

**Botanical Impact Assessment,
Remainder Farm Paapekuil Fontein 281,
Struisbaai, Agulhas Municipality,
Western Cape Province**



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Report prepared for OPES

Client: Helemika No. 1 (Pty) Ltd

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National Legislation and Regulations governing this report

This is a 'specialist report' and is compiled in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2010.

Appointment of Specialist

David J. McDonald of Bergwind Botanical Surveys & Tours CC was appointed by Helemika No. 1 (Pty) Ltd, to provide specialist botanical / terrestrial biodiversity consulting services for the Botanical Scoping Assessment for the proposed development on Remainder Farm Paapekuilfontein 281, Struisbaai (Bredasdorp), Western Cape Province. The consulting services comprise an assessment of potential impacts on the flora, vegetation and terrestrial biodiversity in the designated study area by the proposed development project.

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Expertise

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- Botanical ecologist with over 40 years' experience in the field of Vegetation Science.
- Founded Bergwind Botanical Surveys & Tours CC in 2006
- Has conducted over 1000 specialist botanical / ecological studies.
- Has published numerous scientific papers and attended numerous conferences both nationally and internationally (details available on request).

Independence

The views expressed in the document are the objective, independent views of Dr McDonald and the survey was carried out under the aegis of, Bergwind Botanical Surveys and Tours CC. Neither Dr McDonald nor Bergwind Botanical Surveys and Tours CC have any business, personal, financial or other interest in the proposed development apart from fair remuneration for the work performed.

Conditions relating to this report

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Bergwind Botanical Surveys & Tours CC, its staff and appointed associates, reserve the right to modify the report in any way deemed fit should new, relevant or previously unavailable or undisclosed information become known to the author from on-going research or further work in this field, or pertaining to this investigation.

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Declaration of independence:

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

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 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 the requirements.
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).



Signature of the specialist:

Bergwind Botanical Surveys & Tours CC

Name of company:

12 September 2025

Date:

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1. Introduction

The proponents wish to pursue the application process to develop Remainder Farm Paapekuilsfontein 281, Struisbaai (Bredasdorp), further referred to as 'the site' or 'the property'. For that purpose, a scoping assessment was carried out and now an environmental impact assessment (this report) is required. Bergwind Botanical Surveys & Tours CC was appointed by Helemika No. 1 (Pty) Ltd, to initially conduct a botanical and terrestrial scoping assessment, and then an impact assessment.

The main objective of the scoping assessment was to determine botanical and/or terrestrial biodiversity constraints that would influence the development of the property. The baseline study aimed to determine areas of the property that would be considered 'No Go' areas and the areas that could potentially developable, strictly from botanical and terrestrial biodiversity standpoints, and not on the constraints of other disciplines. The baseline study found that there are developable areas based on the assessment of botanical and terrestrial constraints, with the level of impact being critically assessed here.

The recommended guidelines for specialist biodiversity studies (Brownlie 2005, Cadman *et al.* 2016) and the requirements and recommendations of CapeNature and the Botanical Society of South Africa for proactive assessment of biodiversity of proposed development sites were taken into account in this study as were, the terrestrial biodiversity protocol gazetted in March 2020 and the terrestrial plant species protocol gazetted in October 2020 in the update. The *Species Environmental Assessment Guideline* (SANBI, 2020) have also been taken into consideration.

2. Terms of Reference: Scoping Phase

Baseline assessment:

- Describe the broad ecological characteristics of the site and its surrounds.

In terms of biodiversity patterns, identify or describe:

Community and ecosystem level

- The main vegetation type, its aerial extent and interaction with neighbouring types, soils or topography.

- The types of plant communities that occur in the vicinity of the site
- Threatened or vulnerable ecosystems

Species level

- Red Data Book species (give location if possible, using GPS)
- The viability of and estimated population size of the RDB species that are present (include the degree of confidence in prediction based on availability of information and specialist knowledge, i.e. High=70-100% confident, Medium 40-70% confident, low 0-40% confident)
- The likelihood of other Red Data species, or species of conservation concern, occurring in the vicinity (include degree of confidence).

Other pattern issues:

- Any significant landscape features or rare or important vegetation associations such as seasonal wetlands, alluvium, seeps, quartz patches or salt marshes in the vicinity.
- The extent of alien plant cover on the site, and whether the infestation is the result of prior soil disturbance such as ploughing or quarrying (alien cover resulting from disturbance is generally more difficult to restore than infestation of undisturbed sites).
- The condition of the site in terms of current or previous land uses.

In terms of biodiversity process, identify or describe:

- The key ecological “drivers” of ecosystems on the site and in the vicinity, such as fire.
- Any mapped spatial component of an ecological process that may occur at the site or in its vicinity (i.e. corridors such as watercourses, upland-lowland gradients, migration routes, coastal linkages or inland-trending dunes, and vegetation boundaries such as edaphic interfaces, upland-lowland interfaces or biome boundaries)
- Any possible changes in key processes e.g. increased fire frequency or drainage/artificial recharge of aquatic systems.

2. Terms of Reference: EIA Phase

Based on the Scoping Assessment, determine the probable impacts of the proposed development of Rem Farm Paapekuil Fontein 281, based on the layout as given in Figure 3.

3. Project Area

3.1 Locality and access

Remainder Farm Paapekuilfontein 281, Struisbaai (Bredasdorp) is 0.71 ha and lies between Marine Drive, the main road of Struisbaai that connects it to Suiderstrand to the west and Bredasdorp inland to the north-east. The site is above the high-water mark and is inside the urban edge (Figures 1 & 3).

Access to the site is straightforward since it is currently used by the public for access to rocky plateau above the high-water mark where recreational activities take place (Figure 2).



Figure 1. The location of Remainder Farm Paapekuil Fontein 281, Struisbaai (Bredasdorp) (the site) in relation to Cape Agulhas and the Southern Tip of Africa.



Figure 2. A satellite aerial image from Google Earth Pro™ with Remainder Farm Paapekuil Fontein 281, Struisbaai (Bredasdorp) outlined in blue, and the survey track shown as a red line.

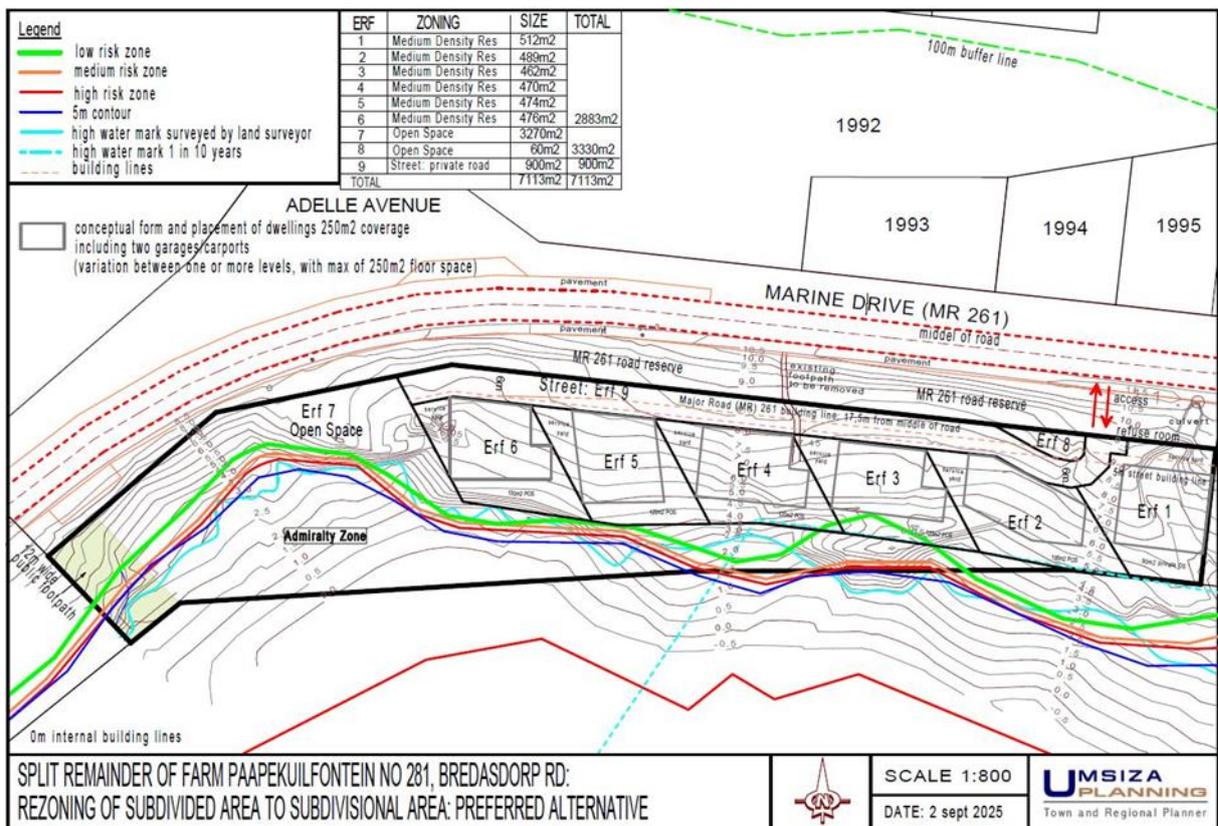


Figure 3. The final site development plan, Alternative 5.

3.2 Topography, Geology and Soils

The property is a narrow 'strip' along the coast that has a rocky shoreline consisting mostly of sandstone of the **Bredasdorp Group** [Sundays River Formation] (Figures 4, 5 & 6).

Unconsolidated dune sand of the **Strandveld Formation** of the **Bredasdorp Group** is also found (Figure 7). At the western end of the site is an outcrop of limestone of the **Bredasdorp Formation**, which is part of the **Algoa Group** (not to be confused with the older Bredasdorp Group mentioned above). The geological map in Figure 4 is misleading since at the depicted scale, the limestone sediments are not mapped. Figure 5 shows the stratigraphy of the geology.

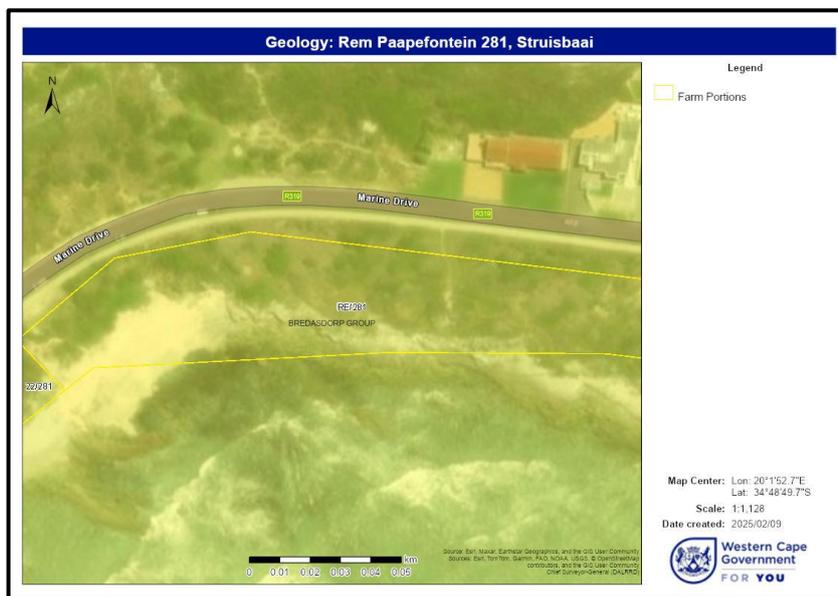


Figure 4. Large scale geological map indicating that the site is underlain by Bredasdorp Group sediments. The scale is not fine enough to depict the limestone occurring at the western end of the site.

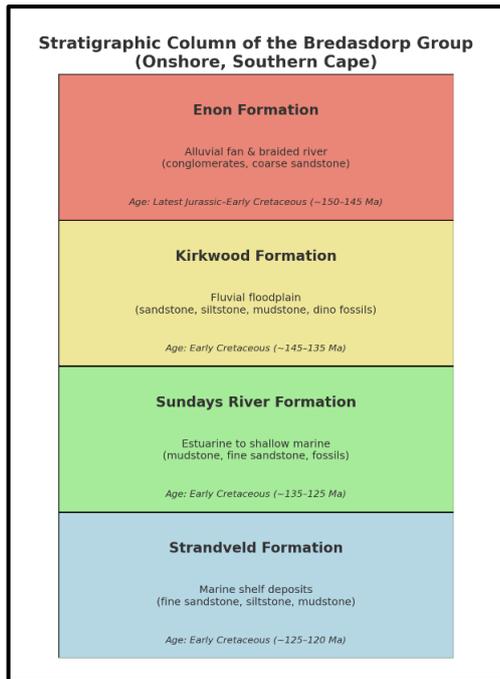


Figure 5. Stratigraphic sequence of the formations of the Bredasdorp Group.



Figure 6. The site lies parallel to the coastline with a rocky shore and small beach, and strandveld vegetation on the landward side.



Figure 7. The aeolian sand of the Strandveld Formation has formed a deep deposit inland of the rock shore. The sand is exposed here by erosion.

3.3 Climate

Struisbaai and its surrounds are within the winter-rainfall region of the Western Cape. The climate diagram for Overberg Dune Strandveld (Figure 7)* shows that rain occurs throughout the year but displays a unimodal pattern with a peak in winter (May to August) Cold fronts in the winter bring cyclonic rainfall from the north-west whereas south-east winds bring rain onshore in the spring and summer. Mean annual precipitation is 476 mm. The proximity to the sea ameliorates the temperatures with the coldest month being July where the temperature at night drops to 7 °C. Midday temperatures range from 18 °C in July to 26 °C in January and February, the hottest months.

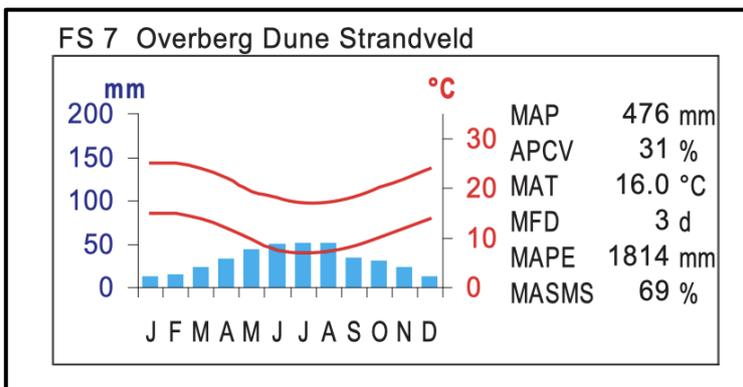


Figure 7. Climate diagram for Overberg Dune Strandveld, according to Rebelo *et al.*, 2006 (in Mucina & Rutherford, 2006) showing MAP – Mean Annual Precipitation; APCV = Annual Precipitation Coefficient of Variance; MAT = Mean Annual Temperature; MFD = Mean Frost Days; MAPE = Mean Annual Potential Evaporation; MASMA = Mean Annual Soil Moisture Stress.

*Note: Overberg Dune Strandveld has now been included in Southwestern Strandveld (SANBI, 2024).

4. Methods

4.1 Field Sampling

The field work for the assessment was carried out on 20 December 2022 and took approximately 2 hours. The property was surveyed on foot and the 'sample track' was recorded (Figure 2). Notes on the terrain and vegetation were recorded and photographs taken to support the written observations. Where relevant observations of animals and birds were also made.

4.2 Desk-top analysis and reporting

The photographs obtained in the field as well as available literature and Google Earth Pro™ were used for description of the vegetation presented in this report. The National Vegetation Map (Mucina *et al.* 2005; SANBI, 2012; 2024) (referred to as VEGMAP) was used to determine the vegetation type. Note should be taken that the vegetation is now recognized as Southwestern Strandveld (Cowling *et al.* 2023) that includes the former Overberg Dune Strandveld.

The National Web-based Environmental Screening Tool was applied as required in the protocols for specialist assessments.

5. Limitations and Assumptions

The site is accessible to the public so there was no restricted access. No other limitations were experienced, or assumptions made.

6. The Vegetation

6.1 General description

The property falls within the Southern Coastal Bioregion with only one major vegetation type occurring at the site, namely Southwestern Strandveld (SANBI, 2024), with Cape Seashore Vegetation, an azonal vegetation type, playing a subordinate role. The latter occurs at the seashore, usually on beaches but less so on wave-swept rocky shores as at the site. The relevant part of the VEGMAP overlaid on a Google Earth Pro™ satellite image of the site (Figure 8) does not depict Cape Seashore Vegetation. In reality, at the

site, the vegetation mapped as Southwestern Strandveld is not a pure type. It contains some plant species that are in most circumstances more likely to be found on the seashore. The latter plant species are mostly halophytes i.e. plant species able to tolerate a saline to hyper-saline environment. Agulhas Limestone Fynbos is believed to occur at a small area at the western end on limestone rocks. However, the vegetation is not typically Agulhas Limestone Fynbos but more Southwestern Strandveld vegetation. This detail is not critical to the impact assessment since the area where the limestone rocks occur is intended to be public open space. It will not be negatively impacted by the proposed development



Figure 8. Portion of the vegetation map (VEGMAP) (SANBI, 2024) indicating that the site is mostly within Southwestern Strandveld (northwards of the yellow line). Cape Seashore Vegetation is not shown, with Agulhas Limestone Fynbos occurring at the western end of the site.

6.2. Vegetation of the project area

6.2.1 Southwestern Strandveld

As noted above, the vegetation at the site is mainly Southwestern Strandveld, with a small area of Agulhas Limestone Fynbos at the western end as mapped by SANBI (2024) (Figure 9). The terrain is partly a moderately sloping windswept slope consisting of deep aeolian sand above a rocky shoreline consisting of sandstone. The western part of the site has a sandy beach with the toe of the slope having a margin of Cape Seashore Vegetation. The steeper slope inland and above the beach is vegetated with strandveld. Agulhas Limestone Fynbos was not found on the site during the survey. Figure 10 shows the proposed footprint of the developable area of the site.

The vegetation and terrain are described below using photo waypoints. The photo illustrations provide an overview of the site and its condition. Some individual component plant species of the strandveld are depicted as well as some exotic species that have established on the site (Table 1).

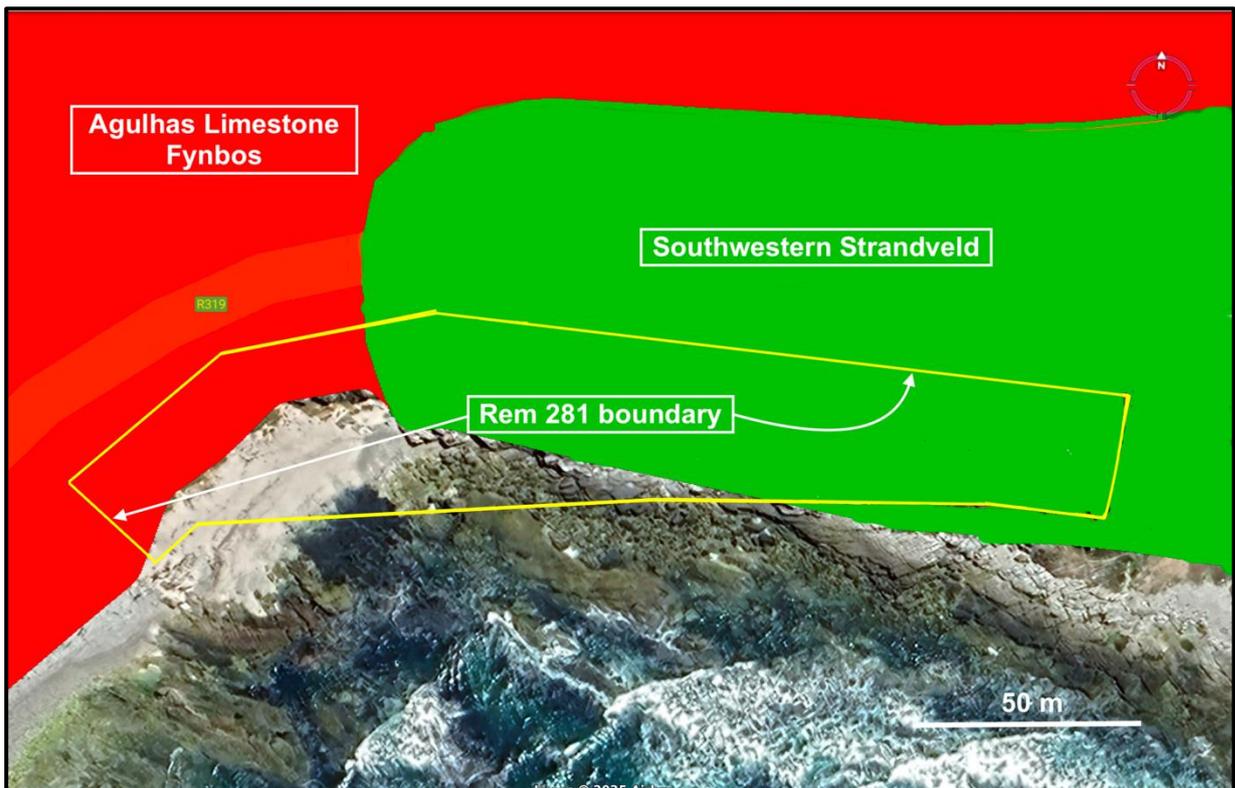


Figure 9. The vegetation of the study area (VEGMAP 2024), showing the site boundary in yellow.

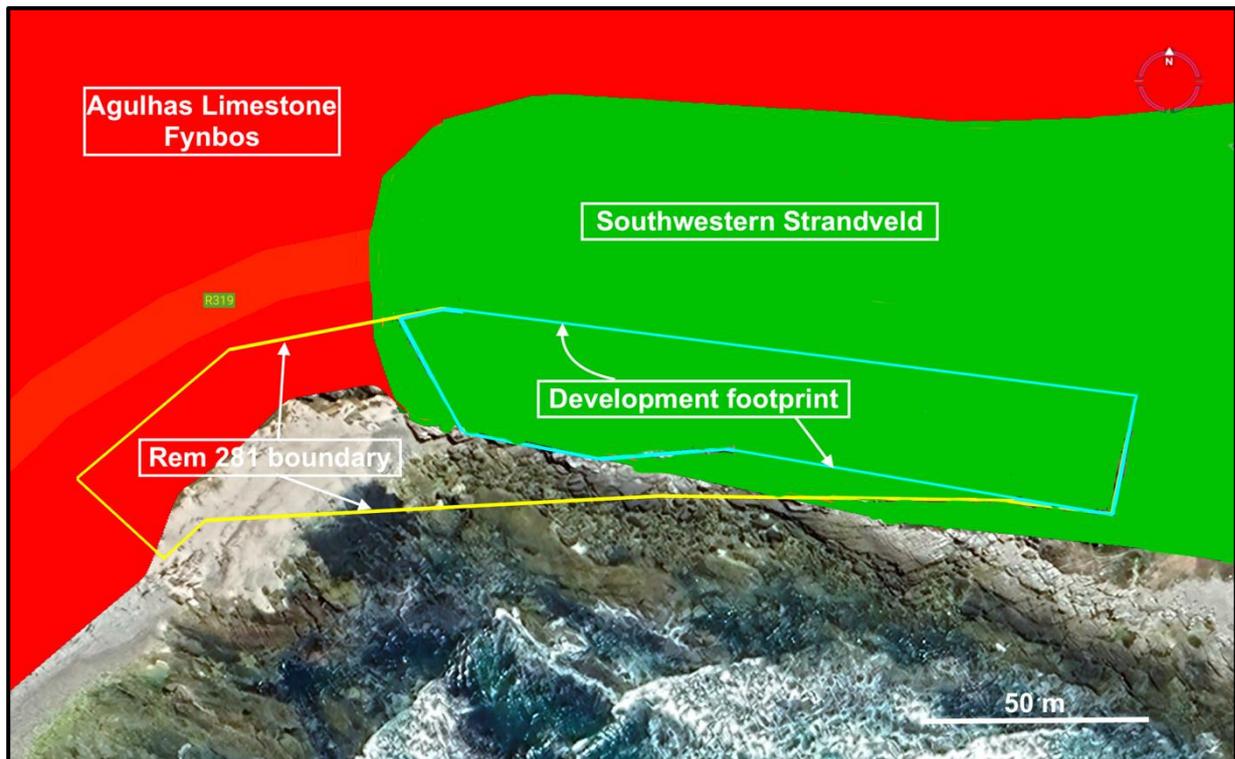


Figure 10. The vegetation of the study area (VEGMAP 2024), showing the site boundary in yellow with the development footprint outlined in light blue.

Table 1. Sample waypoints with notes and illustrative photographs.

Waypoint Coordinates	Notes	Illustrations
<p>S 34°48'50.118" E 20°1'57.234" E</p>	<p>The east boundary of the site runs from Marine Drive to the shoreline, roughly in a straight line through the habitat seen in this image.</p>	
<p>S 34°48'49.806" E 20°1'57.006"</p>	<p>This image shows erosion of the accumulated aeolian sand. Note the thickness (depth) of the sand. The cause of the erosion is the egress of stormwater from a culvert at the edge of Marine Drive.</p>	

<p>S 34°48'50.214" E 20°1'57.048"</p>	<p>The view westwards from the eastern boundary of the site showing the rocky promontory above the rocky coastline. The vegetation is all strandveld.</p>	
<p>S 34°48'50.028" E 20°1'56.532"</p>	<p>The strandveld vegetation is mostly clipped short by wind and salt-spray. It is only the resistant tall shrubs such as <i>Metalasia muricata</i> that can withstand the windshear.</p>	
<p>S 34°48'50.124" E 20°1'56.166"</p>	<p><i>Euclea racemosa</i> (sea gwarrie), a well-known indicator species of strandveld vegetation. It is usually a tall shrub but here it is stunted by wind and its close proximity to the sea.</p>	

<p>S 34°48'49.704" E 20°1'56.208"</p>	<p><i>Limonium scabrum</i> (sea lavender), a common strandveld component.</p>	
<p>S 34°48'50.142" E 20°1'56.016"</p>	<p><i>Drosanthemum hispidum</i> (hairy dew flower or skaapvygie). A widespread plant species but commonly in strandveld.</p>	
<p>S 34°48'49.704" E 20°1'56.124"</p>	<p><i>Helichrysum crispum</i> (mattress everlasting or kooigoed), a species commonly found in strandveld and fynbos.</p>	

<p>S 34°48'50.28" E 20°1'56.112"</p>	<p><i>Solanum africanum</i> (dune nightshade, drunken berry, drunken rope (Eng.); dronkbessie, dronktou (Afr.). Found commonly in coastal vegetation.</p>	
<p>S 34°48'50.232" E 20°1'56.148"</p>	<p>The view from roughly the centre of the site looking eastwards over the rocky sandstone shelf that separates the sea from the strandveld vegetation. No Cape Seashore Vegetation is found here due to the highly energetic and abrasive shore-zone.</p>	
<p>S 34°48'50.232" E 20°1'56.148"</p>	<p>The view from roughly the centre of the site looking westwards. The strandveld is found up to the rocks. In the distance is a small beach at the western end of the site.</p>	

<p>S 34°48'50.238" E 20°1'58.74"</p>	<p><i>Euphorbia burmannii</i> (soetmelkbos), a succulent often found in strandveld vegetation but stunted by the closeness to sea.</p>	
<p>S 34°48'50.358" E 20°1'55.872"</p>	<p><i>Bassia diffusa</i> (soutbossie), a prostrate, mat-forming succulent perennial halophyte, tolerant of high concentrations of salt and often found in saltmarshes.</p>	
<p>S 34°48'50.334" E 20°1'55.494"</p>	<p><i>Sporobolus virginicus</i> (seashore dropseed, marine rush grass, sand couch, salt couch grass, saltwater couch, coastal rat-tail grass) is a species of grass tolerant of sites subject to high salt concentrations. This species is widespread along beaches in subtropical and tropical regions of the world.</p>	

<p>S 34°48'49.566" E 20°1'55.518"</p>	<p><i>Brunsvigia orientalis</i> (candelabra lily, also known as one of the March lilies), a widespread geophyte that flowers in autumn. The leaves dry out in summer and reappear in winter during the rainy season.</p>	
<p>S 34°48'49.266" E 20°1'49.398"</p>	<p><i>Searsia crenata</i> (rear) (dune crow berry) with <i>Searsia glauca</i> (front) (blue khunibush). These two related shrub species are a common component of strandveld.</p>	
<p>S 34°48'49.962" E 20°1'49.254"</p>	<p><i>Thesium</i> sp. – one of many species that are root parasites on dune shrubs.</p>	

<p>S 4°48'49.806" E 20°1'54.756"</p>	<p><i>Metalasia muricata</i> mid-high shrubs now senescent, with <i>Osteospermum moniliferum</i> (bright green shrub), both common species in dune vegetation.</p>	
<p>34°48'49.704" S 20°1'54.078" E</p>	<p><i>Carpobrotus edulis</i> (sour fig) [centre], is well known as a dune-stabilising plant in coastal dunes.</p>	
<p>S 34°48'49.584" E 20°1'52.152"</p>	<p><i>Helichrysum petiolare</i> (silver bush everlasting, herbal helichrysum, bedding helichrysum (Eng.), kooigoed, kruie (Afr.), imphepho (Xho.)), a species found in the Western Cape in strandveld and fynbos vegetation.</p>	

<p>S 34°48'49.482" E 20°1'52.14"</p>	<p><i>Helichrysum retortum</i> (flask everlasting or sea / beach strawflower), is a dwarf shrub that spreads on beach sand or rocks.</p>	
<p>S 34°48'49.554" E 20°1'51.54"</p>	<p>The small beach at the west end of the site, with a small amount of Cape Seashore Vegetation at the upper limit of the beach. This quickly gives way to Agulhas Limestone Fynbos off the site.</p>	
<p>S 34°48'50.1" E 20°1'49.266"</p>	<p><i>Tetragonia decumbens</i> (dune spinach) and <i>Tetragonia fruticosa</i> (sprawling sea coral), two closely related prostrate shrubs that are found in Cape Seashore Vegetation.</p>	

<p>S 34°48'48.678" E 20°1'52.956"</p>	<p><i>Sideroxylon inerme</i> (White milkwood) occurs along the upper edge of the strandveld on the site, bordering the pavement along Marine Drive. The trees are severely wind-clipped and stunted due to onshore wind and salt-spray. This is a protected tree species in terms of the National Forests Act (Act 84 of 1998). It may not be disturbed by cutting or removal without the necessary permits.</p>	
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6.2.2 Exotic and Invasive Plant Species

With the site being close to the gardens of houses along Marine Drive at Struisbaai, some exotic plant species found in coastal gardens around the world but more specifically in the sub-tropics and tropics, have become established on it (Table 2). Notable species are *Plantago maritima*, *Reseda lutea* and *Lagunaria patersoniae*, as illustrated below. *Acacia cyclops* has previously been more prominent on the site, but the large shrubs have been removed leaving only the less conspicuous specimens that blend in with the wind- and salt-pruned low vegetation. Such specimens could become larger with time if they are not eradicated.

Table 2. Alien plants found on the site at the given sample waypoints.

<p>S 34°48'49.44" E 20°1'53.91"</p>	<p><i>Plantago maritima</i> (sea plantain) is widely distributed on the coasts of the world but is non-native to South Africa where it has naturalised along the coast.</p>		
<p>S 34°48'49.692" E 20°1'56.112"</p>	<p><i>Acacia cyclops</i> (red arrows) is an alien invasive woody species that is well-adapted to coastal environments with sandy soil. It is a major problem along the coast and inland in the Western and Eastern Cape Provinces.</p> <p>At the site the invasive trees have mostly been removed but some individuals, stunted by the effects of salt-spry and wind, persist amongst the short strandveld vegetation.</p>		

<p>S 34°48'50.064" E 20°1'55.842"</p>	<p>A large <i>Acacia cyclops</i> (rooikrans) tree has been removed and a barren area is left due to shading out of native plants.</p>	
<p>S 34°48'50.022" E 20°1'55.716"</p>	<p><i>Reseda lutea</i> (yellow mignonette or wild mignonette) is native to Europe, southwest Asia and North Africa, from the Canary Islands and Iberia east to northwest India.</p> <p>This species has medicinal properties having been used as a sedative. It is not native to the site.</p>	
<p>S 34°48'49.818" E 20°1'54.036"</p>	<p><i>Lagunaria patersonia</i> (known by a wide number of common names including Norfolk Island hibiscus, primrose tree and cow itch tree), is not native to South Africa. It has become established on the site as a stunted shrub, probably having escaped from a local garden.</p>	

6.2.3 Disturbance

Apart from the ongoing disturbance effects of the coastal environment, there are some other disturbance features on the site. The disturbance is from people accessing the rocks and beach for picnics and walks, as well as poorly managed stormwater as described below (Table 3).

Table 3. Disturbance features on the site.

<p>S 34°48'49.692" E 20°1'54.432"</p>	<p>A footpath was noted running parallel with the shoreline, through the low strandveld and above the rock outcrops. This footpath appears to cause only limited disturbance since many of the trailing plants extend across the path, helping to stabilize the sand.</p>	
<p>S 34°48'49.104" E 20°1'56.382"</p>	<p>Some areas of the site have been disturbed by removal of alien invasives, leaving open areas where the harsh environment (wind) does not allow for quick revegetation.</p>	

<p>S 34°48'50.004" E 20°1'55.842"</p>	<p>A problem for the strandveld vegetation is that <i>Acacia cyclops</i> trees have been cleared and then the cut material is chipped on-site with a mechanical chipper. This produces a large amount of chipped material which has been left on the site in piles. Clearing of the alien plants is positive but leaving the chipped material is undesirable since it contains a high seed load and the problem of invasion is exacerbated. The chipped material should be removed to a recognized landfill and burnt to destroy the seeds.</p>	
<p>S 34°48'49.158" E 20°1'57.324"</p>	<p>At this location, a stormwater culvert has been constructed. This is a good thing but the flow of water below the culvert should be appropriately managed. It is eroding the sandy soil and leaving an undesirable erosion gully.</p>	

7. Conservation Status and Site Sensitivity

7.1 Western Cape Biodiversity Spatial Plan (Critical Biodiversity Areas and Ecological Support Areas)

The Revised National List of Ecosystems that are Threatened and in need of Protection was published in the Government Gazette No. 47526 of November 2022. The name Southwestern Strandveld (Cowling *et al.* 2023) was only published after the abovementioned gazette. It has thus not been given a 'threat status' or conservation status. Therefore, the vegetation type name Overberg Dune Strandveld is used here since it was the previously recognized vegetation type. It is listed as **Critically Endangered B1 (iii)** (Government Gazette, 2022) and the reason for this is that the ecosystem is '*narrowly distributed with ongoing biotic disruption by invasive species*'. This immediately places a 'red flag' on development as well.

The Western Cape Biodiversity Spatial Plan [WCBSP] (CapeNature, 2017; Pence, 2017, Poole-Stanvliet *et al.*, 2017; CapeNature, 2023) describes the conservation standard developed by CapeNature, that includes the currently accepted critical biodiversity areas (CBAs) and ecological support areas (ESAs) at a provincial level but recognized nationally as well. The map of CBAs and ESAs for the WCBSP 2023 version was overlaid on a Google Earth Pro™ image, and the result of this exercise is given in Figure 11. The classification shows that part of the site is classified as CBS1 (due to presence of Overberg Dune Strandveld) and part ESA1, whereas the remainder of the site is not recognized as sensitive (pink shading in Figure 11).

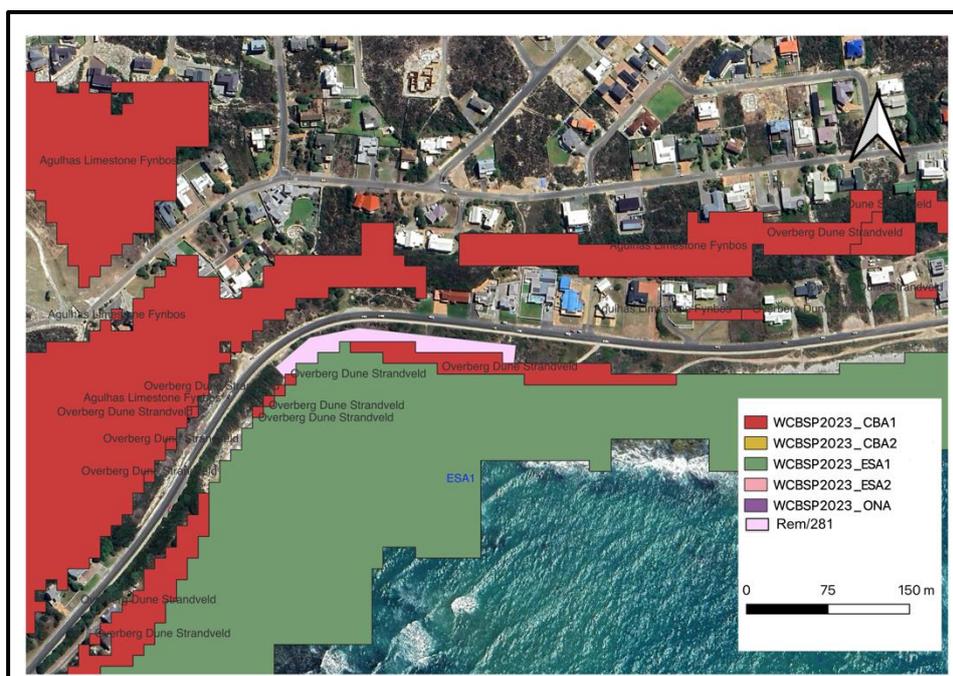


Figure 11. The WCBSP map (CapeNature, 2023) overlaid on a Google Earth Pro™ image, indicating that the western part of the site is classified as ESA1 (green shading) and the central and east parts of the site on the seaward side are classified as CBA1 (red shading). The rest of the site is classified as not sensitive at all (pink shading).

7.2 Red List Ecosystems (RLE)

The most recent National Biodiversity Assessment has been used as the basis for the mapping of threatened ecosystems, more specifically the remnants of these ecosystems that, for convenience, are referred to as 'Red List Ecosystems' (SANBI, 2022; Skowno & Monyeki, 2021). The shapefile applicable to the site was also overlaid on a Google Earth Pro™ image with the result given in Figure 12. The classification recognises only the western end of the site, where the small beach is located, as Endangered [EN B1 (iii)]. The latter area is classified as Agulhas Limestone Fynbos (see Figures 9 & 10) but in reality, there is no limestone fynbos present.



Figure 12. The RLE classification overlain on a Google Earth Pro™ image, showing that only a small part of the site, at the western end, is recognized as endangered habitat.

7.3 National Web-based Environmental Screening Tool

It is a requirement that the National Web-based Environmental Screening Tool should be applied to any area proposed for development. The result of this process for the Plant Species Sensitivity Theme and Terrestrial Biodiversity Sensitivity Theme resulted in the maps in Figures 13 and 14.

7.3.1 Plant Species Sensitivity

Plant species sensitivity is **Low** for most of the site and **Medium** for the western end of the site. This agrees with both the WCBSP classification and map, as well as the Red List Ecosystem classification and map, where, in all cases, the western end of the site, where the beach is located, is more sensitive than the remainder. The site at does not support

typical 'dune strandveld' due to its topography, so its structure and plant species composition is somewhat less complex than in the typical form of dune strandveld.

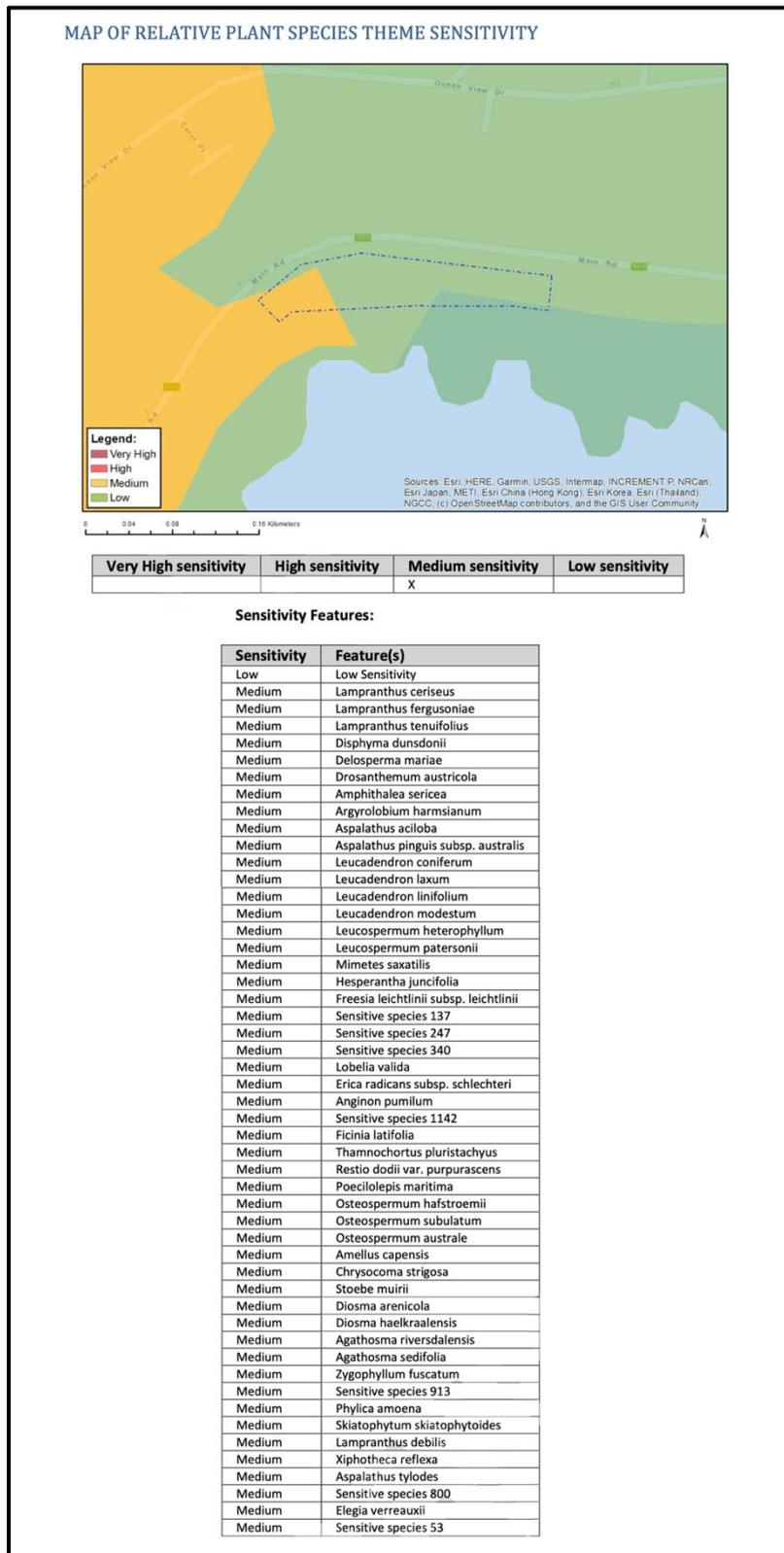


Figure 13. The Relative Plant Species Theme Sensitivity as generated by the National Web-based Environmental Screening Tool.

7.3.2 Terrestrial Biodiversity Sensitivity

The sensitivity of terrestrial biodiversity is classified by the screening tool as **High to Very High** (Figure 14). From field observations at the site, it is my evaluation that the site should not be classified as more than **MEDIUM** sensitivity, and that the ESA1 classification as well as the other sensitivity features do not warrant application of a **High to Very High** classification.

Unlike fynbos, strandveld does not rely on fire as one of the important ecological drivers. The strandveld plant communities stay relatively stable without fire and most of the plants do not rejuvenate by resprouting but rather by seed, should a fire occur. A fire, however, is very unlikely to occur at this site.

Ecological processes on the site are closely linked to the proximity of the sea, with most of the plants being adapted to the salty, windy coastal environment. Apart from the coastal vegetation, some of which has been degraded by human activities, I did not find the habitat generally to be in good condition. The release of stormwater onto the site from culverts below the coastal road has caused some disruption of the sandy soil and, where the water erosion has occurred, revegetation is occurring naturally but is very slow.

The field visit was a snapshot in time so the observations made cannot be taken as definitive. However, no bird species were obviously using the habitat for feeding or nesting. In addition, no insect communities were evident in the dune strandveld habitat either.

The selection of the property as part of a coastal buffer for the SANPARKS Agulhas National Park appears to have limited merit since it is not directly linked to the national park. In addition, the classification of the site as being an Ecological Support Area 1 (ESA1) is tenuous, despite Southwestern Strandveld (Overberg Dune Strandveld) being an Endangered ecosystem.

The area of impact of the proposed development would be small so it would not contribute significantly to the loss of the Southwestern Strandveld (Overberg Dune Strandveld) ecosystem.

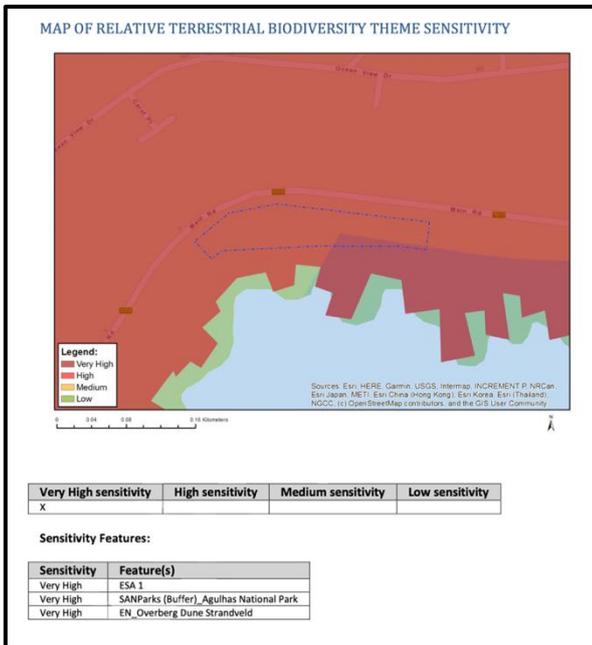


Figure 14. The Relative Terrestrial Biodiversity Theme Sensitivity as generated by the National Web-based Environmental Screening Tool. The site is outlined in blue dotted line.

7.4 Plant species of conservation concern (SCC)

Most of the plant species listed in Figure 13 do not occur on the site. Firstly, the vegetation on the site is a poor representative of Southwestern Strandveld, with low species-richness and, secondly, many of the species listed are more typical of fynbos vegetation than strandveld, so the list is somewhat misleading.

No plant species of conservation concern (SCC), also known as Red List species (Raimondo *et al.* 2009) were encountered on the site.

8. The development alternatives

The descriptions of the alternative and the reasons for their rejection or acceptance are as follows (in blue type), as provided by the project proponents:

Alternative 1

The *status quo* would remain, and no development would take place.

Alternative 2

Alternative 2 proposed 7 residential erven, with a parallel private road access alongside Marine Drive and an open space erf below the High-Water Mark (Figure 15).

It has however been discarded for the following reasons:

- the density was considered too high with a larger consequential negative impact.
- There was no provision for coastal access.
- Only the high-water mark was taken into account.
- Open Space was limited.
- Erven 1 to 3 along southern boundary of erf were too close to the ocean.
- Orientation of the erven for views and wind shield was poor.

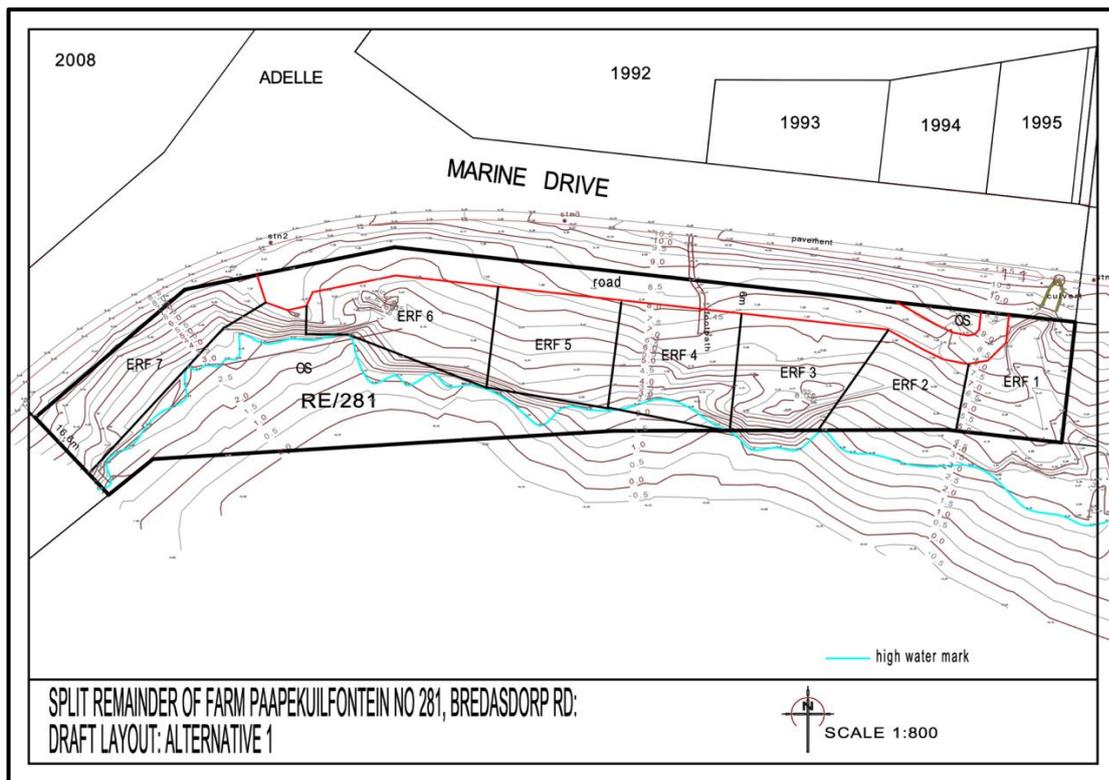


Figure 15. The Site Development Plan (SDP) used during the Scoping Phase. This is Alternative 2 (not preferred).

Alternative 3

The layout takes into consideration the 5m contour line; the High-Water Mark; and the High, Medium and Low Risk Coastal Zones (Figure 16).

It includes:

- Five Single Residential Erven of between 549 and 588m².
- One Medium Density Residential Erf of 630m² intended for two dwellings.

Alternative 4

Alternative 4 (Figure 17) was the preferred alternative as of 2 September 2025. Rezoning from Agricultural to Sub-divisional Area was proposed that would include six Single Residential Zone subdivisions (1-6), one Public Open Space Zone subdivision (7) providing public access to the beach, a street zone subdivision (10) and two Private Open Space subdivisions (8 and 9).

The revisions are based on a response to the specialist assessments of Alternative 3 and propose a further reduction of the overall density across the property, whilst also permitting the property boundary to be treated differently and in a manner which enhances sight lines and visual corridors as the "corner" is no longer a built environment in terms of dwelling structures, as was contemplated previously. Additionally, this revision further enhances and expands the retention of flora areas within the overall development.

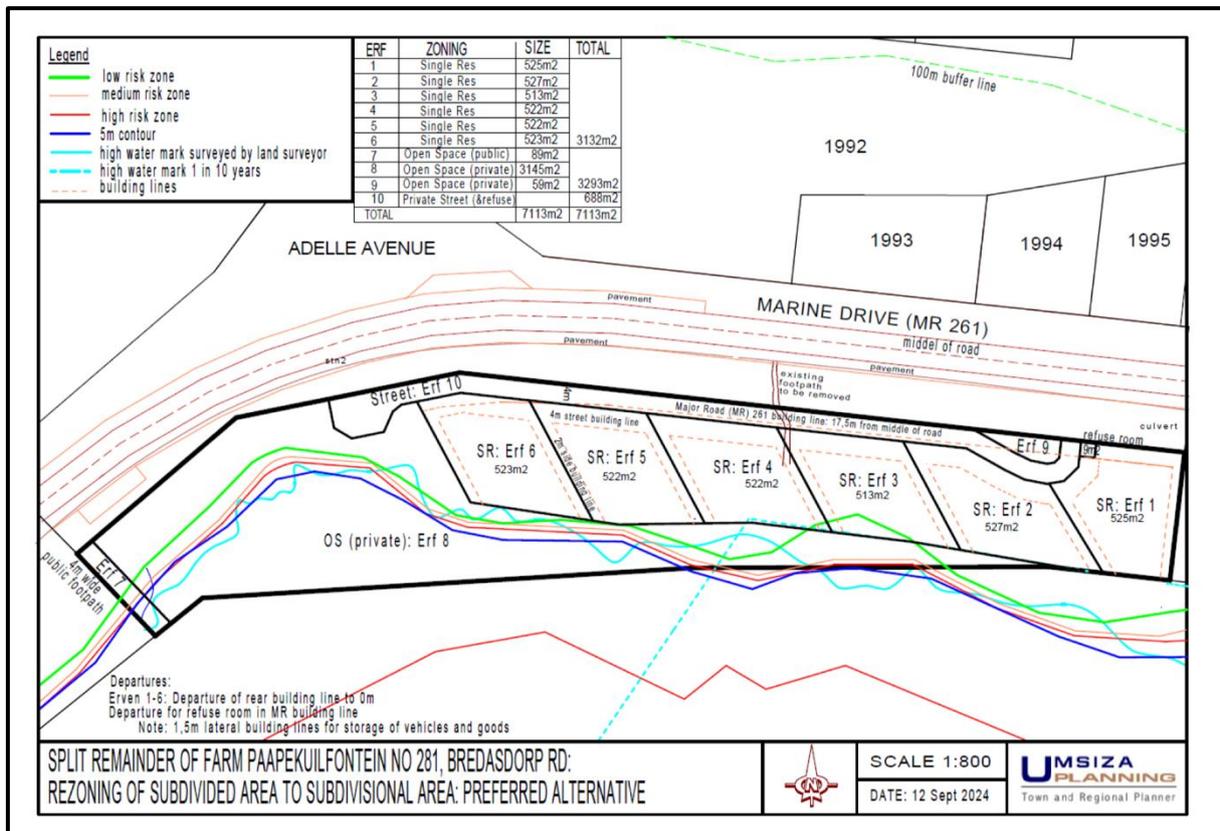


Figure 17. The Site Development Plan (SDP); **Alternative 4** (not preferred).

Alternative 4 is accompanied by Architectural Guidelines, a Landscape Development Plan, taking into account built-form options, and Landscape Guidelines.

Key architectural guidelines include:

The dwellings are intended to be located 'within' the landscape as opposed to being located 'on' the landscape to minimize the visual impact of large singular-built forms intruding on this unique landscape.

The placement of built forms must be sensitive to the natural contours of the site and create a stepped visual profile to reduce massing impact. The dwellings are intended to comprise of various linked forms consisting of landscaped flat roof elements which are connected to a singular pitched primary form.

The extensive use of natural materials and exposed concrete, natural stone and timber that will age and blend with the environment is vital in reducing any visual impact.

With the visual concept of "nesting," the landscaping would be exclusively of local flora to ensure that the negative impact of these footprints is minimized and expanded by virtue of additional initiatives such as the planting of flat roofs.

Styles such as Tuscan or Georgian or any other revivalist or period style would not be permitted.

- Composite roof forms consisting of major roof forms separated by flat roof sections and augmented by verandas and pergolas fragment the massing and minimise the visual impact of individual buildings against the slope of the land.
- Erf size - Building envelopes: The maximum footprint and coverage of the built forms may not exceed 50% of the erf.
- Building lines: per the Local Municipal town planning scheme with the addition of the lateral building lines being 2.5m:
 - street building line – 4.0m
 - rear building lines – 2.0m
 - lateral building line - 2.5m
- Garages are permitted to encroach on the side and rear building line and may be on the 1.5m building line with the necessary approvals in place. Garages must be set-back from the street kerb a minimum of 5.0m.



Figure 19. The proposed landscape and site plan for the Spookdraai Development (Image supplied by J.d.V. Landscape Studio)

9. Impact Assessment

The assessment of impacts follows the criteria as given in Appendix 1. The assessment is applied to the No Go Alternative i.e. Alternative 1 (retention of the *status quo*), Alternative 2 (the non-preferred alternative (i)) (Figure 15), Alternative 3 (the non-preferred alternative (ii)) (Figure 16), Alternative 4 (Figure 17) and **Alternative 5, the preferred alternative** (Figures 18 & 19).

9.1 Direct Impacts

There would be almost total loss of the strandveld vegetation on the site except for that at the western end of the site with the beach, and a limited area of Cape Seashore Vegetation would remain intact. The impact at the local level of the site is thus **Medium Negative** since the development footprint would only affect the strandveld from the western boundary of Erf 6 eastwards to the eastern boundary of the greater site. The latter area is classified as being of **least concern** by both the Western Cape Biodiversity Spatial Plan (see Figure 12) and the Red Listed Ecosystem analysis (see Figure 13) [Indicated by no shading].

The direct impacts on the site of the alternatives described above are summarised in Table 1.

Table 1. Impact and Significance – Loss of natural vegetation and natural habitat as a result of development of Rem Farm Paapekuilsfontein 281, Bredasdorp at Struisbaai, for the construction and operational phases.

Alternative:	ALTERNATIVE 1 – NO GO	ALTERNATIVE 2 – NOT PREFERRED	ALTERNATIVE 3 - NOT PREFERRED	ALTERNATIVE 4 – NOT PREFERRED	ALTERNATIVE 5 – PREFERRED
PLANNING, DESIGN AND DEVELOPMENT PHASE					
Potential impact and risk: ie. Botanical, visual, heritage, etc	Impact on botanical and biodiversity aspects of the site.				
Nature of impact:	Loss of natural vegetation i.e. Southwestern Strandveld				
Extent and duration of impact:	Local, long-term	Local, long-term	Local, long-term	Local, long-term	Local, long-term
Consequence of impact or risk:	No loss of endangered vegetation	Loss of Southwestern Strandveld	Loss of Southwestern Strandveld	Loss of Southwestern Strandveld	Loss of Southwestern Strandveld
Probability of occurrence:	Low probability	Probable	Probable	Probable	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Very low	Low	Low	Low	Low
Degree to which the impact can be reversed:	Not applicable	Not reversible	Now reversible	Not reversible	Not reversible
Indirect impacts:	Not applicable	None identified	None identified	None identified	None identified
Cumulative impact prior to mitigation:	Not applicable	Contribution to loss of Southwestern Strandveld	Contribution to loss of Southwestern Strandveld	Contribution to loss of Southwestern Strandveld	Contribution to loss of Southwestern Strandveld
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very low negative	Medium negative	Medium negative	Low negative	Low negative
Degree to which the impact can be avoided:	Not applicable	Very Low	Very Low	Very Low	Very Low
Degree to which the impact can be managed:	Not applicable	Low	Low	Low	Low
Degree to which the impact can be mitigated:	Not applicable	Low	Low	Low	Low
Proposed mitigation:	Not applicable	On-site mitigation would not be possible since virtually the entire	On-site mitigation would not be possible since virtually the entire site	Since the western end of the site supporting Agulhas Limestone Fynbos would remain intact, Alt 4 mitigates the effect of	As for Alternative 4 but with more public open space.

Botanical Impact Assessment: Remainder Farm Paapekuil Fonteijn 281, Struisbaai (Bredasdorp)

		site would be developed.	would be developed.	both Alt 2 and Alt 3 since the western end of the site would not be developed.	
Residual impacts:	Not applicable	Medium negative	Medium negative	Low negative	Low negative
Cumulative impact post mitigation:	Not applicable	Low negative	Low negative	Low negative	Low negative
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Not applicable	Medium negative at the scale of the site.	Medium negative at the scale of the site.	Low negative at the scale of the site.	Low negative at the scale of the site.
OPERATIONAL PHASE					
Potential impact and risk: ie. Botanical, visual, heritage, etc	Not applicable	Limited further loss of plant species found in Overberg Dune Strandveld	Limited loss of plant species found in Overberg Dune Strandveld	Limited loss of plant species found in Overberg Dune Strandveld	Limited loss of plant species found in Overberg Dune Strandveld
Nature of impact:	No impact from development	No further impact after completion of construction.	No further impact after completion of construction.	No further impact after completion of construction	No further impact after completion of construction
Extent and duration of impact:	Medium to Long-term	The entire site for the long- term.	The entire site for the long- term.	Only the eastern part of the site would be impacted in the long-term. The western end would not be affected.	Only the eastern part of the site would be impacted in the long-term. The western end would not be affected.
Consequence of impact or risk:	Low risk	No further loss of vegetation	No further loss of vegetation	No further loss of vegetation	No further loss of vegetation
Probability of occurrence:	Low	Low	Low	Low	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low	Low	Low	Low
Degree to which the impact can be reversed:	Not applicable	Not reversible	Not reversible	Not reversible	Not reversible

9.2 Indirect impacts

No indirect impacts were identified.

9.3 Cumulative impacts

The main concern in terms of cumulative impacts would be the loss of Southwestern Strandveld as a vegetation type. However, the site is 0.71 ha, at least a third of which is exposed bedrock and beach, leaving less than 0.5 ha that is true strandveld or Agulhas Limestone Fynbos.

Therefore, although there would be total loss of the vegetation on the eastern part of the site, this loss would not be great over the extent of the vegetation type as a whole, so cumulative impacts would be **Low Negative**.

9.4 Mitigation

The main mitigation is to ensure that the western end of the site that is the most sensitive remains undeveloped. Alternatives 2 and 3 would have the western end developed but Alternatives 4 and 5 (preferred) would avoid development there and so that is argued to be mitigation for the latter two alternatives.

9.5 Residual Impacts

Residual impacts are those impacts which remain after mitigation has been implemented. For Alternatives 2 and 3, the residual impacts would be Medium Negative, whereas for Alternatives 4 and 5 (the preferred alternative), the residual impact would be Low Negative since the development footprint would be smaller than for the other two alternatives. Since the residual impact for Alternative 5 (preferred) would be Low Negative, there is no requirement for a biodiversity offset.

10. Conclusions & Recommendations

- Three vegetation types are found in the designated study area on Rem Paapekuil Fontein 281, Bredasdorp, namely Southwestern Strandveld, Agulhas Limestone Fynbos and Cape Seashore Vegetation. At a regional and national scale Southwestern Strandveld is considered **Endangered** and Cape Seashore Vegetation as **Least Threatened**. Agulhas Limestone Fynbos is **Critically Endangered B1(iii)**, but it will not be affected by the development on Remainder Farm Paapekuil Fontein 281.
- There is agreement between the findings of this study and the WCBSP and RLE classifications

and the screening tool sensitivity rating for plant species. However, the terrestrial biodiversity rating of **High to Very High** by the screening tool is not supported by this study. The use by the screening tool of the Agulhas National Park buffer and the ESA1 conservation status results in an overemphasis of the terrestrial biodiversity sensitivity. This sensitivity should be no more than **Medium**.

- Alien invasive plant species are no longer a problem on the site, since they have been removed. Should the development of the site not proceed the re-infestation of the site by *Acacia cyclops* should be monitored and the plants removed as necessary.
- The proposed subdivision and development of the site (Alternative 5 - preferred) would result in a **Low Negative** direct impact that would be very difficult to mitigate any further. This would be achieved by not developing the western end of the site. Loss of habitat at the site would have a **Low to Very Low Negative** cumulative impact regionally due to its limited size.
- Alternative 2—4 (non-preferred) would have the same footprint, so from the botanical and biodiversity viewpoints, the impacts would be the same and none would have any lower negative impact than the others. However, for Alternative 4 and Alternative 5 (preferred), the western end of the site with the beach and Agulhas Limestone Fynbos would be excluded from development so the negative impact would be lower than that of Alternatives 2 and 3.
- The Alternative 5 (preferred site development) is supported from both botanical and biodiversity perspectives.

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Report submitted: 12 September 2025

Appendix 1. Criteria for Assessment

These criteria are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989 and the Department of Environmental Affairs and Development Planning, Guidelines for involving Biodiversity Specialists in EIA Processes, 2005. These criteria include:

Nature of the impact

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

Extent of the impact

Extent defines the physical extent or spatial scale of the impact. The impact could:

- Site specific: limited to the site.
- Local: limited to the site and the immediate surrounding area (1-10km)
- Regional: covers an area that includes an entire geographic region or extends beyond one region to another.
- National Scale: Across national boundaries and may have national implications.

Duration of the impact

The specialist should indicate whether the lifespan of the impact would be:

- Short term: 0-5 years.
- Medium term: 5-15 years.
- Long term: Beyond the operational phase, but not permanently).
- Permanent: Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

Intensity

Intensity establishes whether the impact is destructive or benign and should be qualified as low, medium or high.

Probability of occurrence

Probability describes the likelihood of the impact occurring. The likelihood can be described as:

- Improbable/unlikely: Low likelihood of the impact occurring
- Probable: Distinct possibility the impact will occur
- Highly probable: Most likely that the impact will occur
- Definite: Impact will occur regardless of any prevention measures.

Reversibility

This refers to the degree to which an impact can be reversed.

- Fully reversible: Where the impact can be completely reversed.
- Partly reversible: Where the impact can be partially reversed.
- Irreversible: Where the impact is permanent.

Irreplaceable loss of resources

Describes the degree to which resources will be irreplaceably lost due to the proposed activity.

- Fully replaceable: Resources can be fully replaced.
- Partly replaceable: Resources can be partially replaced.
- Irreplaceable: Resources cannot be replaced.

Degree to which an impact can be mitigated

This indicates the degree to which an impact can be reduced. The impact can either be fully or partly mitigated or not mitigated at all.

Cumulative effect

An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development.

Significance

Based on a synthesis of the information contained in the above-described procedure, the potential impacts can be assessed in terms of the following significance criteria:

- **No significance:** the impacts do not influence the proposed development and/or environment in any way.
- **Low significance:** the impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance:** the impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance:** the impacts will have a major influence on the proposed development and/or environment.

Appendix 2: Curriculum Vitae

Dr David Jury McDonald Pr.Sci.Nat.

Name of Company: Bergwind Botanical Surveys & Tours CC. (Independent consultant)

Work and Home Address: 14A Thomson Road, Claremont, 7708

Mobile: 082-8764051

E-mail: dave@bergwind.co.za

Website: www.bergwind.co.za

Profession: Botanist / Vegetation Ecologist / Consultant / Tour Guide

Date of Birth: 7 August 1956

Employment history:

- Nineteen years with National Botanical Institute (now SA National Biodiversity Institute) as researcher in vegetation ecology.
- Five years as Deputy Director / Director Botanical & Communication Programmes of the Botanical Society of South Africa
- Fifteen years as private independent Botanical Specialist consultant (Bergwind Botanical Surveys & Tours CC)

Nationality: South African (ID No. 560807 5018 080)

Languages: English (home language) – speak, read and write
Afrikaans – speak, read and write

Membership in Professional Societies:

- International Association for Impact Assessment (SA)
- South African Council for Natural Scientific Professions (**Ecological Science, Registration No. 400094/06**)
- Field Guides Association of Southern Africa

Key Qualifications :

- Qualified with a M.Sc. in Botany (1983) and a PhD in Botany (Vegetation Ecology) (1995) at the University of Cape Town.
- Research in Cape fynbos ecosystems and more specifically mountain ecosystems.
- From 1995 to 2000 managed the Vegetation Map of South Africa Project (National Botanical Institute)

- Conducted botanical survey work for AfriDev Consultants for the Mohale and Katse Dam projects in Lesotho from 1995 to 2002. A large component of this work was the analysis of data collected by teams of botanists.
- **Director: Botanical & Communication Programmes** of the Botanical Society of South Africa (2000—2005), responsible for communications and publications; involved with conservation advocacy particularly with respect to impacts of development on centres of plant endemism.
- Further tasks involved the day-to-day management of a large non-profit environmental organisation.
- **Independent botanical consultant** (2005 – to present) Over 1000 projects have been completed providing botanical assessment components for environmental impact assessments in the Western, Southern, Northern and Eastern Cape, Karoo and Lesotho for urban development, agricultural development, roads, dams, transmission lines and renewable energy projects (wind & solar). A list of reports or copies of selected reports are available on request.

Higher Education

Degrees obtained

and major subjects passed:

B.Sc. (1977), University of Natal, Pietermaritzburg
Botany III
Entomology II (Third year course)

B.Sc. Hons. (1978) University of Natal, Pietermaritzburg
Botany (Ecology /Physiology)

M.Sc. - (Botany), University of Cape Town, 1983.

Thesis title: 'The vegetation of Swartboschkloof,
Jonkershoek, Cape Province'.

PhD (Botany), University of Cape Town, 1995.

Thesis title: 'Phytogeography endemism and diversity of the
fynbos of the southern Langeberg'.

Certificate of Tourism: Guiding (Culture: Local)
Level 4 Code: TGC7 (Registered Tour Guide: WC
2969).

Employment Record:

January 2006 – present: Independent specialist botanical consultant and tour guide in own company: **Bergwind Botanical Surveys & Tours CC**

August 2000 – December 2005: Deputy Director, later Director: Botanical & Communication Programmes, Botanical Society of South Africa

January 1981 – July 2000: Research Scientist (Vegetation Ecology) at National Botanical Institute

January 1979—Dec 1980: National Military Service

Further information is available on my company website: www.bergwind.co.za