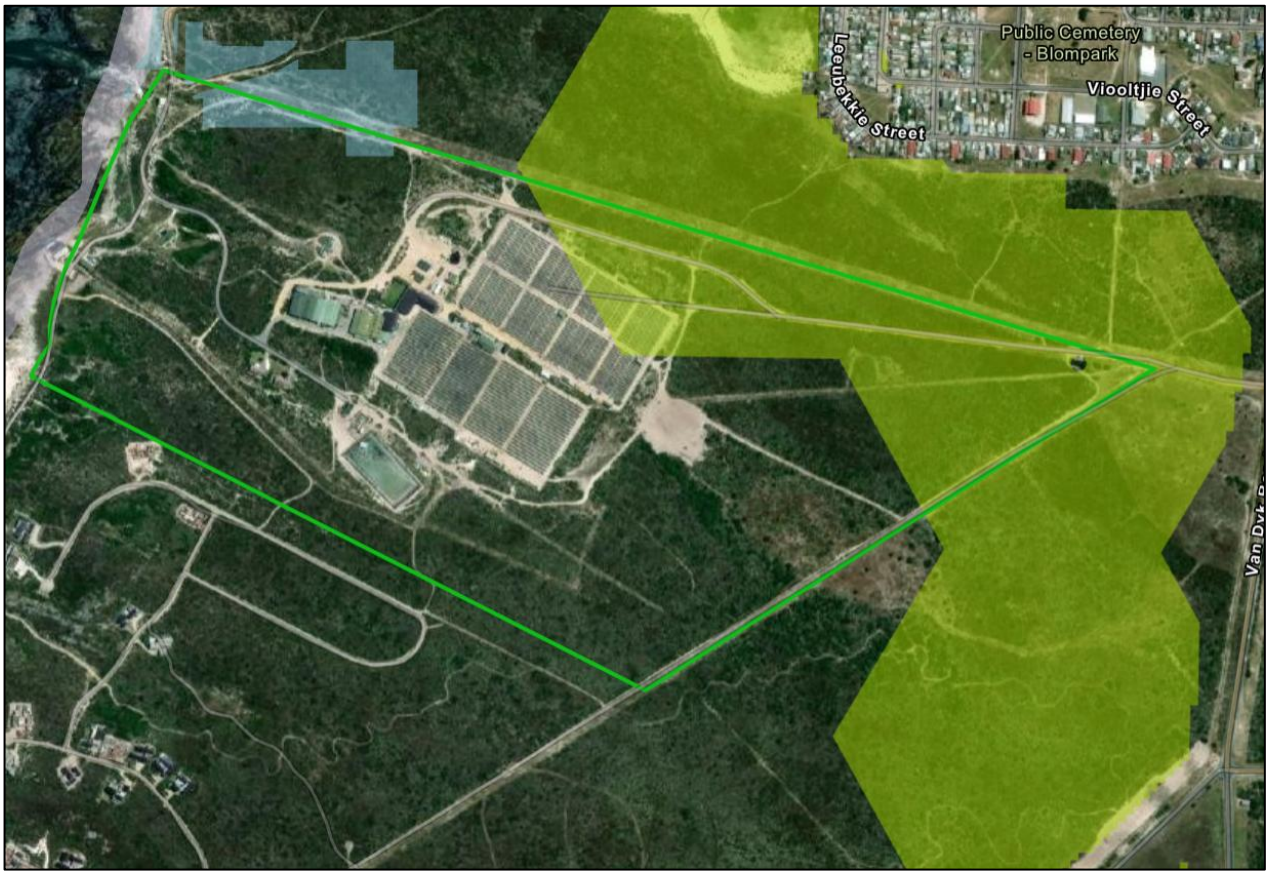


Figure 12a: The northwestern area of the property falls within CBA1 as per 2017 BSP

Figure 12b. 2023 BSP Map

The 2023 BSP map, marks the entire site as a CBA and therefore the entire operational area and expansion site is marked as CBA. It is important to note that the CBA designation under the 2023 BSP would appear inaccurate by marking the operational area and areas of the lower income housing to the north as CBA.

Through site visits, ground truthing and input from the specialist team, the use of lower sensitivity areas and areas impacted by operations, with limited to no natural habitat, were allocated to the expansion application.

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.

The proposed development has the potential to impact the site-specific features and functionality of the Biodiversity Spatial Plan (BSP) category associated with the Overberg Dune Strandveld, which is classified as Endangered. The Terrestrial Assessment highlights that the original vegetation on the site is primarily Overberg Dune Strandveld, characterized by a mixture of grazed and lightly trampled areas by game species such as eland, bontebok, and springbok, and a low density of alien vegetation (*Acacia cyclops* and *Myoporum sp*.), much of which is in good condition. (Note that the assessment used the 2018 Veg mapping due to the timing on the project and the Botanist confirmed that regardless of the upgrading to the 2024 National Vegetation Map, the vegetation type remains as assessed but has changed names to: Southwestern Strandveld, with the assumption of the same threat status in the absence of threat status for this new vegetation category.

The assessment identifies at least five plant Species of Conservation Concern (SoCC) present on the site, with viable populations across the greater property. The distribution and abundance of these species vary across the development footprint. Notably, while rare local endemics like *Cliffortia anthospermoides* (Endangered) and *Erica irregularis* (Endangered) are not found on site, other species such as *Dasispermum grandicarpum*, currently Redlisted as Data Deficient, have been recorded in proximity. Additionally, species such as *Athanasia quinquedenta ssp. rigens* (Vulnerable), *Agathosma geniculata* (Near Threatened), *Muraltia pappeana* (Near Threatened), *Cyanchum zeyheri* (Vulnerable, provisional identification), and *Lampranthus fergusoniae (*Vulnerable) are observed within various study areas. These

species contribute to the ecological value of the site and the broader region, indicating that the area supports a diverse range of plant life with varying conservation statuses.

The botanical sensitivity of the site, as depicted in **Figure 11**, reveals that two patches of High sensitivity are located primarily within the proposed photovoltaic (PV) area and the new dam footprint. The proposed PV development would result in disturbance of about 4 ha of area mapped as CBA1 (Critical Biodiversity Area 1), with the rest of the footprint impacting on ONA (Other Natural Area).

The possibility of relocating the PV solar array to areas of Medium botanical sensitivity was explored. However, this option was deemed unsuitable due to the presence of milkwood forests in these areas, which are ecologically significant. in the new preferred alternative layout (Alternative 4), the solar array remains in its originally proposed location. The site is classified as Overberg Dune Strandveld (Endangered) vegetation. Large sections of the proposed expansion area have been impacted by current activities onsite including animals from the adjacent property which are roaming between the subject property. The clearance of vegetation Search and Rescue was conducted by a professional Botanical Specialist prior the construction of the previous expansion on the farm which aimed at retracting the sensitive plants and replanted them in areas indicated in yellow on the map in **Figure 13** below. The proposed expansion will not extend or impact these areas. **Figure 14** indicate the areas of limestone outcrops, milkwood and vygie on the property. By illustration the expansion of facilities for the production area, construction of lined seawater reservoir and additional pipelines will not expand to these features.

Figure 13: The map illustrating the plants rescued from the previous 2009 EA and planted in the areas indicated in yellow.

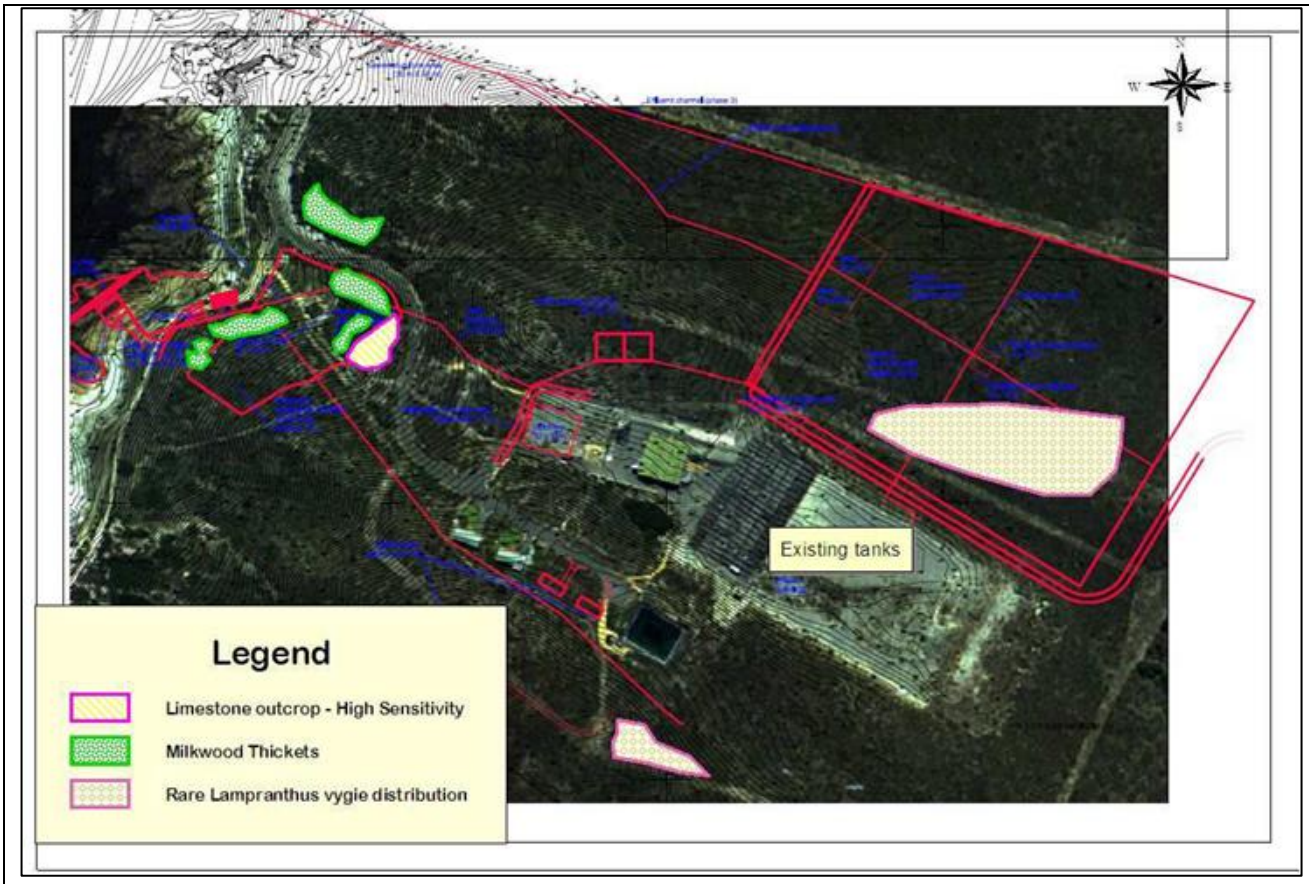


Figure 14: A clear illustration of the limestone, milkwood thicket and vygie distribution.

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.

N/A.

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

An animal species assessment conducted and observed the faunal species during the site survey on the study area. The survey consisted of meandering visual, acoustic surveys and point surveys performed at and between the various proposed development sites. During the analysis, the animal species assessment highlighted and tabulated faunal species of conservation concern (SoCC) that could be present on or close to the development footprint, refer to **Figure 15 and Table 5** below.

Table 5: The PAOI was set considering main SCC we think are present on or close to the development footprint.

Species/Group	PAOI Buffer size	Notes
Raptors and Birds general	300 m	Foraging and resting areas
Waterbirds	300 m	Foraging and resting areas
Nocturnal insects	250 m	Influence of artificial lights
Diurnall insects and herpetofauna	100 m	Foraging and breeding habitat

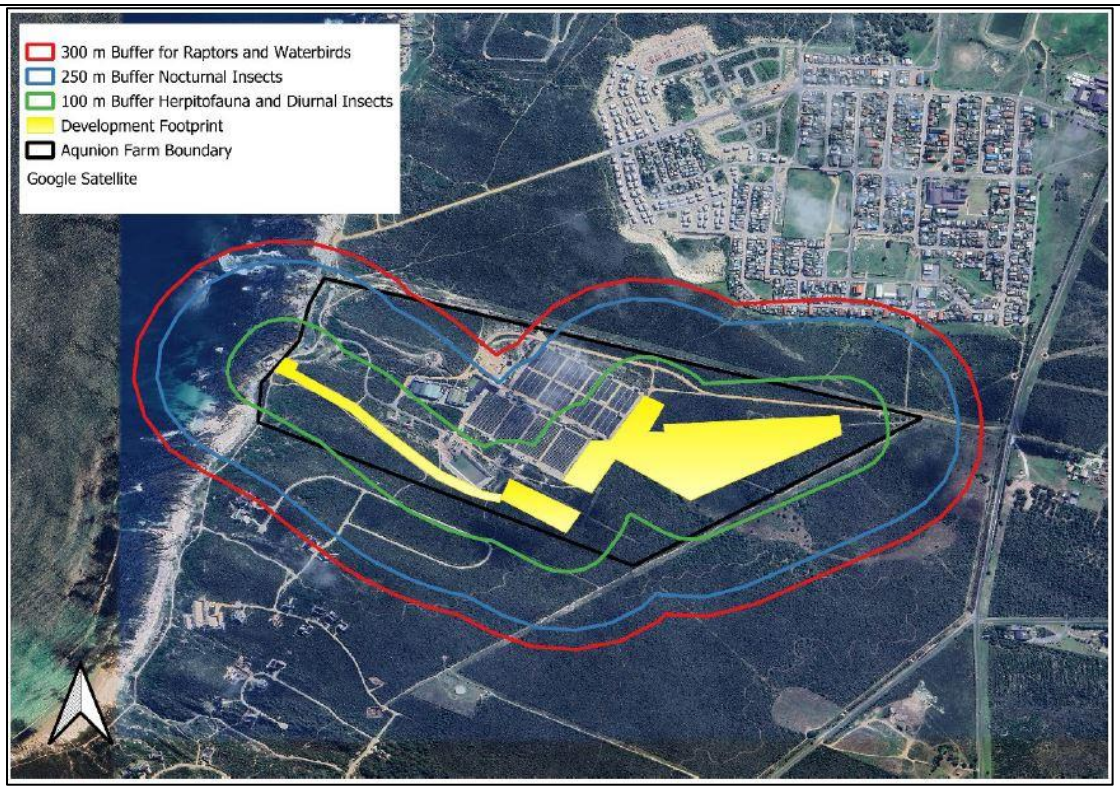


Figure 15: The PAOI was set considering main SCC we think are present on or close to the development footprint. (*source*: Venter, 2024).

The screening of the development site was conducted using Google Earth imagery and on-site verification. The assessment identified three broad habitat types, e.g natural fynbos, short disturbed fynbos 'pasture', and built-up areas.

Natural fynbos

Based on the specialist findings, natural Overberg Dune Strandveld in relatively good condition. Some areas associated with roads and farm infrastructure are degraded. Vegetation areas of high sensitivity based on the (Helme 2024) report. The specialist also argues that this habitat type could be considered ideal habitat for faunal species as its condition is relatively good.

Short disturbed fynbos 'pasture'

Degraded Overberg Dune Strandveld which seems to have been converted into pasture for utilisation of the Burchell zebra and bontebok that are present on the site. This created open habitat with the presence of forbs and grasses not commonly associated with the surrounding natural vegetation. This habitat only covers about 2 ha of the property.

Built up areas

This is habitat that are covered in infrastructure (buildings, roads, fences, abalone rearing ponds etc) associated with the abalone farming activities (Figure 7). These areas are kept clean of vegetation and pest control takes place.

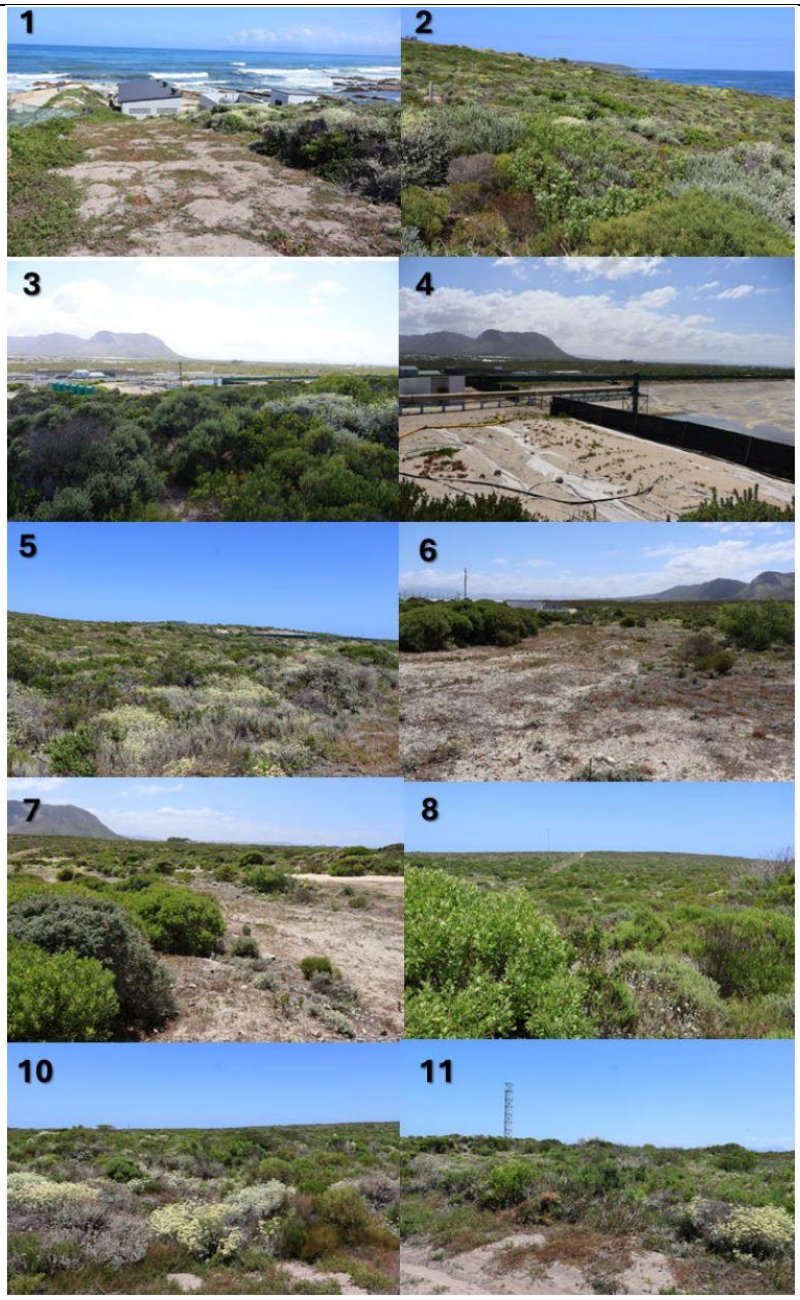


Figure 16: The Overberg Dune Strandveld habitats in relatively good condition

Table 6: Animal species observed during the field site visit

	Common Name	Scientific name	Status	Built-up areas	Disturbed fynbos	Natural fynbos
Birds	African Pipit	*Anthus cinnamomeus*	LC	X		
	Bokmakierie	*Telophorus zeylonus*	LC	X		
	Cape Bulbul	*Pycnonotus capensis*	LC	X		
	Cape Robin-Chat	*Cossypha caffra*	LC			X
	Cape Sparrow	*Passer melanurus*	LC	X		

	Cape Spurfowl	*Pternistis capensis*	LC	X	X	X
	Cape Wagtail	*Motacilla capensis*	LC	X		
	Cape Weaver	*Ploceus capensis*	LC	X		
	Cape White-eye	*Zosterops virens*	LC	X		
	Common Starling	*Sturnus vulgaris*	LC	X		X
	Cape Turtle Dove	*Streptopelia capicola*	LC			X
	Familiar Chat	*Oenanthe familiaris*	LC			X
	Grey-headed Gull	*Chroicocephalus cirrocephalus*	LC	X		
	Karoo Prinia	*Prinia maculosa*	LC			X
	Pearl-breasted Swallow	*Hirundo dimidiata*	LC	X		
	Pied Crow	*Corvus albus*	LC			X
	Southern Fiscal Speckled	*Lanius collaris*	LC			X
	Mousebird	*Colius striatus*	LC			X
	Speckled Pigeon	*Columba guinea*	LC	X		
	Spotted Thick-knee	*Burhinus capensis*	LC		X	X
	Three-banded Plover	*Charadrius tricollaris*	LC	X		
	Zitting Cisticola	*Cisticola juncidis*	LC			X
Reptiles	Angulate tortoise	*Chersina angulata*	LC			X
Mammals	Cape grysbok	*Raphicerus melanotis*	LC		X	X
	Bontebok	*Damaliscus pygargus*	VU		X	
	Burchell's zebra	*Equus quagga burchellii*	LC		X	X
	Large grey mongoose	*Herpestes ichneumon*	LC			X
	Vlei rat	*Otomys irroratus*	LC	X		
	Cape dune molerat	*Bathyergus suillus*	LC		X	X
Invertebrates	Common opal	*Chrysoritis thysbe*	LC			X

	Grasshopper	*Euloryma sp. 1*	N/A			X
	Garden Locust	*Acanthacris ruficornis*	LC	X	X	X
	Black Cocktail ant	*Crematogaster peringueyi*	LC			X

Photo 6: Degraded Overberg Dune Strandveld which seems to have been converted into pasture for utilisation of the Burchell zebra and bontebok that are present on the site.

Photo 7: This is habitat that are covered in infrastructure (buildings, roads, fences, abalone rearing ponds etc) associated with the abalone farming activities.

Animal Species of Conservation Concern

The screening tool report identified a total of 7 animal species of concern that may potentially utilise the site as their habitat. One additional animal species, Cape dwarf chameleon was also identified and added during the desktop study.

Black harrier *Circus maurus*

pecialist findings indicate a reasonable likelihood that the Black Harrier (Circus maurus) frequents the property for foraging purposes. However, the species was not observed during the site visit. The assessment concludes that the proposed development will result in an irreplaceable loss of foraging habitat for this species. The species range widely, and the minor loss of forage habitat could be tolerated. Furthermore, the development site does not significantly influence potential breeding sites for the species. The Black harrier *Circus maurus*, will therefore be negatively affected by loss of forage habitat but the development footprint is small. The proposed development and potential impact are therefore classified as 'low'.

African marsh harrier *Circus ranivorus*

The African Marsh Harrier (Circus ranivorus) was neither observed nor detected during the site survey. Specialists have concluded that the site is not suitable for this species, and there is a very low likelihood of its frequent use of the area. The African marsh harrier Circus ranivorus, will therefore not likely be significantly impacted by the proposed development and potential impact are therefore classified as 'very low'.

Southern black korhaan *Afrotis afra*

Most iNaturalist and GBIF records indicates several records in the open plain Renosterveld areas of the Overberg >60 km east of the property. The species was not observed during field visit and the habitat is considered not to be suitable for this species kind. The impact of the development on Southern Black Korhaan *Afrotis afra* by the proposed development is therefore considered to be 'very low'.

Denham's bustard *Neotis denhami*

Most iNaturalist and GBIF records indicates several records to the east of the property but more in the open plain areas of the Overberg where they frequent the more open agricultural fields. During site survey, the species was not observed on site. The habitat in the development site is not suitable for the species. The impact of the development on Denham's bustard, Neotis denhami, by the proposed development is therefore considered to be 'very low'.

Southern Adder *Bitis armata*

The species was not observed on site during site survey. the habitat is considered to be only marginally suitable habitat for this species because of a lack of any rocky substrate. There is a low likelihood that this species would occur at the site. The impact of the development on Southern Adder Bitis armata, by the proposed development will therefore likely be 'low'.

Cape dwarf chameleon, *Bradypodion pumilum*

According to Venter (2024), several iNaturalist and GBIF records indicate the presence of Bradypodion pumilum near the development site, suggesting a likelihood of its occurrence within the area. However, the species was not observed during the site survey. Based on this, it is concluded that the habitat at the site is not considered optimal for the species' breeding and foraging requirements. It is likely that some of their habitat will be lost permanently and the disturbance during construction phase will have a negative impact. The adjacent land, that will remain undeveloped, do however provide adequate space for this species to escape and persist. The potential impact on Cape dwarf chameleon, *Bradypodion pumilum* is classified as 'low'.

Mute Winter Katydid *Brinckiella aptera*

No specimens were seen during a field visit. The proposed developments are classified as 'low' impact on *B. aptera*, due to 1) an absence of species data from this area, 2) no host plant records being available to link present vegetation to possible insect species occurrence, 3) no direct evidence of occurrence, 4) the limited size of the development relative to the

surrounding vegetation and the species' regional occurrence and 5) the intactness of large areas of the type of vegetation that will remain unaffected by the developments (i.e., permitting movement through the landscape).

Yellow-winged Agile Grasshopper *Aneuryphymus montanus*
No specimens were seen during a field visit. The proposed developments are classified as 'low' impact on *A. montanus*, due to 1) an absence of species data from this area, 2) no host plant records being available to link present vegetation to possible insect species occurrence, 3) no direct evidence of occurrence, 4) the limited size of the development relative to the surrounding vegetation and the species' regional occurrence, 5) the intactness of large areas of the type of vegetation that will be unaffected by the developments permitting movement through the landscape and 6) the wide extent of occupancy of *A. montanus*.

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
N/A

6. Heritage Resources

6.1.	Was a specialist study conducted?	YES x	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
ACRM – Jonathan Kaplan			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		

Extract from the Heritage Impact Assessment Report:

The Notice of Intent to Develop was submitted to Heritage Western Cape requesting a Heritage Impact Assessment, Palaeontological Impact Assessment and the Visual Impact Assessment to be done. The Heritage Western requires that the above-mentioned studies should be conducted with the belief that the proposed expansion of the Romansbaai Abalone farm Portion 2 of Farm 711, Gansbaai will impact on the Heritage resources.

Archaeological Impact Assessment

A field assessment was conducted by Agency for Cultural Resource Management (ACRM) on 31 January 2024, in which the following observations were made:

A few thin, dispersed scatters of fragmented marine shellfish (mostly *Turbo sarmaticus* / *alikreuke*l, some *limpet* & *Haliotis/perlemoen*), and a few quartz and quartzite chunks and flakes were recorded in the route of the proposed seawater intake pipeline (an existing servitude). The resources occur in a severely degraded context. No grindstones, formal tools, pottery, ostrich eggshell or any other organic remains were found along the ± 400m long proposed pipeline.

No archaeological resources were encountered in the footprint area of the proposed solar plant, the proposed grow out tanks, and the proposed seawater storage dam, which is set back about 400m from the rocky shoreline.

Grading of archaeological resources
The very small numbers of stone pieces and the highly disturbed context in which they were found, means that the archaeological remains have been graded as Low (3C) local significance. The archaeological resources in the proposed pipeline route have been graded as having Low (Grade 3C) archaeological significance.

Potentially important shell midden deposits (in the proposed intake pipeline), and Later Stone Age campsites (in the proposed solar plant, grow out tanks & storage dam) may be uncovered during vegetation clearing operations, and construction phase excavations, including cut and fill, landscaping, and shaping of the dune profile.

Unmarked Khoisan burials may also be uncovered during construction phase excavations.

Palaeontology Impact Assessment

According to Pether (2024), the project area is mantled by unconsolidated pale coversands, labelled as the Qg coversands, which have a topography of dune ridges orientated NW-SE as part of a typical stabilized headland bypass dunefield. Underlying the stabilized dunefield are the aeolianites of the Waenhuiskrans Formation which is comprised of partly cemented older dunes and sandsheets and is typically capped by calcrete.

The installation of a Solar Energy Facility involves shallow excavations for cabling. It is assumed that the depths of earthworks entailed in creating level areas for the aquaculture tanks and dam would be up to 2-3m. Earthworks will mainly affect the Qg dune coversands, but may intersect the underlying, older Waenhuiskrans Fm. aeolianites where the coversands are thin. Fossil bones are overall sparse in the Qg coversands and those which may be discovered are expected to be of latest Quaternary age and mainly to be species of extant fauna.

The fossil bones that may occur in the Waenhuiskrans Fm. are, like the later coversands, also mainly comprised of representatives of extant fauna, but unexpected species of a different fauna are more likely to occur, as a result of phases of different ecological and palaeoclimatic conditions in the past, as well as the bones of some species which became extinct in the geologically recent past.

The overall, default palaeontological sensitivity of unconsolidated coversand deposits is classified as LOW/Blue by the SAHRIS Palaeo-Sensitivity map.

The Klein Brak Fm. is not rated on the SAHRIS palaeontological sensitivity map but is assigned CLEAR/Unclassified. Due to the open coast setting of the seashore of the Project Area only extant species are expected and a LOW sensitivity may be assigned to the raised beach deposits. Furthermore, the additional pipelines will be installed along an already disturbed route through the beach deposits. An impact on the fossil heritage of the Klein Brak Fm. is not expected.

Visual Impact Assessment

The site is located on the Danger Point Peninsula which is strongly linked with Gansbaai and the coastal plain to the east (Franskraal to De Damme), yet it forms an entity with its own character within this larger landscape. The R43 is a regional road linking the towns of Gansbaai, Franskraal, Pearly Beach, Buffeljagsbaai and De Damme. Van Dyk Street is the main access to the Romansbaai Peninsula giving access to the abalone farm, Danger Point (Lord Roberts Street) and Kleinbaai. Danger Point Lighthouse and Kleinbaai harbour are the main end destinations on the peninsula

According to Lategan (2024), the expansion of the Romansbaai Aqunion Abalone Farm will not have an impact of great significance on the Cultural Heritage Landscape. The topography of the area with its steep coastal edge and hills to the west, creates an area with a high visual absorption level. The abalone farm is furthermore situated in a depression which screens the facility from the surrounding area.

Solar arrays have the potential to create a glare effect which can amplify the visual impact but due to the screening of the ridge to the north, the glare is effectively screened from the receptors.

The overall visual impact is thus low, and the heritage landscape will not be altered through the expansion of the facility' (Lategan 2024).

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.
Extracted from the Heritage Impact Assessment (2024) "According to Lategan (2024), the proposed expansion of the Romansbaai Aqunion Abalone Farm will not have an impact of great significance on the Cultural and Heritage Landscape. The Romansbaai Abalone farm is located on the Danger Point Peninsula about 3 kms southeast of the town centre of Gansbaai. According to the HWC Report, large numbers of archaeological resources have been recorded in Gansbaai and

the surrounding coastal region. These includes the unmarked Khoisans remains which were uncovered during the excavations for the residential development at Romansbaai Estate development. The remains occur in a severely degraded context (Figure 16-18). No grindstones, formal tools, pottery, ostrich eggshell or any other organic remains were found along the ± 400m long proposed pipeline.

No archaeological resources were recorded in the footprint area of the proposed solar plant, the proposed grow out tanks, and the proposed new storage dam, which is set back in a shallow depression about 400m inland from the shoreline.
The very small numbers of stone pieces and the highly disturbed context in which they were found, means that the archaeological remains have been graded as Low (3C) local significance."

No buildings, structures or features older than 60 years will be impacted by the proposed expansion of the Romansbaai Abalone Farm.

No graves or typical grave features were encountered during the field study.

8. Socio/Economic Aspects

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

Extract from Overstrand Municipal IDP (**2024-2025**):

"*The Overstrand Municipal area is the smallest municipal area in the Overberg District in terms of geographical spread but is the second-largest economy in the district. In 2021 the Overstrand Municipal area economy was valued at R 8.1 billion and contributed 31.7 per cent to the Overberg District economy during the year.*

In 2022, GDPR growth in the Overstrand municipal area was forecast to increase to 2.5 per cent. In the 2023 forecast period, economic growth in the Overstrand municipal area is expected to contract with -0.2 per cent, which is lower than the anticipated growth rates of the Overberg District and Provincial economies (Western Cape Provincial Treasury, Overstrand SEP 2023). Overstrand's 2024 projected forecast is 0.7 per cent economic growth, which is lower than both the District and Western Cape projection over the same period.

In 2021, a total of 31 309 workers were employed in the Overstrand municipal area, contributing 27.2 per cent to Overberg District employment during the year. Despite the 2 595 formal and informal jobs gained in 2022 not all jobs lost over the Covid-19 pandemic have been regained. The unemployment rate in the Overstrand remains the highest in the Overberg District (21.5 per cent). The estimated decline in employment opportunities is likely to result in a decline in household income, which in turn will continue to restrain municipal revenue and increase the demand for free basic services."

The Blompark neighbourhood provide a range of housing options mostly within the middle to lower price bracket as well as social housing. Most residents are locally employed, and the various abalone farms and fishing industry is an important job provider. This community has a strong link to the ocean and the resource use and industrial components linked to it. Proximity to such employment opportunities is thus important and this provide a high level of tolerance and acceptance of such facilities.

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

The proposed expansion of the abalone farm has several socio-economic benefits for the local community and the broader region:

→ By expanding the abalone farm, new employment opportunities will be generated. These jobs can directly benefit local residents, providing them with stable income and improving their quality of life. Additionally, the influx of workers may lead to increased demand for housing, services, and other goods, further stimulating economic activity.

→ The expansion project will contribute to the overall economic growth of the province. As the abalone farm increases production, it will generate additional revenue. This revenue can flow into the local economy, supporting other businesses and services. Increased economic activity can lead to a positive cycle of growth, benefiting both the farm and the surrounding community.

→ When the abalone farm thrives it will make a great contribution throughout the region. For instance:

- Local businesses may experience higher demand as farm workers spend their earnings on goods and services.
- Infrastructure development (such as roads, utilities, and transportation) may improve due to increased economic activity.
- Educational institutions and healthcare facilities may receive additional funding from tax revenues generated by the farm.

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

Job provisions would be a good thing that the community would like to uplift the standard of living and therefore contributing to more wellbeing.

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.

→ Due to the topography of the site, the visual expansion of the development will be minimal. The natural landscape effectively screens the site, making the expansion less noticeable to the surrounding communities.

→ The potential for noise disturbance during construction activities, such as blasting will be minimal.

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 alternative.

The preferred property for the proposed expansion is Portion 2 of Farm No. 711, located within the urban edge of Gansbaai in the Western Cape. This property is currently the operational site of the Romansbaai Abalone Farm, an established aquaculture facility. Given that the proposed development involves the expansion of existing operations, this property represents the most logical and practical choice.

No other property alternatives were considered for the expansion, as the intention is to consolidate and intensify operations within the boundaries of the existing farm. This approach avoids the need to establish new infrastructure on undisturbed land and limits the spatial footprint of the project. The preferred site alternative focuses on areas that have already been impacted by prior development activities or are located in close proximity to existing infrastructure.

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

No additional property or site alternatives were investigated for the proposed expansion as the project is intended to take place within the existing Romansbaai Abalone Farm. Therefore, there were no alternative properties or sites considered for the development. Expansion alongside existing operations is preferred over developing a new, Greenfields site.

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

As above.

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

N/A as no property or site alternatives were investigated.

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

The decision to focus solely on expanding the existing Romansbaai Abalone Farm on Portion 2 of Farm No. 711 can be justified due to several factors:

→ The current farm already contains the necessary infrastructure and operational expertise for abalone production. Expanding on this existing site leverages this expertise and minimizes the need to duplicate infrastructure in a new location.
→ Developing a new site would likely require land conversion and potential disruption of ecosystems and associated impacts. Expanding on the existing farm minimizes this impact as the land is already dedicated to abalone production.
→ Since the expansion occurs on land already zoned for this purpose and owned by the same entity (Terrasan Group), the approval process can potentially be streamlined compared to acquiring and developing a new site.
→ Developing a new site would involve additional costs for land acquisition, infrastructure development, and potentially relocation expenses. Expanding on the existing farm leverages existing resources and minimizes these costs.

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

It is important to highlight that the preferred property for the proposed development is Portion 2 of Farm 711, which is the location of the existing Romansbaai Abalone Farm. No other properties were considered, as the proposed expansion is confined within the boundaries of the existing farm. The selection of this site is based on the strategic intention to utilize areas already disturbed by current operations, thereby limiting the need to impact previously undisturbed or ecologically sensitive areas.

Positive Impacts

→ Expanding on the existing farm minimizes the need to convert undeveloped land, potentially reducing habitat loss and fragmentation.

→ Utilizing existing farm infrastructure can minimize the need for new construction projects that may disrupt the environment.

Negative Impacts

→ Even within the existing farm, some level of vegetation removal and habitat disturbance may be necessary for construction activities. Measures to minimize this impact should be explored.

→ Increased production can lead to a higher volume of effluent discharge.

→ Potential loss of archaeological sites

→ Construction activities can generate noise that may disrupt wildlife.

→ Construction activities can create dust that can affect air quality and nearby vegetation.

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

~~Provide a description of the preferred activity alternative.~~

~~Provide a description of any other activity alternatives investigated.~~

~~Provide a motivation for the preferred activity alternative.~~

~~Provide a detailed motivation if no activity alternatives exist.~~

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

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 application assessed herein is for the expansion of an already existing Abalone Farm. Abalone Farms rely on very specific criteria in order to operate in a feasible way. Factors such as proximity to the coast to ensure the constant supply of fresh seawater, as well as availability of relatively level ground, are critical. With the Romansbaai Abalone Farm already being in operation, there are few options for alternative layouts on the subject property. The expansion project needs to tie into the existing operations and cannot be placed in random places on the farm. This has resulted in there being limited options for design and layout alternatives, with only minor realignments of expansion areas being possible in order to avoid identified sensitive areas and no development zones.

ALTERNATIVE LAYOUT 4 (FINAL PREFERRED)

Alternative 4 is the final preferred development layout option, evolved through a comprehensive assessment of the site conditions, site constraints as well as the consideration of the specialist input. The key environmental considerations which influenced the layout include the presence of sensitive botanical areas, milkwood forest, and Critical Biodiversity Areas (CBAs).

Alternative 4 sees a significant reduction in expansion footprint size, from the previously proposed ~ 9.6 ha to ~ 6.9 ha. This is achieved through the reduction in size of the grow out platform (production area) and seawater reservoir. The grow out platform is reduced in size and located on the edge of the existing operations to better link into existing infrastructure and use already impacted land adjacent to the existing. In addition, the grow out platforms were reduced in size and shifted southwards, to avoid the indicated high sensitivity area mapped by the botanist as well as the 2017 BSP CBA.

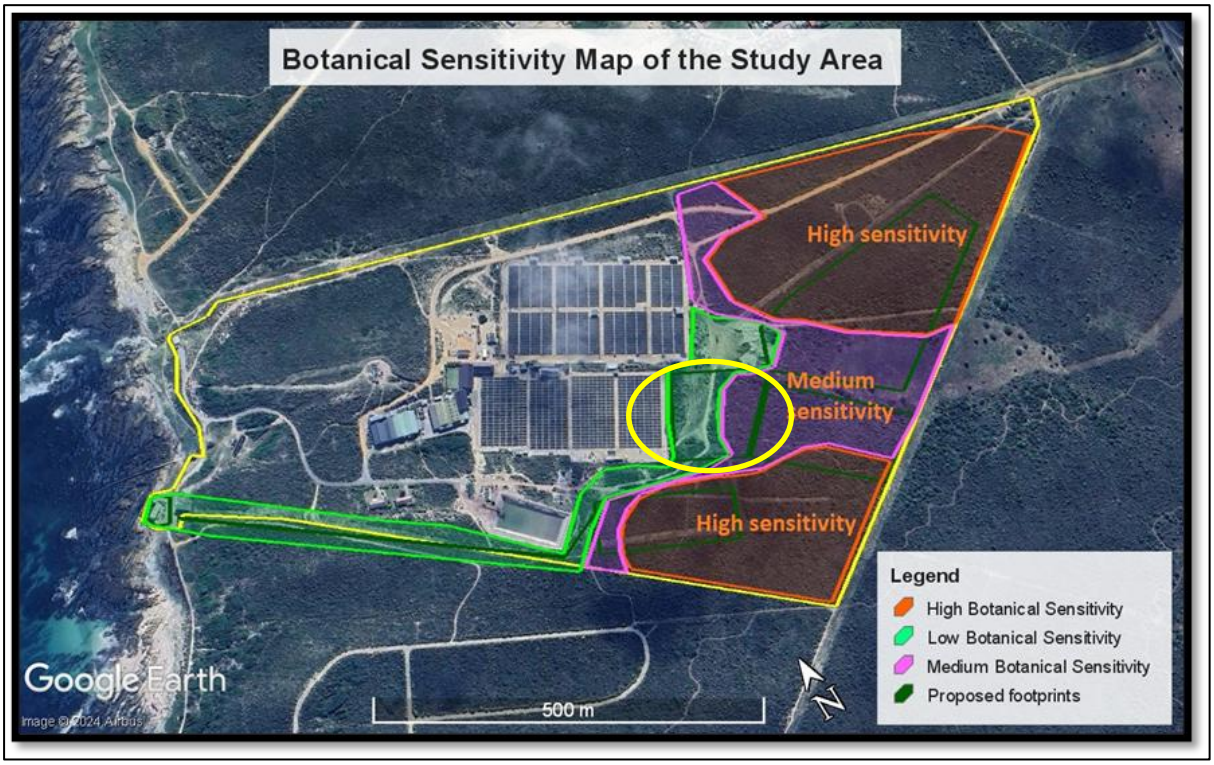


Figure 17. Botanically sensitive areas and Alternative 4 production area which has been reduced in size and shifted south wards to avoid the high sensitivity areas. These changes reduced the botanical significance to a more acceptable impact of **low-medium.**

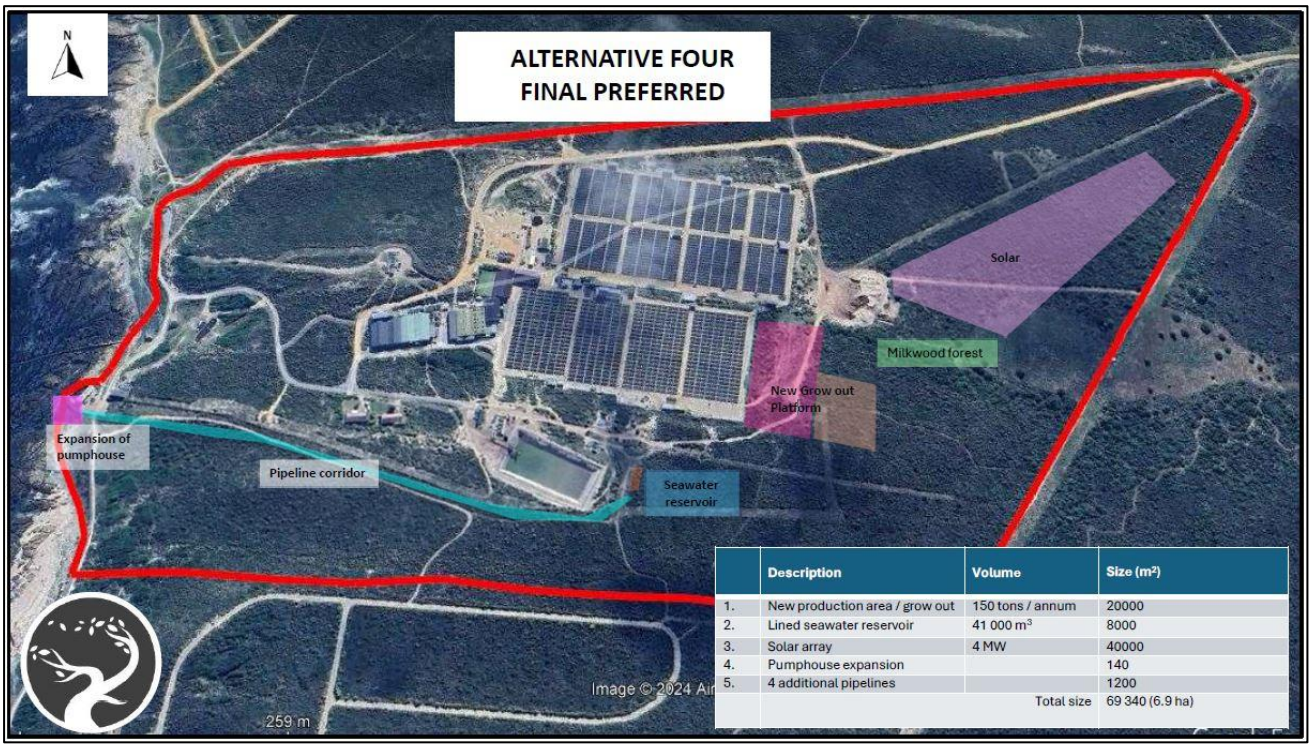
The proposed sea water reservoir, which by virtue of its purpose, is located in the high sensitive botanical area is reduced in size from 2ha surface area to 8000 m, this action sigfcantly reduced the fooptritn required in the high botanical sensitivity area. The evolution of Alternative 4 results in the reduction of the overall botanical impact of the proposed development.

Although the solar PV array encroaches into the Critical Biodiversity Area (2017 BSP), the placement of the PV was adjusted in the evolution of the alternatives, to reduce encroachment into this zone as far as practically possible.

It is important to note that throughout the assessment, the option of installing solar panels on the rooftops of existing farm buildings was investigated. However, it was calculated that only 5 % of the required solar energy was possible with the available roof space, this option was deemed unviable. The use of a raised, ground-mounted solar array, means that

the vegetation does not need to be cleared and as per the botanists findings, the habitat can still be maintained below the array.

The proposal also involves the installation of new additional pipelines which are to be placed next to the existing route of pipelines in the property. It is important to note that this will only contribute to minimal impacts, since the area has already been impacted by existing operations of the farm. This also applies to the proposed expansion of the existing pumphouse. The pumphouse will be expanded by 140m^2 for the installation of pumps that will connect the new proposed pipelines running to the new sea water reservoir. These activities will take place in areas already impacted by operations on site.



	Description	Volume	Size (m²)
1.	New production area / grow out	150 tons / annum	20000
2.	Lined seawater reservoir	41 000 m³	8000
3.	Solar array	4 MW	40000
4.	Pumphouse expansion		140
5.	4 additional pipelines		1200
		Total size	69 340 (6.9 ha)

Figure 18: Illustration of Preferred Layout Alternative 4

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

Three layout alternatives, and the No Go option, with each alternative evolving in line with specialist findings and site sensitives as well as the fixed physical and practical factors on site associated with the expansion of an existing operation.

Alternative 1

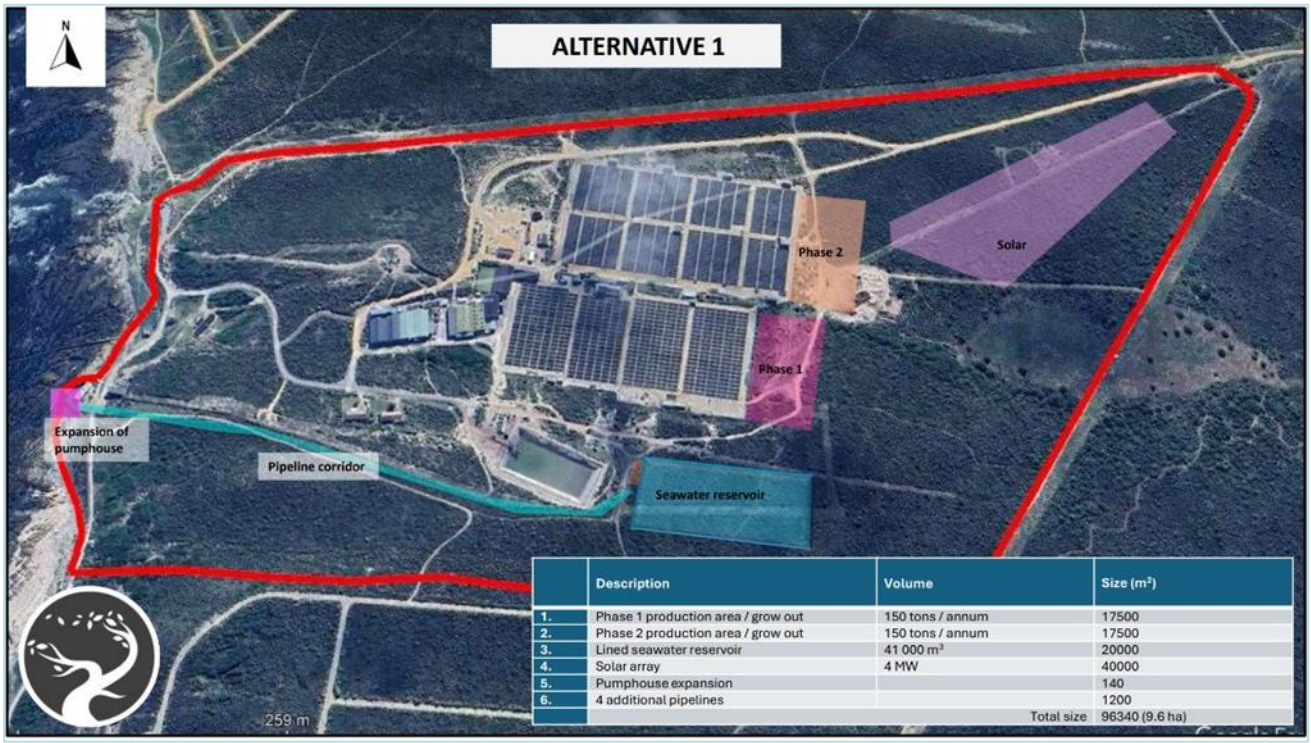
This is the initial layout proposed for the expansion activities and considers specific site constraints and practical options relating to expanding an existing operation. Factors such as topography and linking into existing infrastructure formed the starting point of this layout. This alternative layout proposes a larger development footprint of ~ 9.6 ha with the encroachment into botanically significant areas, areas rated as high sensitivity by the Botanist. Encroachment into the mapped 2017 BS CBA areas is also applicable to this alternative.

Alternative 1 layout involves the construction of the production area for the grow-out tanks which will be in the form of two phases. The production area will cover an area of 3 ha in total divided into 1.5 ha for each phase and proposed total output of 300 tons (wet weight).

The proposed seawater reservoir, although confined by virtue of its function, to the highest point on the site, is 2 ha in extent and encroaches significantly into a high botanical sensitivity zone.

The proposal also includes the installation of the solar array situated adjacent to phase 2 production area. However, the location proposed for the solar array at this location was found to present visual impacts and extends into the 2017 CBA area.

The expansion of the pumphouse and the addition of the pipelines are fixed actions which do not have other placement options as they need to tie into the existing infrastructure. However, the pipelines will be installed into the existing pipeline corridor which has already experienced disturbance from the existing operations and similarly, the expansion of the pumphouse will take place directly within and adjacent to the existing pumphouse and therefore also located within a transformed area. There are no location alternatives for the pipelines or pumphouse expansion over any of the alternatives assessed herein.

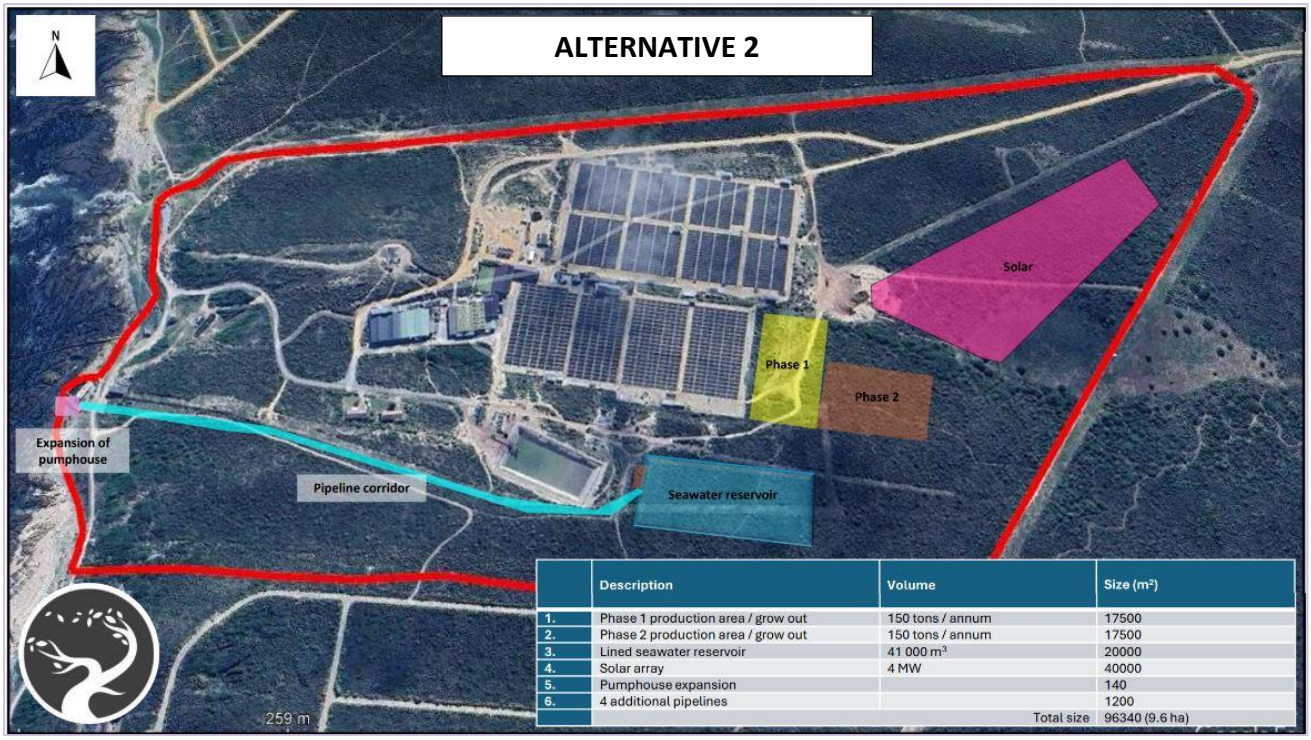


	Description	Volume	Size (m²)
1.	Phase 1 production area / grow out	150 tons / annum	17500
2.	Phase 2 production area / grow out	150 tons / annum	17500
3.	Lined seawater reservoir	41 000 m³	20000
4.	Solar array	4 MW	40000
5.	Pumphouse expansion		140
6.	4 additional pipelines		1200
		Total size	96340 (9.6 ha)

Figure 20: Illustration of Alternative 1

Alternative 2

Alternative 2 was previously preferred and presented as such in the out of process public participation. This layout option involves the same components along with the exact development footprint sizes as in Alternative 1. However the grow out platforms have been moved southwards, to avoid the high botanically sensitive area identified by the botanist. This shift resulted in the slight reduction of the overall impact of the development. All other expansion activities remain as for Alternative 1.



	Description	Volume	Size (m²)
1.	Phase 1 production area / grow out	150 tons / annum	17500
2.	Phase 2 production area / grow out	150 tons / annum	17500
3.	Lined seawater reservoir	41 000 m³	20000
4.	Solar array	4 MW	40000
5.	Pumphouse expansion		140
6.	4 additional pipelines		1200
		Total size	96340 (9.6 ha)

Figure 21: Illustration of Preferred Layout Alternative

NOTE: There are no alternative locations or designs available for proposed pumphouse expansion, pipeline routing or reservoir location. The pumphouse needs to be expanded from existing footprint, the pipelines need to follow the route of the existing pipeline corridor to the farm, and the seawater holding reservoir needs to be located at the highest point on the farm to allow for the gravity flow to the farm. Therefore, the alternatives assessed in this report, only speak to alternative location options for the production areas (Phase 1 & 2) and solar PV.

Alternative 3: No-go

Alternative 3 entails the selection of the "No-Go" option, in which no development or expansion occurs and the status quo is maintained. This option would result in no additional environmental impacts, as no construction or operational changes would be introduced to the site. In this regard, the No-Go alternative represents the most environmentally neutral option, avoiding any loss of vegetation, habitat disturbance, or potential pressure on ecologically sensitive areas.

However, while the No-Go option avoids environmental impacts, it also imposes significant limitations on the long-term growth and sustainability of the existing abalone farming operation. The inability to expand production capacity would hinder the farm's ability to meet increasing market demand and improve operational efficiency. Furthermore, it would

result in the forfeiture of socio-economic benefits associated with the expansion, such as job creation, enhanced energy efficiency through renewable technologies, and improved infrastructure.

Provide a motivation for the preferred design or layout alternative.

Alternative 4 (Preferred)

Alternative 4 has been selected as the preferred layout due to its comprehensive design. This alternative was refined after a detailed evaluation of the site's conditions, environmental constraints, and specialist input, ensuring that it provides the most sustainable and ecologically responsible approach for the proposed development.

One of the primary motivations for selecting Alternative 4 is its strategic positioning of the production areas within low and medium botanical sensitivity areas. This not only minimises the impact on sensitive botanical resources but also ensures that the expansion will not disrupt ecologically important areas, such as the milkwood "forest" and Critical Biodiversity Areas (CBAs). The reduction of the production area footprint from 3.5 ha to 2 ha further enhances the sustainability of this design, offering a smaller, more efficient land use that aligns with responsible agricultural practices.

Additionally, the proposed seawater reservoir in Alternative 4 has been downsized from 2 ha to 0.8 ha and is positioned adjacent to the existing reservoir. This location capitalizes on the site's natural topography, utilizing gravity-fed water flow to minimize the need for extensive infrastructure. Despite the reservoir site being in an area of higher botanical sensitivity, the operational benefits and minimized overall environmental impact make this a viable and acceptable solution for the project.

Another key factor in the selection of Alternative 4 is its incorporation of renewable energy, which demonstrates a strong commitment to sustainability. The decision to use ground-mounted solar arrays, instead of rooftop solar panels, was made after considering the limited roof space available for solar installation. The ground-mounted arrays will provide the most efficient and cost-effective energy solution, and the decision to retain the solar array's current location ensures that there are no significant environmental or operational issues.

Provide a detailed motivation if no design or layout alternatives exist.

N/A

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

Alternative 1

Positive impacts

→ Reduced impact on existing farm resources due to connection with existing production area.
→ Integration of solar energy (positive long-term impact on reducing reliance on fossil fuels).
→ Job creation for the local communities

Negative impacts

→ Loss of a highly sensitive area in the northeastern section of the site due to complete clearance of vegetation for phase 2 production platform development.
→ Encroachment of the Solar Array on CBA1 and Its Visual Impact on the adjacent residential area.

Alternative 2

Positive Impacts

→ Reduced impact on existing farm resources due to connection with existing production area.
→ Potential for less vegetation clearance compared to Alternative 1 (depending on specific layout details).
→ Integration of solar energy (positive long-term impact on reducing reliance on fossil fuels).
→ Job creation for the local communities.

Negative Impacts:

→ Some level of vegetation removal and habitat disturbance is likely during construction, even with the preferred design. Mitigation measures are necessary.

Alternative 3 (No-Go)

Positive Impacts

→ No environmental impact as the status quo remains (no construction or development).

Negative Impacts:

→ Lost opportunity for economic development and job creation.

Alternative 4 (Preferred)

Positive impacts

→ Reduction in development footprint, minimising the loss of endangered vegetation type.
→ Production area is situated within low and medium botanical areas, avoiding complete loss of indigenous vegetation within high botanical sensitive areas.
→ Location of the components next to the existing operation area minimises the extent of the environmental impacts.
→ The placement of new infrastructure (e.g., pipelines and pumphouse expansion) adjacent to existing operations avoids further habitat fragmentation and minimises the need to disturb previously undisturbed areas.
→ The installation of a solar PV array reduces the long-term reliance on fossil fuels and contributes to a more sustainable operational model, supporting broader climate change mitigation efforts.
→ The proposed expansion is anticipated to create employment opportunities during both construction and operational phases, contributing positively to the local economy.

Negative impacts

→ Despite efforts to avoid high-sensitivity areas, the development will still result in the loss of vegetation within low to medium sensitivity zones, which may contribute to habitat degradation if not properly managed.
→ Temporary but unavoidable impacts such as dust generation, noise, and increased human activity during the construction phase may disturb local fauna and flora and require strict management through the EMPr.

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:

The proposed development will also include the installation of the solar arrays that will be used as the alternative source of power generation to continue operations of the farm during power cuts and high tariff periods. The development of the seawater reservoir to allow for seawater to be gravity fed as opposed to pumped, will also reduce the pumping demand and associated cost thereof. The cost of constantly pumping seawater onto the farm is by the far the highest cost on Abalone Farm and therefore it is a priority for farms to look into cost saving mechanisms particularly around electricity costs.

Provide a description of any other technology alternatives investigated.

N/A

Provide a motivation for the preferred technology alternative.

Solar arrays provide a dependable source of backup power, ensuring operational continuity during potential grid outages.

Provide a detailed motivation if no alternatives exist.

N/A

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

Positive impacts

- → Utilising a solar photovoltaic (PV) energy system will significantly reduce the reliance on fossil fuels, thereby lowering greenhouse gas emissions associated with the abalone farming operations.
- → The incorporation of renewable energy aligns with international and national commitments to sustainable development, particularly SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action).
- → The solar PV array will enhance the farm's energy independence and provide consistent power supply during grid outages, reducing the risk of system failures that could impact abalone welfare.

Negative impacts

- → The installation phase could result in temporary disturbance to soil and vegetation, noise generation, and potential displacement of small terrestrial fauna.

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

~~Provide a description of the preferred operational alternative.~~

~~N/A~~

~~Provide a description of any other operational alternatives investigated.~~

~~Provide a motivation for the preferred operational alternative.~~

~~Provide a detailed motivation if no alternatives exist.~~

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

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.

The 'No-Go' option, which entails maintaining the current operational footprint of the Romansbaai Abalone Farm without proceeding with the proposed expansion, is not considered the preferred alternative. While this option would avoid any new environmental impacts associated with construction and operational activities, it fails to address several critical needs and opportunities.

Primarily, the No-Go alternative would forfeit the opportunity to increase abalone production capacity, improve operational efficiency, and enhance the farm's resilience through infrastructure upgrades such as the installation of a seawater reservoir and renewable energy systems. This would hinder the farm's long-term economic viability and sustainability objectives.

Moreover, the No-Go alternative would result in the loss of potential socio-economic benefits, including job creation, skills development, and local economic stimulation associated with the proposed expansion. It would also prevent the adoption of environmentally progressive technologies, such as solar energy, that support the transition to cleaner, more sustainable aquaculture practices.

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.

The expansion of the abalone farm is limited by existing operations and specific requirements for operations, therefore only layout alternatives as described in Alternative 1 and 2 are assessed, along with the no development option.

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

The preferred alternative for the proposed expansion of the abalone farm is Alternative 4. This choice has been made after careful consideration of the environmental impact, particularly with respect to botanically sensitive areas on the site. The expansion is planned within the existing abalone farm on Portion 2 of Farm 711, a location deemed optimal for minimizing additional impacts on the sensitive botanical areas that are already influenced by daily farm operations.

By selecting this site, the project effectively avoids the total loss of approximately 1.7 ha of indigenous vegetation within the Critical Biodiversity Area 1 (CBA1), a potential impact associated with Alternative 1. This consideration is crucial in maintaining the ecological integrity of the region, as CBA1 areas are typically of high environmental value. The proposed location for the solar arrays within Alternative 4 has also been deemed suitable, as it ensures minimal visual impact on the adjacent residential area and involves only the necessary brush cutting of vegetation. This approach not only mitigates visual and environmental impacts but also adheres to sustainable development practices.

Moreover, other areas within the farm are unsuitable for development due to the presence of limestone, milkwood thicket, and vygie distribution, further justifying the selection of this location. Given these constraints and the environmental factors considered, no other reasonable or feasible alternatives exist beyond those evaluated. This underscores that the chosen alternative not only supports the expansion objectives but also aligns with overarching environmental management goals.

In addition to the ecological constraints listed above, the alternatives for the proposed expansion are limited by the existing operational activities on site. The expansion activities need to tie into existing operations on site, and link to water sources and pipelines. The grow out platforms need to be located in a systematic way to allow for best operational procedures to take place – this can relate to pipelines and water flow, shifting of animals through the farm as they grow, general performance of staff on site, elevation (to allow for gravity feed of water where possible), feeding routing, access to existing services etc. This, together with the ecological constraints, have resulted in limited options for alternative locations, designs and assessment thereof.

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).
No no-go areas identified during specialists' assessments.

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.

An impact is any change to a resource or receptor brought about by a project component or through the execution of a project related activity. The evaluation of baseline data provides information for the process of evaluating and describing how the project could affect the biophysical and socio-economic environment.

Impact is described according to their nature or type, as follows:

Nature/ Type

Nature/ Type of impact	Definition
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline, or introduces a new undesirable factor.
Direct	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (e.g. between occupation of a site and the pre-existing habitats or between an effluent discharge and receiving water quality).
Indirect	Impacts that result from other activities that are encouraged to happen as a consequence of the Project (e.g. in-migration for employment placing a demand on resources).
Cumulative	Impacts that act together with other impacts (including those from concurrent or planned future third-party activities) to affect the same resources and/or receptors as the Project.

Significance

Impacts are described in terms of significance. Significance is a function of the magnitude of the impact and the likelihood of the impact occurring:

Impact Magnitude	
Extent	**On site** – impacts that are limited to the boundaries of the development site.
	Local – impacts that affect an area in a radius of 20 km around the Development site.
	Regional – impacts that affect regionally important environmental resources or are experienced at a regional scale as determined by administrative boundaries, habitat type/ecosystem.
	National – impacts that affect nationally important environmental resources or affect an area that is nationally important/ or have macro-economic consequences
Duration	**Temporary** – impacts are predicted to be of short duration and intermittent/occasional.
	Short-term – impacts that are predicted to last only for the duration of the construction period.

	Long-term – impacts that will continue for the life of the Project but ceases when the project stops operating
	Permanent – impacts that cause a permanent change in the affected receptor or resource (e.g. removal or destruction of ecological habitat) that endures substantially beyond the project lifetime
	BIOPHYSICAL ENVIRONMENT
	Negligible – the impact on the environment is not detectable.
	Low – the impact affects the environment in such a way that natural functions and processes are not affected.
	Medium – where the affected environment is altered but natural functions and processes continue, albeit in a modified way.
Intensity	**High** – where natural functions or processes are altered to the extent that they will temporarily or permanently cease
	SOCIO-ECONOMIC
	Negligible – there is no perceptible change to people's livelihood
	Low - people/communities are able to adapt with relative ease and maintain pre-impact livelihoods
	Medium – people/communities are able to adapt with some difficulty and maintain pre-impact livelihoods but only with a degree of support
	High - affected people/communities will not be able to adapt to changes or continue to maintain pre-impact livelihoods.

Likelihood- the likelihood that an impact will occur

Likelihood	
Unlikely	The impact is unlikely to occur
Likely	The impact is likely to occur under the most conditions.
Definite	The impact will occur

Once an assessment is made of the magnitude and the likelihood, the impact significance is rated through a matrix process:

Significance				
Magnitude		Unlikely	Likely	Definite
	Negligence	Negligible	Negligible	Minor
	Low	Negligible	Minor	Minor
	Medium	Minor	Moderate	Moderate
	High	Moderate	Major	Major

Definition of significance:

Negligible	An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be 'negligible'.
Minor	An impact of minor significance is one where an effect will be experienced, but the impact magnitude is small (with and without mitigation) and within accepted standards, and/or the receptor is of low sensitivity/value.
Moderate	An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable. This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are managed effectively and efficiently.
Major	An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued / sensitive resource / receptors. A goal of the EIA process is to get to a position where the Project does not have any major residual impacts.

Significance of an impact is then qualified through a statement of the degree of confidence. Degree of confidence is expressed as low, medium or high.

Significance colour scale (if applicable):

Negative	Positive
Negligible	Negligible
Minor	Minor
Moderate	Moderate
Major	Major

Impact rating colour scale:

Negative	Positive
Negligible	Negligible
Low	Low
Medium	Medium
High	High

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.

Three layout Alternatives and the No development option were assessed therein:

		Alternative 1	Alternative 2	Alternative 4 Final Preferred
Production area / grow out platform	Platform 1	1.5	1.5	2
	Platform 2	1.5	1.5	
Reservoir		2	2	0.8000
Solar		4	4	4
Pumphouse		0.014	0.014	0.014
Pipelines (4 new)		0.12	0.12	0.12
TOTAL		**9.134**	**9.134**	**6.934**

Alternative 1

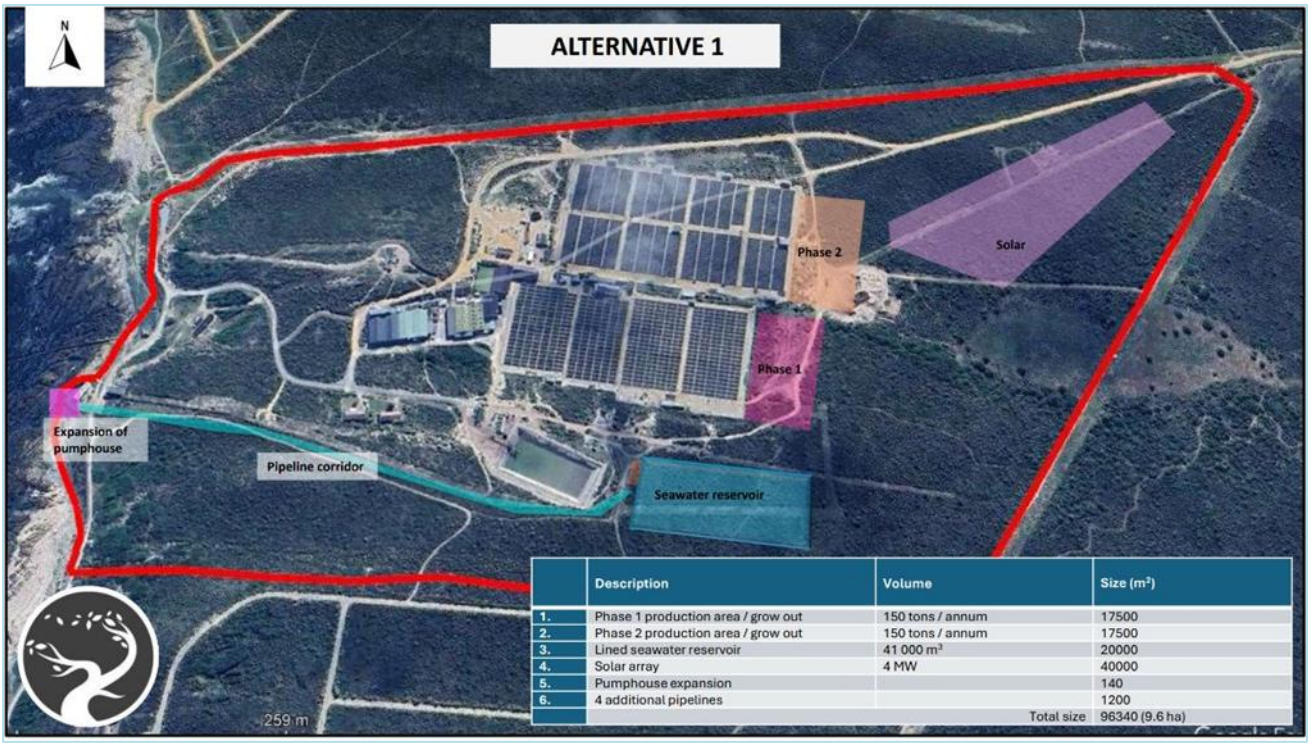
This is the initial layout proposed for the expansion activities and considers specific site constraints and practical options relating to expanding an existing operation. Factors such as topography and linking into existing infrastructure formed the starting point of this layout. This alternative layout proposes a larger development footprint of ~ 9.6 ha with the encroachment into botanically significant areas, areas rated as high sensitivity by the Botanist. Encroachment into the mapped 2017 BSP CBA areas is also applicable to this alternative.

Alternative 1 layout involves the construction of the production area for the grow-out tanks which will be in the form of two phases. The production area will cover an area of 3 ha in total divided into 1.5 ha for each phase and proposed total output of 300 tons (wet weight).

The proposed seawater reservoir, although confined by virtue of its function, to the highest point on the site, is 2 ha in extent and encroaches significantly into a high botanical sensitivity zone.

The proposal also includes the installation of the solar array situated adjacent to phase 2 production area. However, the location proposed for the solar array at this location was found to present visual impacts and extends into the 2017 CBA area.

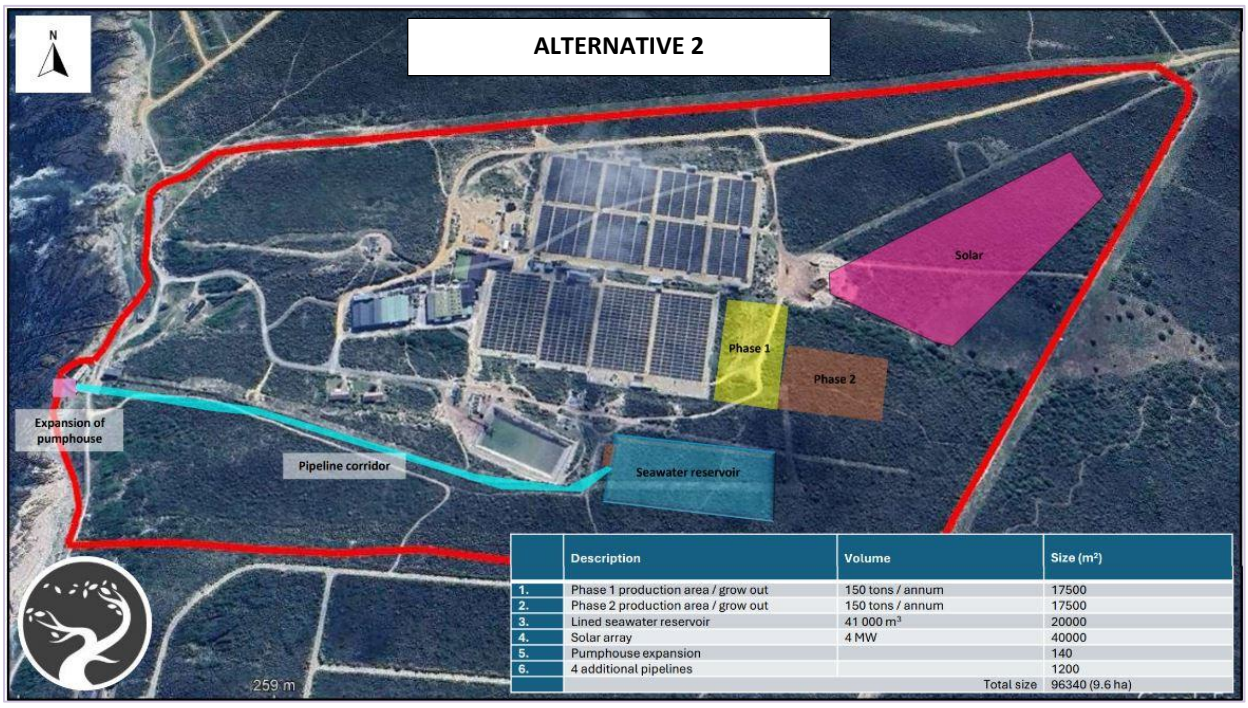
The expansion of the pumphouse and the addition of the pipelines are fixed actions which do not have other placement options as they need to tie into the existing infrastructure. However, the pipelines will be installed into the existing pipeline corridor which has already experienced disturbance from the existing operations and similarly, the expansion of the pumphouse will take place directly within and adjacent to the existing pumphouse and therefore also located within a transformed area. There are no location alternatives for the pipelines or pumphouse expansion over any of the alternatives assessed herein.



	Description	Volume	Size (m²)
1.	Phase 1 production area / grow out	150 tons / annum	17500
2.	Phase 2 production area / grow out	150 tons / annum	17500
3.	Lined seawater reservoir	41 000 m³	20000
4.	Solar array	4 MW	40000
5.	Pumphouse expansion		140
6.	4 additional pipelines		1200
		Total size	96340 (9.6 ha)

Alternative 2

Alternative 2 was previously preferred and presented as such in the out of process public participation. This layout option involves the same components along with the exact development footprint sizes as in Alternative 1. However the grow out platforms have been moved southwards, to avoid the high botanically sensitive area identified by the botanist. This shift resulted in the slight reduction of the overall impact of the development. All other expansion activities remain as for Alternative 1.

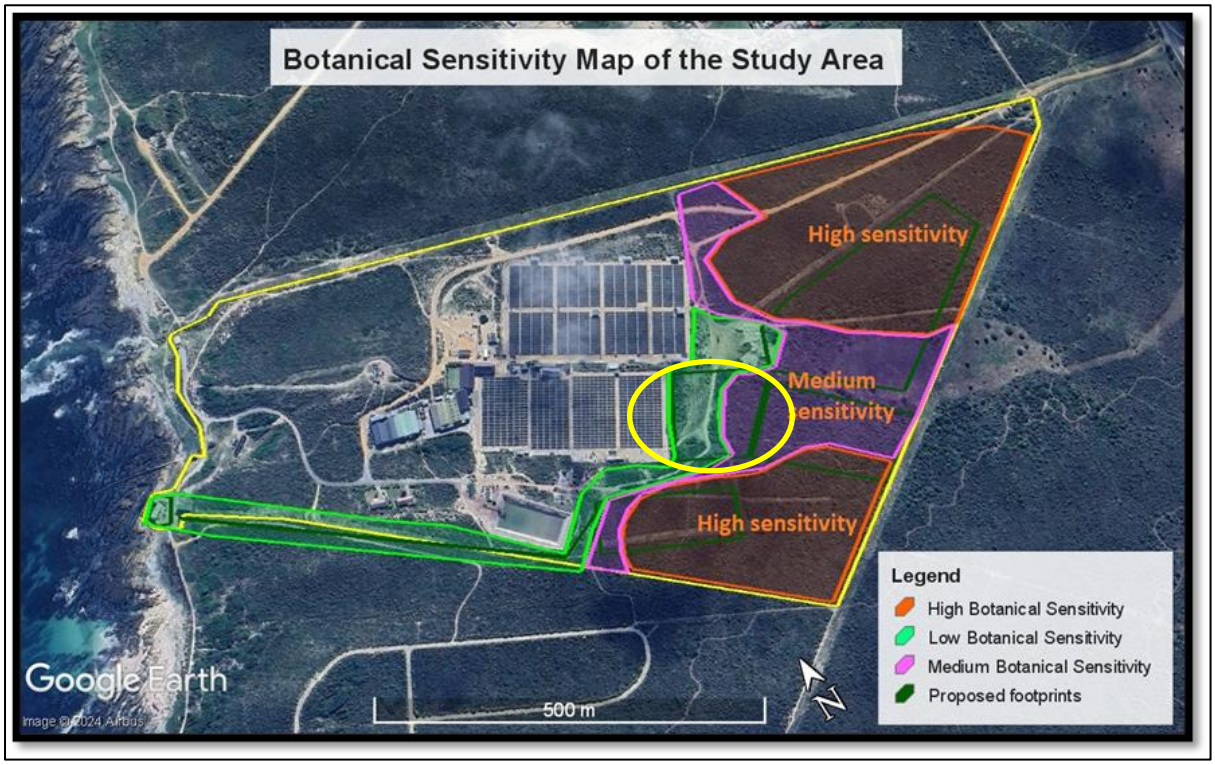


	Description	Volume	Size (m²)
1.	Phase 1 production area / grow out	150 tons / annum	17500
2.	Phase 2 production area / grow out	150 tons / annum	17500
3.	Lined seawater reservoir	41 000 m³	20000
4.	Solar array	4 MW	40000
5.	Pumphouse expansion		140
6.	4 additional pipelines		1200
		Total size	96340 (9.6 ha)

ALTERNATIVE LAYOUT 4 (FINAL PREFERRED)

Alternative 4 is the final preferred development layout option, evolved through a comprehensive assessment of the site conditions, site constraints as well as the consideration of the specialist input. The key environmental considerations which influenced the layout include the presence of sensitive botanical areas, milkwood forest, and Critical Biodiversity Areas (CBAs).

Alternative 4 sees a significant reduction in expansion footprint size, from the previously proposed ~ 9.6 ha to ~ 6.9 ha. This is achieved through the reduction in size of the grow out platform (production area) and seawater reservoir. The grow out platform is reduced in size and located on the edge of the existing operations to better link into existing infrastructure and use already impacted land adjacent to the existing. In addition, the grow out platforms were reduced in size and shifted southwards, to avoid the indicated high sensitivity area mapped by the botanist as well as the 2017 BSP CBA.



Botanically sensitive areas and Alternative 4 production area which has been reduced in size and shifted south wards to avoid the high sensitivity areas. These changes reduced the botanical significance to a more acceptable impact of **low-medium.**

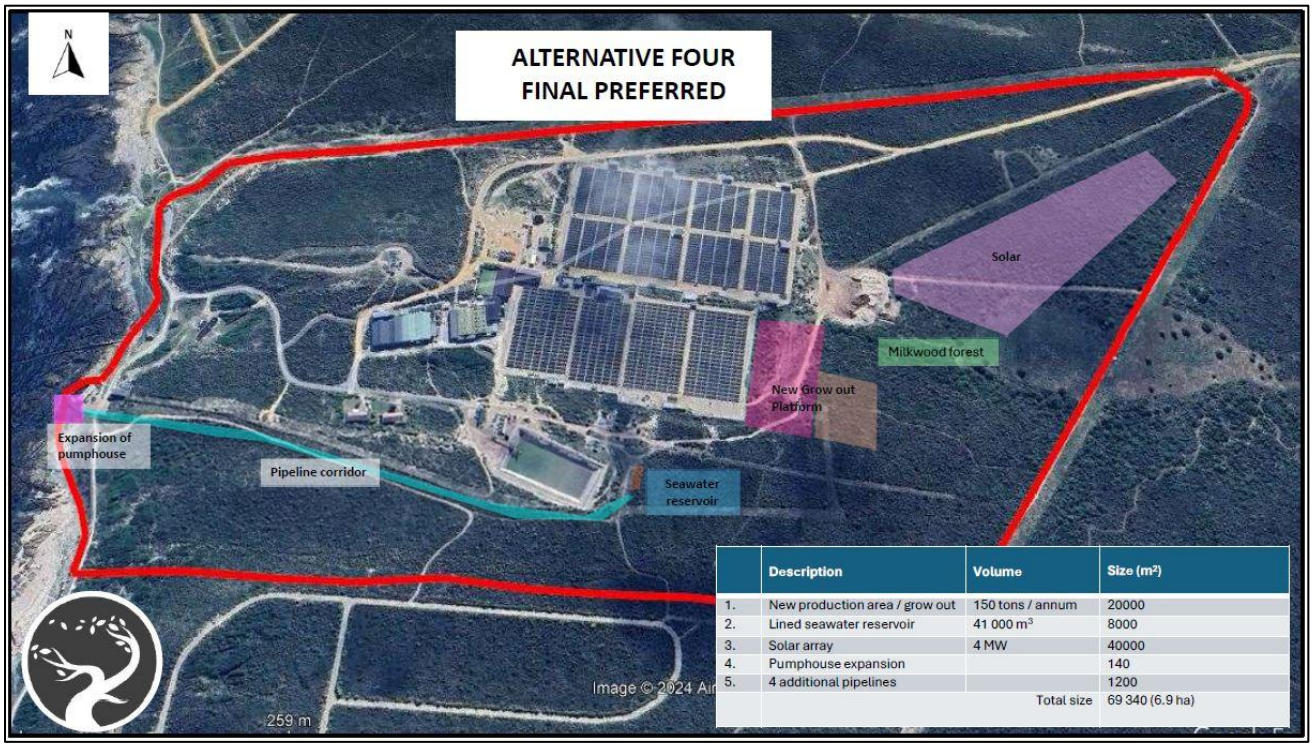
The proposed sea water reservoir, which by virtue of its purpose, is located in the highly sensitive botanical area, is reduced in size from 2 ha surface area to 8000 m, this action significantly reduced the footprint required in the high botanical sensitivity area. The evolution of Alternative 4 results in the reduction of the overall botanical impact of the proposed development.

Although the solar PV array encroaches into the Critical Biodiversity Area (2017 BSP), the placement of the PV was adjusted in the evolution of the alternatives, to reduce encroachment into this zone as far as practically possible.

It is important to note that throughout the assessment, the option of installing solar panels on the rooftops of existing farm buildings was investigated. However, it was calculated that only 5 % of the required solar energy was possible with

the available roof space, this option was deemed unviable. The use of a raised, solar array means that the vegetation does not need to be cleared and removed, but only brush cut to a minimum of 1 m. As per the botanists' findings, the habitat can still be maintained below the array.

The proposal also involves the installation of new additional pipelines which are to be placed next to the existing route of pipelines in the property. It is important to note that this will only contribute to minimal impacts, since the area has already been impacted by existing operations of the farm. This also applies to the proposed expansion of the existing pumphouse. The pumphouse will be expanded by 140 m^2 for the installation of pumps that will connect the new proposed pipelines running to the new sea water reservoir. These activities will take place in areas already impacted by operations on site.



	Description	Volume	Size (m^2)
1.	New production area / grow out	150 tons / annum	20000
2.	Lined seawater reservoir	41 000 m^3	8000
3.	Solar array	4 MW	40000
4.	Pumphouse expansion		140
5.	4 additional pipelines		1200
		Total size	69 340 (6.9 ha)

Illustration of Preferred Layout Alternative 4

ALTERNATIVE 1

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**1. Vegetation removal**
Potential impact and risk:	Removal of the Overberg Dune Strandveld (En) on the Northwest of the site, which includes the CBA area of terrestrial during the construction phase for the installation of the solar arrays. Loss of endangered species of vegetation including the section of the CBA.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Removal contributes to regional loss
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Low
Indirect impacts:	Ribbon development along the CBA area.
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	-Search and rescue required -Fencing off of construction zones -Appointment of ECO for construction phase -Pipelines to be installed below ground on dunes, soil stockpiled for rehabilitation -Natural corridors to be implemented to retain connectivity - Amend layout to avoid CBA
Residual impacts:	Loss of endangered vegetation
Cumulative impact post mitigation:	Loss of vegetation contributing to retain connectivity
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High (-)**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**2. Socio-economic**
Potential impact and risk:	Job creation (+) Traffic as a result Impacts of large vehicles accessing the site (-)
Nature of impact:	Job creation; Positive Traffic; negative (-)
Extent and duration of impact:	Local; short-term (construction phase)

Consequence of impact or risk:	Job creation (+) Impacts on large construction vehicles accessing site (-) risk of damage to roads and loss of loads.
Probability of occurrence:	Job creation: Definite Traffic; Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Impact on public roads users
Cumulative impact prior to mitigation:	Cumulative impacts on roads and public users
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+) Medium (-)
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Employ locally as far as possible → Ensure loads are secured to prevent loss of loads in public roads.
Residual impacts:	→ Employment opportunities during the construction phase → Impact to public roads
Cumulative impact post mitigation:	→ Minor traffic impacts → Job creation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**3. Visual**
Potential impact and risk:	Visual impact of the construction activities
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (construction phase)
Consequence of impact or risk:	Low
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	Ribbon development along the CBA area.
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low

Degree to which the impact can be managed:	Medium	
Degree to which the impact can be mitigated:	Medium	
Proposed mitigation:	-Locate large structures in low-lying positions of the site, where possible, and minimize earthworks and disturbance to the site by taking the topography into account - Locate the solar PV arrays in a low-lying area, off any dune ridges, and in sympathy with the topography. -Locate the construction camp and related storage/stockpile areas in visually unobtrusive positions on the site, where these are not visible from the beach	
Residual impacts:	The solar installations visible to the public and residents of the nearby settlement, raising concerns about visual impact and aesthetic harmony	
Cumulative impact post mitigation:	Low - coastal expansion development in the area.	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**	**Medium negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE		
Impact	**4. Heritage Impact**	
Potential impact and risk:	→ **Archaeology-** potentially important shell midden deposited (in the proposed intake pipeline), and Later Stone Age campsite may be uncovered during vegetation clearing operations, and construction phase excavations, including cut and fill, landscaping, and shaping of the dune profile. → Unmarked Khoisan burials may also be uncovered during construction phase excavations. → **Palaeontology-** potential loss of scientifically valuable fossil bones of the terrestrial animals.	
Nature of impact:	Negative (disturbance/ loss of resources) Positive (discovery)	
Extent and duration of impact:	Local; long-term	
Consequence of impact or risk:	Risk of destroying potential scientifically valuable fossil bones of terrestrial animals as well as sites already found.	
Probability of occurrence:	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	Low- Medium	
Degree to which the impact can be reversed:	Medium	
Indirect impacts:	Possible loss of resources Possible significant findings	
Cumulative impact prior to mitigation:	Disturbance and/ or loss of potentially significant archaeological and palaeontological sites.	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (-) Disturbance or loss of site Medium (+) Possible discovery of the information	
Degree to which the impact can be avoided:	High through correct monitoring of construction works	
Degree to which the impact can be managed:	Medium	
Degree to which the impact can be mitigated:	Possible	

Proposed mitigation:	→ Vegetation clearing and Construction Phase excavations must be monitored by a professional archaeologist. → Vegetation clearance in foredunes to be monitored by archaeologist – shovel testing may be required if sites are found → If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist. → A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations.
Residual impacts:	→ Potential loss of cultural resources (-) → Potential significant findings (+).
Cumulative impact post mitigation:	→ Reduce potential for archaeological and palaeontological sites
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
Impact	**5. Increase intake and effluent discharge of seawater**
Potential impact and risk:	Trapping and harming of the marine organisms, including fish larvae, plankton, and other small species during intake of seawater
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Medium-High
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Medium- ecological impacts and disturbance of sensitive areas during the construction phase.
Cumulative impact prior to mitigation:	Low- degradation of coastal zone during the operational activities.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	Low, unavoidable
Degree to which the impact can be managed:	Medium

Degree to which the impact can be mitigated:	High, effective management and mitigation measures can be implemented to reduce the impacts.
Proposed mitigation:	→ Adhere to requirements of Coastal Waters Discharge Permit (CWDP). → Monitor effluent water quality leaving the facility and ensure it complies with relevant aquaculture guidelines (AAD 2010). → Parameters to be monitored and frequency of monitoring to comply with the CWDP specifications. → Ensure appropriate management of feeding regime to prevent wasteful and excessive accumulation of feed in tanks which will increase dissolved nutrient levels in effluent water. → Farm management practices must ensure regular cleaning of tanks to prevent excess build-up of particulates in grow-out facilities which would lead high levels peaks of particulate outputs during sporadic flushing. → Cultivate marine algae in paddle ponds downstream of grow-out facilities to contribute to bioremediation of the effluent stream prior to release. → Maintain effluent sump and discharge pipeline and screens in good working order
Residual impacts:	Local biodiversity loss and disrupt marine food chains.
Cumulative impact post mitigation:	local biodiversity loss and disrupt marine food chains.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium negative
POST-CONSTRUCTION PHASE	
Impact	**1. Socio-economic**
Potential impact and risk:	Job creation, staff support group through education programmes and community projects
Nature of impact:	Job creation; Positive Traffic; negative (-)
Extent and duration of impact:	Local; short-term (construction phase)
Consequence of impact or risk:	Job creation (+) Impacts on large construction vehicles accessing site (-) risk of damage to roads and loss of loads.
Probability of occurrence:	Job creation: Definite Traffic; Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Impact on public roads users
Cumulative impact prior to mitigation:	Cumulative impacts on roads and public users
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+) Medium (-)
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High

Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Employ locally as far as possible → Ensure loads are secured to prevent loss of loads in public roads.
Residual impacts:	→ Employment opportunities during the construction phase → Impact to public roads
Cumulative impact post mitigation:	→ Minor traffic impacts → Job creation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**

POST-CONSTRUCTION PHASE

Impact	**2. Visual**	
Potential impact and risk:	Visual impact of the expansion of facilities on the landscape	
Nature of impact:	Negative	
Extent and duration of impact:	Local; long-term	
Consequence of impact or risk:	Medium	
Probability of occurrence:	Probable	
Degree to which the impact may cause irreplaceable loss of resources:	Low	
Degree to which the impact can be reversed:	Low	
Indirect impacts:	Medium	
Cumulative impact prior to mitigation:	Little or no other commercial or industrial development	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.	
Degree to which the impact can be avoided:	Low	
Degree to which the impact can be managed:	Medium	
Degree to which the impact can be mitigated:	Medium	
Proposed mitigation:	→ Keep general outdoor lighting as unobtrusive as possible through use of low-level bollard type lights, where needed, such as parking areas and footpaths. → Use discrete external signage and avoid commercial advertising or billboard-type signs - Fix signs to buildings or walls, if possible, to avoid the visual clutter of signposts.	
Residual impacts:	Large extent of the abalone tanks on the urban edge Solar arrays	
Cumulative impact post mitigation:	Low	
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**	**Medium negative**

POST-CONSTRUCTION PHASE	
Impact	**3. Increased volume of effluent water discharge**
Potential impact and risk:	Increased volume of operational discharge of the effluent seawater back into the marine environment, risks of causing eutrophication and increases in suspended solids.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (operations)
Consequence of impact or risk:	Medium
Probability of occurrence:	Unlikely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Medium- ecological impacts and disturbance of sensitive areas during the operational phase.
Cumulative impact prior to mitigation:	Low- degradation of coastal zone during the operational activities.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate (medium)
Degree to which the impact can be avoided:	Low, unavoidable
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High, effective management and mitigation measures can be implemented to reduce the impacts.
Proposed mitigation:	→ Adhere to requirements of General Discharge Authorisation (GDA). → Monitor effluent water quality leaving the facility and ensure it complies with relevant aquaculture guidelines (AAD 2010). → Parameters to be monitored and frequency of monitoring to comply with the GDA specifications. → Ensure appropriate management of feeding regime to prevent wasteful and excessive accumulation of feed in tanks which will increase dissolved nutrient levels in effluent water. → Farm management practices must ensure regular cleaning of tanks to prevent excess build-up of particulates in grow-out facilities which would lead high levels peaks of particulate outputs during sporadic flushing. → Maintain effluent sump and discharge pipeline and screens in good working order
Residual impacts:	→ Low- provided that the management is effective- degradation of the coastal zone overtime.
Cumulative impact post mitigation:	More intake and more discharge and leading to risks of eutrophication and suspended solids.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**

DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	N/A
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)	-

ALTERNATIVE 2

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**1. Vegetation removal/ Ecological/ Botanical impacts**
Potential impact and risk:	Removal of the Overberg Dune Strandveld (En) vegetation.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Removal contributes to regional loss of endangered vegetation
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Low
Indirect impacts:	
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low on the southern side of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Possible
Proposed mitigation:	→ Any approved development footprints should be clearly demarcated on site prior to any development. No

	disturbance of natural vegetation outside of these demarcated areas should be allowed, either during construction or thereafter. → All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens *et al* 2021). The main invasive species are rooikrans (*Acacia cyclops)* and manitoka (*Myoporum serratum* and *M tenuifolium*). → Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for Phases 1 & 2 and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar. → No large-scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels it may be trimmed on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby. → -
Residual impacts:	Loss of high ecological sensitive areas
Cumulative impact post mitigation:	Loss of vegetation contributing to retain connectivity
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE

Impact	**2. Visual**
Potential impact and risk:	Visual impact of the construction activities
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (construction phase)
Consequence of impact or risk:	Low
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	Ribbon development along the CBA area.
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium

Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ Locate large structures in low-lying positions of the site, where possible, and minimize earthworks and disturbance to the site by taking the topography into account → Locate the solar PV arrays in a low-lying area, off any dune ridges, and in sympathy with the topography. → Locate the construction camp and related storage/stockpile areas in visually unobtrusive positions on the site, where these are not visible from the beach
Residual impacts:	The solar installations visible to the public and residents of the nearby settlement, raising concerns about visual impact and aesthetic harmony
Cumulative impact post mitigation:	Low - coastal expansion development in the area.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**3. Blasting of a bedrock**
Potential impact and risk:	Blasting of bedrock is required along the high-water mark for the expansion of the pumphouse.
Nature of impact:	Negative
Extent and duration of impact:	Local: short term
Consequence of impact or risk:	Temporary noise impacts to humans as well as marine fauna, blasting dust may also be experienced
Probability of occurrence:	Definite – if blasting is undertaken
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Marine noise, short-term dust and noise
Cumulative impact prior to mitigation:	Contributes towards general marine noise
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Possible
Proposed mitigation:	→ A survey should be done of the proposed line prior to blasting (and construction) and any sedentary animals should be removed from the site. To be repeated as required → Nonexplosive rock breaking explosive (Nonex) to be used to avoid impacting any potential nearby marine mammals, sharks and fish

	→ Undertake visual observation / pre-blast survey prior to blasting to ensure there are no marine mammals and flocks of diving seabirds present in the immediate vicinity (500 m radius) of the construction area
Residual impacts:	Marine dust may be experienced temporarily
Cumulative impact post mitigation:	Marine / underwater noise, short term dust in water column for underwater blasting.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**4. Socio-economic**
Potential impact and risk:	Job creation (+) Traffic as a result Impacts of large vehicles accessing the site (-)
Nature of impact:	Job creation; Positive Traffic; negative (-)
Extent and duration of impact:	Local; short-term (construction phase)
Consequence of impact or risk:	Job creation (+) Impacts on large construction vehicles accessing site (-) risk of damage to roads and loss of loads.
Probability of occurrence:	Job creation: Definite Traffic; Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Impact on public roads users
Cumulative impact prior to mitigation:	Cumulative impacts on roads and public users
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+) Medium (-)
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Employ locally as far as possible → Ensure loads are secured to prevent loss of loads in public roads.
Residual impacts:	→ Employment opportunities during the construction phase → Impact to public roads
Cumulative impact post mitigation:	→ Minor traffic impacts → Job creation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**5. Visual impacts**
Potential impact and risk:	Visual impact of the construction activities
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (construction phase)
Consequence of impact or risk:	Low
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	Ribbon development along the CBA area.
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	-Locate large structures in low-lying positions of the site, where possible, and minimize earthworks and disturbance to the site by taking the topography into account - Locate the solar PV arrays in a low-lying area, off any dune ridges, and in sympathy with the topography. -Locate the construction camp and related storage/stockpile areas in visually unobtrusive positions on the site, where these are not visible from the beach
Residual impacts:	Large extent of the abalone tanks on the urban edge Solar arrays
Cumulative impact post mitigation:	Low - coastal expansion development in the area.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**6. Archaeological impacts**
Potential impact and risk:	Potentially important shell midden deposited (in the proposed intake pipeline), and Later Stone Age campsite may be uncovered during vegetation clearing operations, and construction phase excavations, including cut and fill, landscaping, and shaping of the dune profile.
Nature of impact:	Negative (disturbance/ loss of resources) Positive (discovery)
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Risk of destroying potential scientifically valuable fossil bones of terrestrial animals as well as sites already found.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low- Medium
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Possible loss of resources

	Possible significant findings
Cumulative impact prior to mitigation:	Disturbance and/ or loss of potentially significant archaeological and palaeontological sites.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (-) Disturbance or loss of site Medium (+) Possible discovery of the information
Degree to which the impact can be avoided:	High through correct monitoring of construction works
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Possible
Proposed mitigation:	→ Vegetation clearing and Construction Phase excavations must be monitored by a professional archaeologist. → Vegetation clearance in foredunes to be monitored by archaeologist – shovel testing may be required if sites are found → If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist. → A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations
Residual impacts:	→ Potential loss of cultural resources (-) → Potential significant findings (+).
Cumulative impact post mitigation:	→ Reduce potential for archaeological and palaeontological sites
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**7. Palaeontological impacts**
Potential impact and risk:	The excavation of a trench for placement of the pipelines may intersect the underlying Waenhuiskrans Formation that potentially have fossil bones. The excavation depths of earthworks entailed in creating level areas for the aquaculture tanks and dam would be about the same, i.e. up to 2-3 m and that the earthworks will mainly affect the Qg coversands, but may intersect the underlying, older Waenhuiskrans Fm. aeolianites where the coversands are thin.
Nature of impact:	Negative
Extent and duration of impact:	Local; short-term
Consequence of impact or risk:	The earthworks may intersect the underling formations
Probability of occurrence:	Probable

Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Positive impacts: potential discovery of fossil bones
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Vegetation clearing and Construction Phase excavations must be monitored by a professional archaeologist. → Vegetation clearance in foredunes to be monitored by archaeologist – shovel testing may be required if sites are found → If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist. → A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations.
Residual impacts:	Positive: Discovery of new fossil bones uncovered during excavation.
Cumulative impact post mitigation:	Positive: Discovery of new fossil bones uncovered during excavation.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative

ALTERNATIVE 2 **POST-CONSTRUCTION PHASE** **Impact**	**1. Socio-economic**
Potential impact and risk:	Job creation, staff support group through education programmes and community projects
Nature of impact:	Job creation; Positive Traffic; negative (-)
Extent and duration of impact:	Local; short-term (construction phase)
Consequence of impact or risk:	Job creation (+) Impacts on large construction vehicles accessing site (-) risk of damage to roads and loss of loads.
Probability of occurrence:	Job creation: Definite Traffic; Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Impact on public roads users
Cumulative impact prior to mitigation:	Cumulative impacts on roads and public users
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+) Medium (-)
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Employ locally as far as possible → Ensure loads are secured to prevent loss of loads in public roads.
Residual impacts:	→ Employment opportunities during the construction phase → Impact to public roads
Cumulative impact post mitigation:	→ Minor traffic impacts → Job creation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
POST-CONSTRUCTION PHASE **Impact**	**2. Visual**
Potential impact and risk:	Visual impact of the expansion of facilities on the landscape
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Medium
Probability of occurrence:	Probable

Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Medium
Cumulative impact prior to mitigation:	Little or no other commercial or industrial development
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ Keep general outdoor lighting as unobtrusive as possible through use of low-level bollard type lights, where needed, such as parking areas and footpaths. → Use discrete external signage and avoid commercial advertising or billboard-type signs - Fix signs to buildings or walls, if possible, to avoid the visual clutter of signposts.
Residual impacts:	Solar arrays will not be visible to the residential area adjacent to the farm
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
POST-CONSTRUCTION PHASE	
Impact	**3. Increased volume of effluent water discharge**
Potential impact and risk:	Increased volume of operational discharge of the effluent seawater back into the marine environment, risks of causing eutrophication and increases in suspended solids.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (operations)
Consequence of impact or risk:	Medium
Probability of occurrence:	Unlikely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Medium- ecological impacts and disturbance of sensitive areas during the operational phase.
Cumulative impact prior to mitigation:	Low- degradation of coastal zone during the operational activities.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate (medium)
Degree to which the impact can be avoided:	Low, unavoidable
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High, effective management and mitigation measures can be implemented to reduce the impacts.
Proposed mitigation:	→ Adhere to requirements of Coastal Waters Discharge Permit (CWDP). → Monitor effluent water quality leaving the facility and ensure it complies with relevant aquaculture guidelines (AAD 2010).

	→ Parameters to be monitored and frequency of monitoring to comply with the CWDP specifications. → Ensure appropriate management of feeding regime to prevent wasteful and excessive accumulation of feed in tanks which will increase dissolved nutrient levels in effluent water. → Farm management practices must ensure regular cleaning of tanks to prevent excess build-up of particulates in grow-out facilities which would lead high levels peaks of particulate outputs during sporadic flushing. → Maintain effluent sump and discharge pipeline and screens in good working order
Residual impacts:	→ Low- provided that the management is effective- degradation of the coastal zone overtime.
Cumulative impact post mitigation:	→ Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
POST-CONSTRUCTION PHASE	
Impact	**4. Intake and effluent discharge of seawater**
Potential impact and risk:	Trapping and harming marine organisms during the intake which could lead to fatality of those organisms.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Low
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Medium- local marine ecosystem species loss
Cumulative impact prior to mitigation:	Low- local marine ecosystem species loss
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Low, unavoidable
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	High, effective management and mitigation measures can be implemented to reduce the impacts.

Proposed mitigation:	→ Adhere to requirements of Coastal Waters Discharge Permit (CWDP). → Monitor effluent water quality leaving the facility and ensure it complies with relevant aquaculture guidelines (AAD 2010). → Parameters to be monitored and frequency of monitoring to comply with the CWDP specifications. → Ensure appropriate management of feeding regime to prevent wasteful and excessive accumulation of feed in tanks which will increase dissolved nutrient levels in effluent water. → Farm management practices must ensure regular cleaning of tanks to prevent excess build-up of particulates in grow-out facilities which would lead high levels peaks of particulate outputs during sporadic flushing. → Maintain effluent sump and discharge pipeline and screens in good working order
Residual impacts:	Local marine ecosystem species loss
Cumulative impact post mitigation:	Local marine ecosystem species loss
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**

DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	N/A
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)	-

ALTERNATIVE 3: NO-GO
Status Quo remains

The No Development option means that no expansion of the Abalone Farm takes place. As a result, no benefits and positive impacts associated with the proposed expansion will be realised. The Abalone Farm will not be a position to compete with international markets. In addition, no options for alternative electricity generation can be added to supplement existing and any future expansion. The No Go option however will not trigger the need to disturb indigenous vegetation alongside the existing farm or the need for works within the high water mark of the sea to expand the pump house and water lines.

ALTERNATIVE 4 (PREFERRED)	
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**1. Vegetation removal/ Ecological/ Botanical impacts**
Potential impact and risk:	Removal of the Overberg Dune Strandveld (En) vegetation.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Removal contributes to regional loss of endangered vegetation
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	High
Degree to which the impact can be reversed:	Low
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	The vegetation type and faunal habitat and species to be impacted by the proposed development has been, and will continue to be, impacted by numerous developments and other factors
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low on the southern side of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Possible
Proposed mitigation:	→ Any approved development footprints should be clearly demarcated on site prior to any development. No disturbance of natural vegetation outside of these demarcated areas should be allowed, either during construction or thereafter. → All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens *et al* 2021). The main invasive species are rooikrans (*Acacia cyclops)* and manitoka (*Myoporum serratum* and *M tenuifolium*). → Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for production area and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar. → No large-scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels, it may be trimmed

	on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby.
Residual impacts:	Medium: Permanent removal of vegetation within the development footprint, resulting in the loss of Southwestern Strandveld species. While brush-cutting for the solar array reduces the extent of total vegetation loss.
Cumulative impact post mitigation:	Medium: The Overberg Dune Strandveld and faunal habitat and species to be impacted by the proposed development has been, and will continue to be, impacted by numerous developments and other factors
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**2. Visual**
Potential impact and risk:	Visual impact of the construction activities
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (construction phase)
Consequence of impact or risk:	Low
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	Ribbon development along the CBA area.
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ Locate large structures in low-lying positions of the site, where possible, and minimize earthworks and disturbance to the site by taking the topography into account → Locate the solar PV arrays in a low-lying area, off any dune ridges, and in sympathy with the topography. → Locate the construction camp and related storage/stockpile areas in visually unobtrusive positions on the site, where these are not visible from the beach
Residual impacts:	The solar installations visible to the public and residents of the nearby settlement, raising concerns about visual impact and aesthetic harmony
Cumulative impact post mitigation:	Low - coastal expansion development in the area.

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**3. Blasting of a bedrock**
Potential impact and risk:	Blasting of bedrock is required along the high-water mark for the expansion of the pumphouse.
Nature of impact:	Negative
Extent and duration of impact:	Local: short term
Consequence of impact or risk:	Temporary noise impacts to humans as well as marine fauna, blasting dust may also be experienced
Probability of occurrence:	Definite – if blasting is undertaken
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Marine noise, short-term dust and noise
Cumulative impact prior to mitigation:	Contributes towards general marine noise
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Possible
Proposed mitigation:	→ A survey should be done of the proposed line prior to blasting (and construction) and any sedentary animals should be removed from the site. To be repeated as required → Nonexplosive rock breaking explosive (Nonex) to be used to avoid impacting any potential nearby marine mammals, sharks and fish → Undertake visual observation / pre-blast survey prior to blasting to ensure there are no marine mammals and flocks of diving seabirds present in the immediate vicinity (500 m radius) of the construction area
Residual impacts:	Marine dust may be experienced temporarily
Cumulative impact post mitigation:	Marine / underwater noise, short term dust in water column for underwater blasting.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**4. Socio-economic**
Potential impact and risk:	Job creation (+) Traffic as a result Impacts of large vehicles accessing the site (-)
Nature of impact:	Job creation; Positive

	Traffic; negative (-)
Extent and duration of impact:	Local; short-term (construction phase)
Consequence of impact or risk:	Job creation (+) Impacts on large construction vehicles accessing site (-) risk of damage to roads and loss of loads.
Probability of occurrence:	Job creation: Definite Traffic; Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Impact on public roads users
Cumulative impact prior to mitigation:	Cumulative impacts on roads and public users
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+) Medium (-)
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Employ locally as far as possible → Ensure loads are secured to prevent loss of loads in public roads.
Residual impacts:	→ Employment opportunities during the construction phase → Impact to public roads
Cumulative impact post mitigation:	→ Minor traffic impacts → Job creation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	**5. Faunal impacts**
Potential impact and risk:	Disturbance to the proportion of natural Overberg Dune Strandveld habitat.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (construction phase)
Consequence of impact or risk:	Low
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Medium
Degree to which the impact can be reversed:	Low
Indirect impacts:	N/A
Cumulative impact prior to mitigation:	Removal contributes to regional loss of the vegetation type.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium

Proposed mitigation:	-Locate large structures in low-lying positions of the site, where possible, and minimize earthworks and disturbance to the site by taking the topography into account - Locate the solar PV arrays in a low-lying area, off any dune ridges, and in sympathy with the topography. -Locate the construction camp and related storage/stockpile areas in visually unobtrusive positions on the site, where these are not visible from the beach
Residual impacts:	Low: Minor loss of habitat and local disturbance to faunal activity during the construction phase.
Cumulative impact post mitigation:	Habitat fragmentation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**

PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	→ **Archaeological impacts**
Potential impact and risk:	Potentially important shell midden deposited (in the proposed intake pipeline), and Later Stone Age campsite may be uncovered during vegetation clearing operations, and construction phase excavations, including cut and fill, landscaping, and shaping of the dune profile.
Nature of impact:	Negative (disturbance/ loss of resources) Positive (discovery)
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Risk of destroying potential scientifically valuable fossil bones of terrestrial animals as well as sites already found.
Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low- Medium
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Possible loss of resources Possible significant findings
Cumulative impact prior to mitigation:	Disturbance and/ or loss of potentially significant archaeological and palaeontological sites.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (-) Disturbance or loss of site Medium (+) Possible discovery of the information
Degree to which the impact can be avoided:	High through correct monitoring of construction works
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Possible
Proposed mitigation:	→ Vegetation clearing and Construction Phase excavations must be monitored by a professional archaeologist. → Vegetation clearance in foredunes to be monitored by archaeologist – shovel testing may be required if sites are found → If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist.

	→ A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations
Residual impacts:	→ Potential loss of cultural resources (-) → Potential significant findings (+).
Cumulative impact post mitigation:	→ Reduce potential for archaeological and palaeontological sites
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Impact	→ **Palaeontological impacts**
Potential impact and risk:	The excavation of a trench for placement of the pipelines may intersect the underlying Waenhuiskrans Formation that potentially have fossil bones. The excavation depths of earthworks entailed in creating level areas for the aquaculture tanks and dam would be about the same, i.e. up to 2-3 m and that the earthworks will mainly affect the Qg coversands, but may intersect the underlying, older Waenhuiskrans Fm. aeolianites where the coversands are thin.
Nature of impact:	Negative
Extent and duration of impact:	Local; short-term
Consequence of impact or risk:	The earthworks may intersect the underling formations
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	N/A
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Positive impacts: potential discovery of fossil bones
Cumulative impact prior to mitigation:	Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Vegetation clearing and Construction Phase excavations must be monitored by a professional archaeologist.

	→ Vegetation clearance in foredunes to be monitored by archaeologist – shovel testing may be required if sites are found → If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist. → A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations.
Residual impacts:	Positive: Discovery of new fossil bones uncovered during excavation.
Cumulative impact post mitigation:	Positive: Discovery of new fossil bones uncovered during excavation.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low negative

ALTERNATIVE 4 (PREFERRED)

POST-CONSTRUCTION PHASE

Impact	**5. Socio-economic**
Potential impact and risk:	Job creation, staff support group through education programmes and community projects
Nature of impact:	Job creation; Positive Traffic; negative (-)
Extent and duration of impact:	Local; short-term (construction phase)
Consequence of impact or risk:	Job creation (+) Impacts on large construction vehicles accessing site (-) risk of damage to roads and loss of loads.
Probability of occurrence:	Job creation: Definite Traffic; Possible
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Impact on public roads users
Cumulative impact prior to mitigation:	Cumulative impacts on roads and public users
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+) Medium (-)
Degree to which the impact can be avoided:	High
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High
Proposed mitigation:	→ Employ locally as far as possible

	→ Ensure loads are secured to prevent loss of loads in public roads.
Residual impacts:	→ Employment opportunities during the construction phase → Impact to public roads
Cumulative impact post mitigation:	→ Minor traffic impacts → Job creation
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High positive**
POST-CONSTRUCTION PHASE	
Impact	**6. Visual**
Potential impact and risk:	Visual impact of the expansion of facilities on the landscape
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Medium
Probability of occurrence:	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Low
Indirect impacts:	Medium
Cumulative impact prior to mitigation:	Little or no other commercial or industrial development
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium to high on the northwest of the site.
Degree to which the impact can be avoided:	Low
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	Medium
Proposed mitigation:	→ Keep general outdoor lighting as unobtrusive as possible through use of low-level bollard type lights, where needed, such as parking areas and footpaths. → Use discrete external signage and avoid commercial advertising or billboard-type signs - Fix signs to buildings or walls, if possible, to avoid the visual clutter of signposts.
Residual impacts:	Solar arrays will not be visible to the residential area adjacent to the farm
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
POST-CONSTRUCTION PHASE	
Impact	**7. Increased volume of effluent water discharge**
Potential impact and risk:	Increased volume of operational discharge of the effluent seawater back into the marine environment, risks of causing eutrophication and increases in suspended solids.

Nature of impact:	Negative
Extent and duration of impact:	Local; long-term (operations)
Consequence of impact or risk:	Medium
Probability of occurrence:	Unlikely
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	High
Indirect impacts:	Medium- ecological impacts and disturbance of sensitive areas during the operational phase.
Cumulative impact prior to mitigation:	Low- degradation of coastal zone during the operational activities.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Moderate (medium)
Degree to which the impact can be avoided:	Low, unavoidable
Degree to which the impact can be managed:	High
Degree to which the impact can be mitigated:	High, effective management and mitigation measures can be implemented to reduce the impacts.
Proposed mitigation:	→ Adhere to requirements of Coastal Waters Discharge Permit (CWDP). → Monitor effluent water quality leaving the facility and ensure it complies with relevant aquaculture guidelines (AAD 2010). → Parameters to be monitored and frequency of monitoring to comply with the CWDP specifications. → Ensure appropriate management of feeding regime to prevent wasteful and excessive accumulation of feed in tanks which will increase dissolved nutrient levels in effluent water. → Farm management practices must ensure regular cleaning of tanks to prevent excess build-up of particulates in grow-out facilities which would lead high levels peaks of particulate outputs during sporadic flushing. → Maintain effluent sump and discharge pipeline and screens in good working order
Residual impacts:	→ Low- provided that the management is effective- degradation of the coastal zone overtime.
Cumulative impact post mitigation:	→ Low
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**
POST-CONSTRUCTION PHASE	
Impact	**8. Intake and effluent discharge of seawater**
Potential impact and risk:	Trapping and harming marine organisms during the intake which could lead to fatality of those organisms.
Nature of impact:	Negative
Extent and duration of impact:	Local; long-term
Consequence of impact or risk:	Low

Probability of occurrence:	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Low
Degree to which the impact can be reversed:	Medium
Indirect impacts:	Medium- local marine ecosystem species loss
Cumulative impact prior to mitigation:	Low- local marine ecosystem species loss
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium
Degree to which the impact can be avoided:	Low, unavoidable
Degree to which the impact can be managed:	Medium
Degree to which the impact can be mitigated:	High, effective management and mitigation measures can be implemented to reduce the impacts.
Proposed mitigation:	→ Adhere to requirements of Coastal Waters Discharge Permit (CWDP). → Monitor effluent water quality leaving the facility and ensure it complies with relevant aquaculture guidelines (AAD 2010). → Parameters to be monitored and frequency of monitoring to comply with the CWDP specifications. → Ensure appropriate management of feeding regime to prevent wasteful and excessive accumulation of feed in tanks which will increase dissolved nutrient levels in effluent water. → Farm management practices must ensure regular cleaning of tanks to prevent excess build-up of particulates in grow-out facilities which would lead high levels peaks of particulate outputs during sporadic flushing. → Maintain effluent sump and discharge pipeline and screens in good working order
Residual impacts:	local marine ecosystem species loss
Cumulative impact post mitigation:	local marine ecosystem species loss
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Low negative**

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 Romansbaai Abalone Farm expansion application aims to increase the production output of the farm. Specialist assessments including Terrestrial Biodiversity Assessment, Heritage Impact Assessment; Archaeological and Palaeontological Impacts Assessment, and Visual Impact Assessment were conducted to determine the impact of the proposed expansion on the ecological and socio-economic environment. The findings from these assessments suggest that the proposed development would not lead to significant impacts on the site. No substantial impacts or mitigation measures have been identified. The expansion activities will take place directly alongside the existing Abalone Farm and tie into the existing infrastructure. With the aim to increase the production output by 150 tons, more sea water and electricity will however be required. This will be accommodated by the expansion of the pumphouse, addition of four pumps and pipelines, the development of a new production area and the installation of a seawater holding reservoir and ground mounted solar array to supplement the expansion and reduce the cost of pumping sea water on a continual basis.

Terrestrial Biodiversity Assessment

At least five plant **Species of Conservation Concern** (SoCC) were recorded on site, with distribution as per Table 1. All have substantial and viable populations on the greater property, but their distribution and abundance varies from footprint to footprint. There is a moderate likelihood of one or two other SoCC being present on the various footprints. Rare local endemic species such as *Cliffortia anthospermoides* (Endangered) do not appear to be present on site, and were actively searched for. *Erica irregularis* (Endangered) does not occur south of Gansbaai, although it is common at Grootbos. *Dasispermum grandicarpum* is an inconspicuous, low herb that grows annually from a rootstock (especially now, early in the season), and was until recently known only from Grootbos NR, but has now been recorded from Stanford to Gansbaai (pers. obs.). The species is Redlisted as Data Deficient, but it was not seen in the study areas.

Athanasia quinquedenta ssp. rigens is a shrub Redlisted as Vulnerable and occurs in coastal sands over limestone from Gansbaai to Stilbaai. Scattered plants occur in three of the study areas.

Agathosma geniculata is a shrub Redlisted as Near Threatened and occurs in coastal sands from De Kelders to Arniston. The species is common on three of the study areas.

Muraltia pappeana is a shrub Redlisted as Near Threatened and occurs in coastal sands from De Kelders to Riversdale. The species is common throughout most of the study areas.

Cyanchum zeyheri (not flowering, provisional id) is a creeping shrub Redlisted as Vulnerable, and occurs in coastal sands and rocky areas from Saldanha to Agulhas and is probably very overlooked. Scattered plants occur in three of the study areas.

Lampranthus fergusoniae is a vygie Redlisted as Vulnerable and is found from Kleinmond to Knysna on coastal sands. Scattered plants occur in three of the study areas.

The botanical sensitivity of the site is as shown in Figure 3. Two patches of High sensitivity have been mapped, which are mainly in the proposed PV area and the new dam footprint. Most of Phase 1 facility area is of Low sensitivity, and most of the Phase 2 facility area is of Medium sensitivity.

The impacts associated with the refined layout – Alternative 4 (preferred)

Primary Botanical Impacts

The construction phase of the proposed Romansbaai Abalone Farm expansion will primarily result in the loss of indigenous vegetation within areas of varying botanical sensitivity (Low, Medium, and High). These areas, classified as part of an Endangered vegetation type, include three of the five identified development footprints, namely the seawater reservoir and the production-phase areas. This vegetation loss also extends to the site populations of five recorded Species of Conservation Concern (SCC), which are present within these footprints.

However, the evolution of the project design through Alternative 4 has significantly reduced the extent of the development footprint, particularly in areas of high ecological sensitivity. This optimization has minimized the total vegetation loss, making the impact less severe than originally anticipated. By refining the layout, the project aligns more closely with environmental conservation principles while addressing its operational objectives.

Vegetation Impacts by Component:

1. *Seawater Reservoir and Production Area (grow-out tanks)*

These areas will experience total vegetation loss due to the construction activities. The loss is notable as it includes critical habitats for five SCC recorded on-site. Despite this, the reduced development footprint under Alternative 4 has lessened the overall extent of vegetation clearance in these areas, contributing to a decline in the significance of this impact.

2. *Solar PV Area*

The vegetation impacts in this area are predominantly temporary. Larger woody species will be brushcut to a height of less than 1 m, which will affect the visual canopy structure. However, lower-growing vegetation species are expected to benefit from the increase in light penetration caused by the reduction in canopy cover. Importantly, the applicant has committed to retaining vegetation cover, ensuring that total vegetation loss in this area is unlikely. The solar array will be ground-mounted but elevated at least 1 m above the ground, further minimizing soil disturbance and allowing vegetation to persist underneath the panels.

3. *Pipeline Corridor*

The temporary loss and disturbance of vegetation will also occur along the pipeline corridor. These impacts will be mitigated by confining construction activities to already disturbed areas where feasible, further reducing the potential for significant ecological harm.

4. *Pumphouse Expansion*

No vegetation loss is anticipated in this area. The construction activities are planned within an already disturbed footprint, avoiding impacts on indigenous vegetation entirely.

Archaeological Impacts Assessment

A field assessment was conducted by Agency for Cultural Resource Management (ACRM) on 31 January 2024, in which the following observations were made:

A few thin, dispersed scatters of fragmented marine shellfish (mostly *Turbo sarmaticus/alikreukel*, some *limpet & Haliotis/perlemoen*), and a few quartz and quartzite chunks and flakes were recorded in the route of the proposed seawater intake pipeline (an existing servitude). The resources occur in a severely degraded context.
No grindstones, formal tools, pottery, ostrich eggshell or any other organic remains were found along the ± 400m long proposed pipeline.

No archaeological resources were encountered in the footprint area of the proposed solar plant, the proposed grow out tanks, and the proposed seawater storage dam, which is set back about 400m from the rocky shoreline.

Potentially important shell midden deposits (in the proposed seawater intake pipeline), and Later Stone Age campsites (in the proposed solar plant, grow out tanks & storage dam) may be uncovered vegetation clearing operations, and construction phase excavations, including cut and fill, landscaping, and shaping of the dune profile.

Unmarked Khoisan burials may also be uncovered during construction phase excavations

Grading of archaeological resources

The archaeological resources in the proposed pipeline route have been graded as having Low (Grade 3C) archaeological significance.

Visual Impact Assessment

Findings suggest that the Danger Point Peninsula plays a crucial role in providing shelter and resources for the community, which is essential for their livelihood and well-being. An evaluation of the of the potential receptors confirmed that the Romansbaai Abalone farm is situated in a depression which screens the facility from the surrounding area. This, however, suggests that the overall visual impact is thus low and the heritage landscape will not be altered through the expansion of the facility. Also, the specialist suggested that due to the overall impact rating that is low, this implies that there are no mitigation measures that are deemed necessary.

The findings and recommendations from these specialist assessments have influenced the proposed development by indicating that it can proceed without significant adverse impacts on the site. This likely means that the expansion plans can move forward with fewer mitigation measures, reducing potential delays or expenses associated with extensive mitigation efforts. Additionally, the recognition of the importance of the Danger Point Peninsula to the community's livelihood underscores the need for careful consideration of any visual impacts to ensure minimal disruption to local resources and well-being.

Palaeontology Impact Assessment

The installation of a Solar Energy Facility involves shallow excavations for cabling. It is assumed that the depths of earthworks entailed in creating level areas for the aquaculture tanks and dam would be up to 2-3m. Earthworks will mainly affect the Qg dune coversands, but may intersect the underlying, older Waenhuiskrans Fm. aeolianites where the coversands are thin. Fossil bones are overall sparse in the Qg coversands and those which may be discovered are expected to be of latest Quaternary age and mainly to be species of extant fauna.

The fossil bones that may occur in the Waenhuiskrans Fm. are, like the later coversands, also mainly comprised of representatives of extant fauna, but unexpected species of a different fauna are more likely to occur, as a result of phases of different ecological and palaeoclimatic conditions in the past, as well as the bones of some species which became extinct in the geologically recent past.

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

The impact management measures identified by the specialists for inclusion in the Environmental Management Plan (EMPr) for the proposed abalone farm expansion are as follows:

Terrestrial Biodiversity Assessment

- Any approved development footprints should be clearly demarcated on site prior to any development. No disturbance of natural vegetation outside of these demarcated areas should be allowed, either during construction or thereafter.
- All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens *et al* 2021). The main invasive species are rooikrans (*Acacia cyclops)* and manitoka (*Myoporum serratum* and *M tenuifolium*).
- Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for Phases 1 & 2 and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar.
- No large-scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels, it may be trimmed on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby.

Heritage Impact Assessment (VIA/AIA&PIA)

- No archaeological mitigation is required prior to construction phase excavations commencing.
- Vegetation clearing and Construction Phase excavations must be monitored by a professional archaeologist.
- If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist.
- A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations.
- Regarding the Cultural and Heritage Landscape, `no mitigation measures are deemed necessary' (Lategan 2024).

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.

N/A

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

Romansbaai Abalone Farm is a significant job provider for the local community in Gansbaai. The proposed development is expected to have a positive impact on the surrounding communities in several ways. Firstly, it will create job opportunities for local residents, thereby enhancing employment prospects and contributing to livelihood improvement. This infusion of employment opportunities can lead to greater economic growth within the community, as some individuals will gain stable incomes and spending power. Additionally, with more residents engaged in formal employment, there may be a reduction in crime levels due to increased economic stability and decreased desperation for

illegal means of income. Overall, the development has the potential to foster a more prosperous and secure environment for the surrounding communities, characterized by improved economic conditions and lower crime rates.

No significant negative impacts are expected as a result of the expansion application, as the activities will be in line with what is already taking place on the farm. There will be no significant changes in day-to-day operations.

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.

N/A

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

None that the EAP is aware of.

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.

Extract from Terrestrial Biodiversity Assessment

- About 14ha of the 50ha property surveyed is of High botanical sensitivity, and the underlying vegetation type (Overberg Dune Strandveld) is gazetted as Endangered on a national basis. Approximately 40% of this High sensitivity area will be lost or disturbed by the proposed development.
- At least five plant Species of Conservation Concern (SoCC) were recorded in four of the five footprint areas, but viable populations of all SoCC will remain on undeveloped parts of the property, and most of them should survive in the PV area if the vegetation in this area is brushcut to about 1m tall.
- The only mapped CBA1 that will be impacted by the proposed development is in the PV area, and it will thus not be totally lost, as most of the species in this area should survive, even if partly shaded by panels, and ecological connectivity through the PV area will remain.
- Loss of vegetation in the Phase 1 & 2 and dam areas will be total, with the dam area being the most significant (highest density of SoCC of the three total loss areas).
- Combined construction and operation phase botanical impacts are Medium negative or less for all development areas, expect for the dam area, where it is Medium to High negative. The proposed mitigation is relatively minor, and will not substantially lower these impacts.
- If any development on site is approved then all mitigation as outlined in Section 7 must be timeously and properly implemented.
- The No Go alternative would be the strongly preferred alternative from a botanical perspective, with a Neutral impact.
- This level of botanical impact does potentially trigger a biodiversity offset requirement (Department of Forestry, Fisheries & the Environment. 2023). However, given that the vegetation type is relatively well conserved (100% of national target already set aside) – at least on paper – no further land additions to the conservation of Overberg Dune Strandveld are advised, especially given CapeNature's management constraints. Given that even the formally conserved areas of this vegetation type are under severe threat from alien invasive vegetation, such as in the nearby Walker Bay Nature Reserve (CapeNature). Thus it is suggested that any biodiversity offset be in the form of funding for alien invasive plant management in these already declared but poorly managed conservation areas. A biodiversity offset specialist should calculate the appropriate quantum of the contribution, and this should ideally be enough to fund alien clearing operations in at least a 100ha area in perpetuity (based on approx.

10ha footprint, at an offset ratio of 10:1 for Endangered habitats, as per offset guidelines, Department of Forestry, Fisheries & the Environment 2023).

Terrestrial Biodiversity Assessment (Addendum)

The updated preferred development layout (Alternative 4) significantly reduces the overall development footprint to 6.9 hectares, compared to the 9.6 hectares proposed in earlier alternatives (Alternatives 1 and 2). Notable changes include a reduction in production area from 3 ha to 2 ha (located in areas of low to medium ecological sensitivity) and a reduction in the seawater reservoir footprint from 2 ha to 0.8 ha (in a high-sensitivity area). These adjustments, as highlighted by the botanical findings of Helme (2024), represent a meaningful reduction in the scale and intensity of ecological impacts.

Helme (2024) indicates that the revised layout reduces the significance of impacts on the Phase 2 production area from medium negative to low to medium negative, while the seawater reservoir area's impact rating decreases from medium to high negative to medium negative. This demonstrates a tangible improvement in the overall botanical impact of the development, with the new overall footprint having a low to medium negative impact. Although the reservoir area remains the most sensitive, the reduced footprint minimises the need for a biodiversity offset by lowering the impact on vegetation low and ecological value of the site.

Heritage Impact Assessment

Indications are that the proposed expansion of the Romansbaai Aqunion Abalone Farm on Portion 2 of Farm No. 711 near Gansbaai does not pose a significant threat to local Stone Age archaeological heritage resources. Shell midden deposits, and unmarked Khoisan burials, may however, be uncovered or exposed during construction phase excavations.

According to Pether (2024), any fossils heritage is likely to be encountered in an archaeological context and could be of high archaeological significance.

According to Lategan (2024:38), although most, of the identified receptors are sensitive to visual change of the experiential landscape, the overall impacts are low due to the high absorption level of the landscape and the low vertical extend of the infrastructure. Solar arrays have the potential to create a glare effect which can amplify the visual impact, but due to the screening of the ridge to the north, the glare is effectively screened from the receptors**.**

Recommendations:

- No archaeological mitigation is required prior to construction phase excavations commencing.
- Vegetation clearing and construction phase excavations must be monitored by a professional archaeologist.
- If any human remains are uncovered or exposed during excavations, work must stop, and the finds reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be removed or disturbed until inspected by the archaeologist.
- A protocol for finds of buried fossil bones, the Fossil Finds Procedure (FFP), must be included in the Environmental Management Plan (EMP) for the proposed development. The Fossil Finds Procedure provides guidelines to be followed in the event of fossil bone finds in the excavations.
- Regarding the Cultural and Heritage Landscape, `no mitigation measures are deemed necessary' (Lategan 2024).

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

The mitigation hierarchy has been applied during the assessment and evolution of alternatives for this application. Various specialists were appointed to identify sensitive features, assess impacts and provide management and mitigation measures. Specific measures have been integrated into the project planning and design to reduce the significance of the identified impacts. These measures are designed to avoid impacts, minimise harm and restore habitats, before pursuing any potential Biodiversity Offsets.

It is however important to note that the application at hand is for the expansion of an existing operation, this coupled with the inherent nature of abalone farms and their reliance on a constant supply of seawater, means that there are certain

aspects of the development layout that cannot be moved. For example, the expansion site of the pumphouse and sump can only be located directly adjacent to the existing pumphouse. Expanding away from these existing areas is not possible or practical. In addition, because the farm requires continual movement of water, topography and the location of the grow out platforms are critical in the design and provide a limiting factor in terms of placement. The reservoir needs to be located at the highest point on the farm, in order to allow for the gravity feed of water from this point, down onto the grow out platforms, between tanks, and back to the sea.

Lastly, because the application is for the expansion of an existing operating farm, there are practical aspects that need to be taken into account in terms of layout and design. For example, the new production area, needs to be alongside and linked to existing platforms in order to tie in with existing services as well as allow for effective day to day operations, such as tank cleaning, movement of stock, feeding etc. these practical factors, along with specialist input have been used to find the best layout alternative with the least impacts, as far as possible. Taking cognisance of the above, the mitigation hierarchy has been applied to the application as follows:

Avoidance of impacts

The proposed abalone farm expansion acknowledges the presence of highly sensitive botanical areas and the Critical Biodiversity Area (CBA). Four Alternatives have been included in the investigation, with Alternative 4 being the preferred alternative due to its lower impact rating. In Alternative 4, the following avoidance actions have been implemented:

- The area flagged for the lined seawater reservoir is fixed due to topography, however the alternatives have evolved in such a way that there has been a reduction in footprint from 2 ha to 8000 m^2. This means that a significantly less portion of the identified high botanical sensitivity area, has been completely avoided.
- The grow out platforms have been moved out of high sensitivity areas to medium and low sensitivity areas and also reduced in size from 3 ha to 2 ha, thereby avoiding sensitive vegetation.
- The platforms are also located alongside existing operations and therefore in areas which have been more exposed to disturbances relating to day-to-day operations.
- The proposed solar array has been shifted southwards to avoid more of the CBA area, as far as possible. However, further shifting of the array is constrained by the presence of the milkwood forest to the south. It is crucial to emphasize that this encroachment has been reduced significantly through design modifications aimed at avoiding ecological impacts.
- The Solar array and production area completely avoid the Milkwood thicket area.

Minimisation of impacts

The preferred layout represents a responsible approach to minimizing environmental impacts while achieving project objectives. Key revisions on the new preferred layout (Alternative 4) include reducing the total development footprint from 9.6 ha to 6.9 ha, which significantly lessens the impact on sensitive botanical areas. The production area for grow-out tanks has been reduced from 3 ha to 2 ha and relocated to low-medium sensitivity areas, reducing vegetation loss to an acceptable level.

The design of the seawater reservoir was also refined, reducing its footprint from 2 ha to 0.8 ha. This adjustment considerably reduces vegetation loss in the identified high sensitive areas. The ground mounted solar array will be raised off the ground, so complete vegetation clearance is not required, allowing for persistence of species and ecological connectivity. Vegetation will be brush cut only, to a height of 1 m and therefore minimise the impact on both vegetation type and the CBA.

SECTION J: GENERAL

1. Environmental Impact Statement

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

Terrestrial Biodiversity Assessment

The study area, originally covered by Overberg Dune Strandveld (a Critically Endangered vegetation type), remains largely in good condition despite not being burnt for at least twenty years and experiencing light grazing and trampling by game. The site has a low density of invasive alien species and supports high structural diversity with a mix of indigenous shrubs, small trees, grasses, restios, and herbs. Significant indigenous species include *Searsia glauca, Euclea racemosa,* Helichrysum *niveum,* and *Brunsvigia orientalis*, among many others.

Five plant Species of Conservation Concern (SoCC) were recorded, including *Athanasia quinquedentata ssp. rigens (*Vulnerable), *Agathosma geniculata* (Near Threatened), *Muraltia pappeana* (Near Threatened), Cyanchum zeyheri (Vulnerable), and *Lampranthus fergusoniae* (Vulnerable). These species have viable populations within the study area, although the distribution and abundance vary.

Two patches of high botanical sensitivity were identified, primarily in the proposed photovoltaic (PV) area and the new dam footprint. Most of Phase 1 facility area is of low sensitivity, and most of Phase 2 is of medium sensitivity.

Construction Phase Botanical Impacts

The primary impact of construction would be the loss of Low, Medium, and High sensitivity vegetation, affecting the site populations of the five recorded SoCC. Significant vegetation loss will occur in the two growing facilities and the new dam area. Temporary vegetation loss is expected in the PV area and pipeline, with most significant loss for larger woody species.

Loss of Critical Biodiversity Area (CBA) 1 is anticipated, leading to low-medium negative ecological impacts due to the loss of irreplaceable habitat serving multiple ecological functions.

Operational Phase Botanical Impacts

Operational phase impacts include persistent loss of natural vegetation and high levels of ecological connectivity, leading to habitat fragmentation. There is also a risk of Argentine ant introduction, negatively impacting seed dispersal of indigenous plant species. The overall habitat fragmentation impact is deemed medium negative at the property scale.

Terrestrial Biodiversity Assessment (Addendum)

The updated preferred development layout (Alternative 4) significantly reduces the overall development footprint to 6.9 hectares, compared to the 9.6 hectares proposed in earlier alternatives (Alternatives 1 and 2). Notable changes include a reduction in production area from 3 ha to 2 ha (located in areas of low to medium ecological sensitivity) and a reduction in the seawater reservoir footprint from 2 ha to 0.8 ha (in a high-sensitivity area). These adjustments, as highlighted by the botanical findings of Helme (2024), represent a meaningful reduction in the scale and intensity of ecological impacts.

Helme (2024) indicates that the revised layout reduces the significance of impacts on the Phase 2 production area from medium negative to low to medium negative, while the seawater reservoir area's impact rating decreases from medium to high negative to medium negative. This demonstrates a tangible improvement in the overall botanical impact of the development, with the new overall footprint having a low to medium negative impact. Although the reservoir area remains the most sensitive, the reduced footprint minimises the need for a biodiversity offset by lowering the impact on vegetation low and ecological value of the site.

Palaeontology Impact Assessment

The project area, covered by unconsolidated pale coversands (Qg), overlays the Waenhuiskrans Formation, which has high palaeontological sensitivity due to the potential presence of fossil bones. Excavations for the Solar Energy Facility and aquaculture tanks might intersect these formations, potentially uncovering fossils mainly of extant fauna from various ecological and palaeoclimatic phases. The impact is deemed to be low negative and thus mitigation measures should be undertaken in accordance with the specialist recommendations.

Archaeological Impact Assessment

Scattered, fragmented marine shellfish and a few quartz artifacts were found along the proposed seawater intake pipeline route, graded as having Low (Grade 3C) archaeological significance. No significant archaeological resources were found in the footprints of the proposed solar plant, grow-out tanks, and seawater storage dam. However, potentially important shell midden deposits and Later Stone Age campsites might be uncovered during construction. Therefore, the impacts are deemed to be low.

Visual Impact on Cultural Landscape

The expansion of the Romansbaai Aqunion Abalone Farm is deemed to have a low visual impact on the cultural heritage landscape due to the area's high visual absorption level and the facility's position in a depression that screens it from the surrounding area. No mitigation measures are necessary as the expansion will not significantly alter the heritage landscape.

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)

See attached under **Appendix B**.

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.

Positive impacts

- → Romansbaai Abalone Farm is a significant job provider for the local community of Gansbaai and surrounds the expansion is expected to create more job opportunities during both the construction and operational phases, thus providing economic benefits to the local community.
- → Additionally, increased production of abalone can contribute to economic growth by enhancing the farm's productivity and revenue generation.
- → The expansion will also facilitate educational programs related to aquaculture and marine conservation, fostering community engagement and knowledge sharing.
- → Moreover, incorporating green energy generation into the expansion plans can promote sustainability and reduce environmental impact. The use of gravity fed water during peak hours, will reduce the load on electrical supply.

→ Expansion on the existing farm and impacted areas would result in less environmental impacts as opposed to developing a new abalone farm on another property.

Negative impacts

→ Impacts on and loss of areas of high botanical sensitivity
→ Short terms impacts associated with the expansion of the pumphouse which is located within the littoral active zone. The areas surrounding the pumphouse where the expansion will take place is completely transformed so limited long-term impacts are expected.

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

The refined layout (Alternative 4) for the proposed expansion of the Romansbaai Abalone Farm represents the most balanced option, effectively addressing operational needs while minimising environmental impacts. This alternative reduces the development footprint and relocates activities to areas of low and medium botanical sensitivity, specifically the production area (grow-out tanks) and pipelines. A key concern highlighted by specialists is the permanent loss of Overberg Dune Strandveld vegetation within high botanical sensitive areas as well as plant species of conservation concern, specifically the proposed seawater reservoir location. the proposed development footprint. This vegetation type is classified as vulnerable, emphasizing the need for careful management and mitigation measures. The reduced development footprint under Alternative 4 significantly mitigates these impacts by minimising the impact from medium-high to medium in areas of high botanical sensitivity.

Moreover, the animal species compliance statement identified three broad habitat types on the property, namely natural fynbos, short, disturbed fynbos 'pasture', and built-up areas. The compliance statement heighted that the natural fynbos area could be considered ideal habitat for faunal species as its condition is relatively good. This was also inline with the botanical specialist findings. However, other broad habitat types identified are characterised by disturbances from game as well as the existing footprint on the property. In light of the habitat, the specialist confirm that no species of conservation concern identified on site during the survey and that the expansion do not not significantly influence potential breeding sites. But in some areas, especially the Black harrier Circus maurus, will therefore be negatively affected by loss of forage habitat but the development footprint is small. The proposed development and potential impact are therefore classified as 'low'.

Impact management outcomes:

Terrestrial Biodiversity Assessment mitigations

→ Any approved development footprints should be clearly demarcated on site prior to any development. No disturbance of natural vegetation outside of these demarcated areas should be allowed, either during construction or thereafter.
→ All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens et al 2021). The main invasive species are rooikrans (*Acacia cyclops*) and manitoka (*Myoporum serratum and M tenuifolium*).
→ Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for production area of production area and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar.
→ No large scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a **maximum height of 1m**, maintaining the bulk of the plant cover, whilst allowing for the solar panels to

be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels, it may be trimmed on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby.

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.

In order to ensure that the proposed expansion of the Romansbaai Abalone farm proceeds in an environmentally responsible and sustainable manner, several conditions, based on the findings from various specialist assessments, are recommended to be included in the project authorization. These conditions are designed to mitigate potential impacts and to ensure compliance with environmental management principles.

Terrestrial Biodiversity Assessment:

- → Any approved development footprints should be clearly demarcated on site prior to any development. No disturbance of natural vegetation outside of these demarcated areas should be allowed, either during construction or thereafter.
- → All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens *et al* 2021). The main invasive species are rooikrans (*Acacia cyclops)* and manitoka (*Myoporum serratum* and *M tenuifolium*).
- → Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for production area of production area and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar.
- → No large scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1m above ground level. If the vegetation grows above the panels it may be trimmed on a regular basis, as needed, but should never be cut below 300mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby.

Visual Impact Assessment:

- → Large structures should be located in low-lying positions on the site to minimize visual impacts, taking into account the site's topography to reduce the extent of earthworks and site disturbance.
- → Solar photovoltaic (PV) arrays should be positioned in low-lying areas, away from dune ridges, and in harmony with the natural topography to reduce their visual footprint.
- → The construction camp and associated storage and stockpile areas should be situated in locations that are visually unobtrusive and not visible from the beach, to minimize the visual impact on the landscape.

Heritage Impacts Assessment:

- → Vegetation clearing and all construction phase excavations must be supervised by a professional archaeologist to ensure that any archaeological resources are identified and managed appropriately.
- → Archaeological monitoring should be conducted during vegetation clearance in foredunes, and shovel testing may be required if archaeological sites are discovered.
- → Should any human remains be uncovered during excavations, all work must cease immediately, and the findings must be reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be disturbed until inspected and managed by the archaeologist.

- → The Fossil Finds Procedure (FFP) must be included in the Environmental Management Plan (EMP) to provide guidelines for handling fossil finds during excavations.
- → According to the Cultural and Heritage Landscape assessment, no additional mitigation measures are deemed necessary (Lategan 2024).

Intake and Discharge of Seawater:

- → The project must comply with the requirements of the General Discharge Authorisation (GDA).
- → Effluent water quality leaving the facility must be monitored regularly to ensure compliance with relevant aquaculture guidelines and GDA requirements
- → Specific parameters for water quality monitoring and the frequency of monitoring must adhere to GDA specifications.
- → Farm management practices should be designed to avoid excessive accumulation of feed in tanks, thereby preventing high levels of dissolved nutrients in the effluent water.
- → Regular cleaning of tanks must be carried out to prevent the accumulation of particulates in the grow-out facilities, thus avoiding spikes in particulate outputs during sporadic flushing events.
- → The effluent sump, discharge pipeline, and screens must be maintained in good working order to ensure effective effluent management.

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.

After investigation by the EAP team, the recommendations contained in the specialist studies, and the proposed mitigation measures provided as well as the evolution to the most Preferred Alternative, it is recommended that the proposed activity must be authorized, with the implementation of the recommended mitigation measures. This conclusion is based on the evaluation of the visual, heritage, and botanical assessments conducted, which indicate that the project, if managed according to the recommended mitigation strategies, can proceed with minimal adverse environmental impacts.

Conditions of Authorisations:

- → All listed invasive alien plant species should be removed from the site within one year of any project authorisation, using approved methodology (see Martens et al 2021). The main invasive species are rooikrans (*Acacia cyclops*) and manitoka (*Myoporum serratum* and *M.tenuifolium*).
- → Search and Rescue of all translocatable bulbs (geophytes) should be undertaken from the approved development footprints for production area (grow out tanks) and the new dam prior to construction. This should be done at the end of the flowering season for the relevant species (ranges from April to October). Material should be translocated to other parts of the property where it will not be disturbed in future, and which is ecologically similar.
- → No large-scale soil disturbance or site clearing should happen in the proposed PV area, and instead vegetation can be trimmed to a maximum height of 1 m, maintaining the bulk of the plant cover, whilst allowing for the solar panels to be positioned at a minimum of 1 m above ground level. If the vegetation grows above the panels it may be trimmed on a regular basis, as needed, but should never be cut below 300 mm above the ground. Cut material can be used as mulch to stabilise and cover any loose sand nearby.
- → Archaeological monitoring should be conducted during vegetation clearance in foredunes, and shovel testing may be required if archaeological sites are discovered.
- → Should any human remains be uncovered during excavations, all work must cease immediately, and the findings must be reported to the Environmental Control Officer and the contracted archaeologist (Jonathan Kaplan 082 321 0172). Human remains must not be disturbed until inspected and managed by the archaeologist.

→ The Fossil Finds Procedure (FFP) must be included in the Environmental Management Plan (EMP) to provide guidelines for handling fossil finds during excavations. → Any biodiversity offset should be in the form of funding for alien invasive plant management.

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

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.
This Environmental Authorisation is grated for: → A period of five years from the date of issue, during which the holder must commence with the authorised listed activities. → A period of ten (10) years, from the date the holder commenced with the authorised listed activities, during this period the authorised listed activities must be concluded.	

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 proposed expansion will connect to the water networks provided by the Overstrand Municipality. Water will be reused and recycled where possible.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.
Waste is collected weekly by the municipality and it is recycled on the dumping site.

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
The development proposal incorporates a solar array as a key design measure to improve the farm's efficiency. This will provide an alternative power source and ensure continued operations during periods of loadshedding.	

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

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

I, Rowan David Yearsley, ID number 8207175173080 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.

16th April 2025

Signature of the Applicant: Date:

Aqunion Pty Ltd

Name of company (if applicable):

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DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I **MICHELLE NAYLOR** EAPASA Registration number **2019/698** 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;

02/10/2024

Signature of the EAP: Date:

LORNAY ENVIRONMENTAL CONSULTING PTY LTD

Name of company (if applicable):

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.

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I Jonathan Kaplan....., 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.

Jonathan Kaplan — 09 May 2025

Signature of the EAP: Date:

Agency for Cultural Resource Management

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I .....John Pether....., 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.

Signature of the EAP: 

Date: 9 May 2025

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I SC Lategan ....., 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.

Signature of the EAP: Date: 9 May 2025

N/A

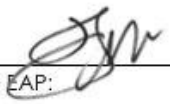
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I Jan A Venter, 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.



09/05/2025

Signature of the EAP: Date:

Wildlife Conservation Decision Support

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I NA Helme, 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.

13 May 2025

Signature of the EAP: Date:

Nick Helme Botanical Surveys

Name of company (if applicable):

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.

Signature of the EAP: Date:

Name of company (if applicable):