Specialist Report for Erf 23731 in Aalwyndal, Mossel Bay, Western Cape.

Terrestrial Biodiversity and Plant Species Themes

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Date: November 2025

Version: 3

DECLARATION OF SPECIALIST INDEPENDENCE

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

Bianke Fouche (MSc Conservation Biology)

November 2025

BIANKE FOUCHE ABRIDGED CV

Qualifications

- B.Sc. Environmental Sciences (Nelson Mandela University),
- B.Sc. Honours in Botany (Nelson Mandela University),
- M.Sc. Conservation Biology (University of Cape Town)

SACNASP Registration No: 141757 (Professional Botanical; Candidate Ecological)

Skills and Core Competencies

- My MSc research will add to our understanding of plant community niche construction and Alternative Stable State (ASS) theory. The knowledge gained will be used to advise landscape stewardship practices, especially regarding reforestation initiatives in the Overstrand.
- I have worked closely with the conservation team of the Grootbos Foundation, where I assisted with vegetation surveys, mounting voucher specimens in the Grootbos herbarium, and taken part in controlled fynbos fires in the Overberg.
- Postgraduate studies of mine included assessing the allelopathic effects of *Eucalyptus* leaves on garden peas and leeks and assessing the accuracy of the climate leaf analysis multivariate programme (CLAMP) in predicting the climate of fynbos vegetation.
- In Cape Town I regularly took part in alien clearing activities and helped to identify relevant listed invasive plants.
- I am currently a member of SACNASP, the International Association for Impact Assessment (IAIA) in South Africa, Botanical Society of South Africa, and the custodians for rare and endangered wildflowers (CREW-Outramps) in George.

References

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GLOSSARY

Term	Explanation
Desktop Review	Preliminary assessment based on existing data and information, conducted prior to on-site investigations
Ecosystem Type	A classification of areas based on dominant vegetation and ecological processes (e.g., Fynbos, Renosterveld).
Invasive Alien Plant Species	Non-native plants or animals that spread and negatively affect local ecosystems and biodiversity.
Sensitive Species	A category of plant or animal species whose precise location data is restricted or obscured by the South African National Biodiversity Institute (SANBI) to prevent exploitation, illegal collection, or harm. These species are typically rare, endemic, or highly threatened and are considered vulnerable to human activity or commercial trade.
Sensitivity	The degree to which a particular area or ecosystem is susceptible to disturbance or impact, crucial in determining potential environmental consequences.
Site Assessment	On-the-ground survey and evaluation of an area's ecological characteristics, species, and habitat conditions.
Species of Conservation Concern	Species listed under a threat category due to declining populations or habitat.
Terrestrial Biodiversity	Terrestrial Biodiversity in the context of this report refers to the variety and distribution of land-based vegetation types and plant species within a given study area, as identified through mapped ecosystems (e.g., South African National Vegetation Map). In the context of an Environmental Impact Assessment (EIA), terrestrial biodiversity is assessed to determine the ecological sensitivity and conservation value of an area, particularly in relation to the Red List status of vegetation types, Critical Biodiversity Areas (CBAs), and other spatial biodiversity prioritiy areas.
Transformation Level	The extent to which an area has been altered from its natural state by human activities.
Vegetation Mapping	The process of documenting and categorizing plant communities spatially using GIS and field data.

ABBREVIATIONS

BPA	Biodiversity Priority Area
BSP	Biodiversity Spatial Plan
CARA	Conservation of Agricultural Resources Act (Acto no 43 of 1983)
CD:NGI	Chief Directorate: National Geo-spatial Information
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
LC	Least Concern (referring ecosystems)
NVM	National Vegetation Map
NEM:BA	National Environmental Management: Biodiversity Act
SACNASP	South African Council for Natural Science Professionals
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern

1. INTRODUCTION

1.1 Background

Confluent Environmental was appointed by the landowner of Erf 23731 to undertake a Terrestrial Biodiversity and Plant Species Site Sensitivity Verification Report (SSVR) for a proposed residential development. The Erf covers ca. 6.86 ha and is a subdivision of the original Erf 21250 (Fig. 1 illustrates the subdivision). The subdivision was proposed after inputs received by various biodiversity specialists on environmental sensitivities established on the site. The remainder of the original erf (proposed Erf 23730) will remain in its current condition which has a number of existing residential dwellings, an operating guesthouse, as well as sections of remaining natural vegetation.

According to the Department of Forestry, Fisheries, and the Environment (DFFE) Screening Tool, this SSVR is required because the terrestrial plant species theme has been highlighted as having a Medium sensitivity, and the terrestrial biodiversity has a Very High sensitivity.

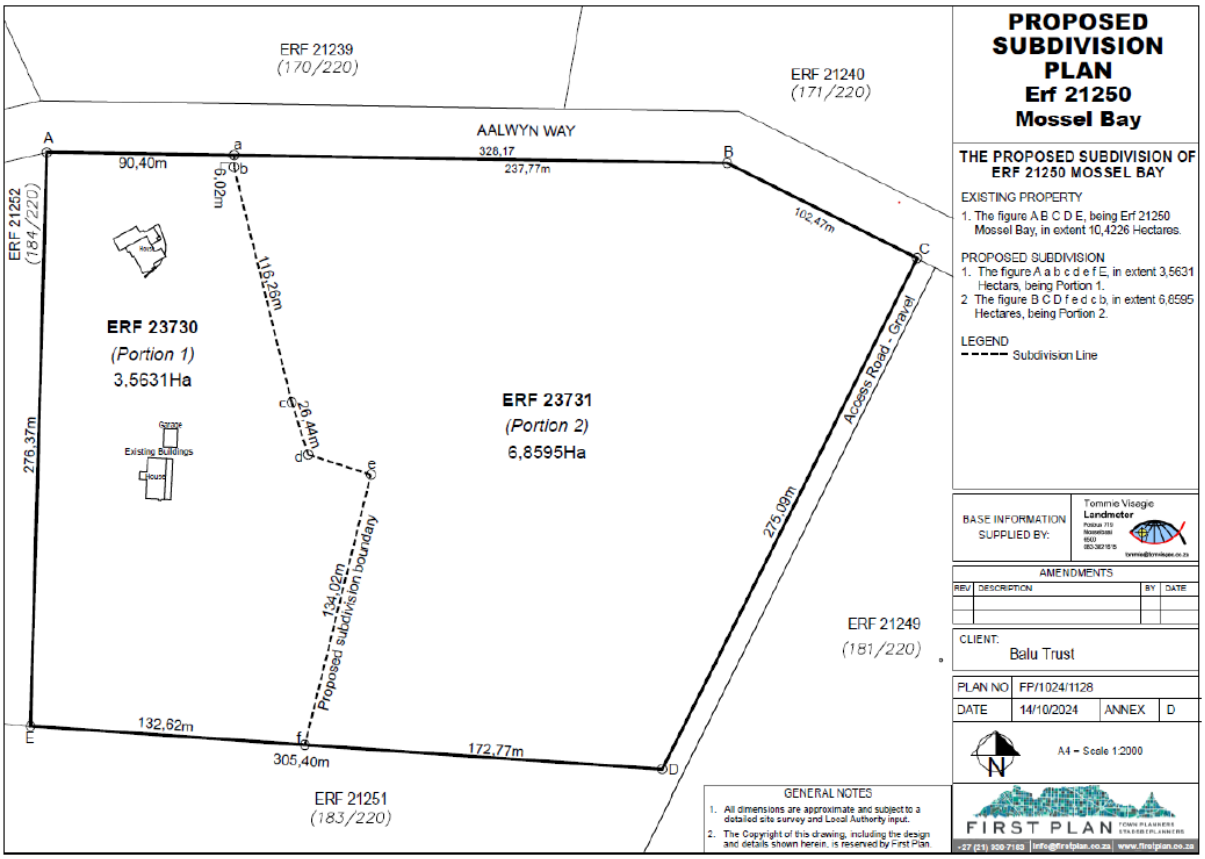

Figure 1: The sub-division of Erf 23731 from the original Erf 21250.

1.2 The Proposed Development

The most recent Site Development Plan (SDP) is provided in Figure 2 (November 2025). This layout, following the sub-division, was planned to avoid environmental sensitivities on the erf as far as possible (See Figure 2). A new access point to the proposed development is proposed from Aalwyn Way. As at November 2025, the proposed residential development will include:

The most recent Site Development Plan (SDP) is presented in Figure 2. The layout was refined following the subdivision to avoid environmental sensitivities and to ensure that stormwater, sewer, and access considerations are integrated into the final design. Access to the development will be provided from Aalwyn Way. The proposed residential development includes

- 69 Single Residential Erven, where each Erf covers ca. 350-285 sqm
- 26 General Residential Zone I plots, where each plot will cover ca. 160 sqm
- 59 General Residential Zone III plots, where each plot will cover ca. 60-80 sqm.

1.3 Existing and Future Services

The Engineering Services Report (H. Lourens, Element Engineers, 2025a-c) outlines the availability and constraints of bulk and internal services.

1.3.1 Water Supply

A Ø110 mm municipal water pipeline runs along Aalwyn Way, linked to the Bartelsfontein bulk water system. Although the line can supply the development's projected demand, a minor diameter upgrade is required along a 1.35 km section between the reservoir and the site.

1.3.2 Stormwater Management

The property spans a watershed, with ca. 60% draining naturally toward the south-east (Drainage Zone A) and ca. 40% toward the north-east (Drainage Zone B). The 2025 Stormwater Management Plan incorporates a fully engineered SuDS-based approach aimed at replicating pre-development hydrology and reducing erosion risks. Key stormwater features include:

- A hierarchy of detention ponds (Zones A1–A4 and B1, as illustrated in Fig. 2) sized for 1:2 and 1:50 year peak flows
- Interconnected swales with wetland vegetation for polishing and attenuation
- Gabion mattresses for outlet energy dissipation
- Litter traps at all outlets, to be maintained by the estate's maintenance team
- Diversion of upper Zone B into Zone A (Fig. 2) to concentrate discharge toward the natural drainage line south of the development.

The aquatic specialist report (Dabrowski, 2025) summarises the stormwater detention design volumes and confirms that the system reduces hydrological impacts on the receiving environment.

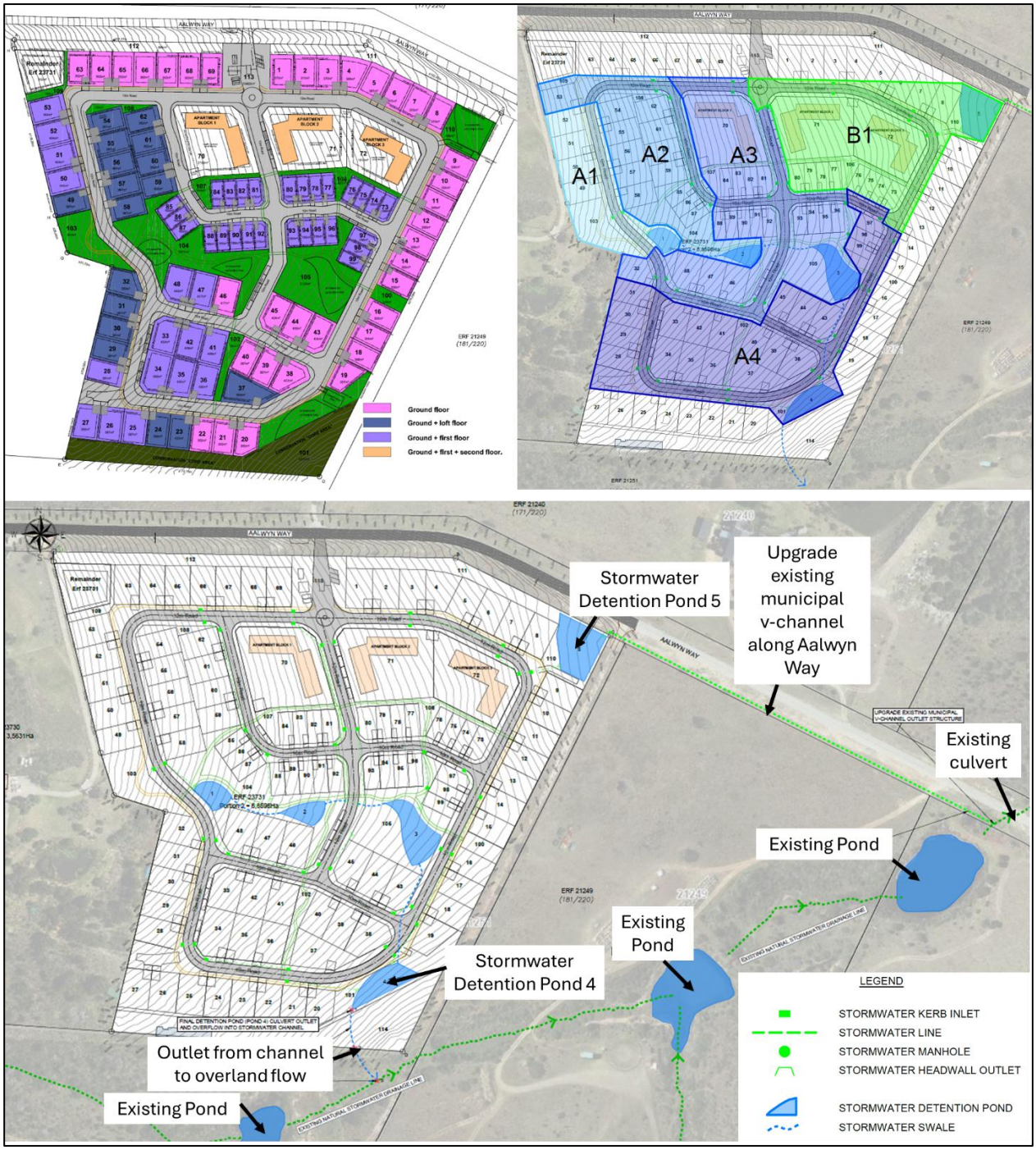

Figure 2: The development plan for Erf 2373 showing details on the stormwater management plan.

1.3.3 Sewer Management

There is currently no municipal sewer network available in the area. Following the September 2025 multi-stakeholder workshop, the municipality confirmed that the roll-out of the Aalwyndal sewer masterplan will only commence after July 2026, with phased construction beginning in 2027. Given this time frame, a modular conservancy tank system has been selected as the interim solution (see Figure 3). Key aspects include:

- Separate conservancy tanks for Drainage Zones A1 and B1, designed for 24-hour raw sewage storage for environmental risk mitigation.
- Tanks will be emptied by a contracted vacuum truck service, eventually replaced by an in-house unit as the development reaches full occupancy.
- Once municipal infrastructure becomes available, the development will connect to it.

Figure 3: An illustration of the proposed SDP highlighting the stormwater plan (blue) and the planned sewerage infrastructure for Erf 23731.

2. THE AALWYNDAL BIODIVERSITY OFFSET FRAMEWORK PLAN

Environmental sensitivities of the site and surrounding area are well understood as a result of the recently concluded Aalwyndal Biodiversity Offset Framework Plan; a series of 5 reports jointly compiled by Confluent Environmental and Eco-Pulse (WCDEDT, 2025). As part of this project a conservation corridor known as the Core Area was mapped throughout Aalwyndal. This was aligned with sensitive features such as steep slopes, watercourses, and high sensitivity vegetation. For Erf 23731 the Core Area is aligned with the 30 m riparian buffer zone. Refer to the aquatic specialist report for more information on the delineated watercourses, which forms the basis for the mapped sensitive areas mapped along the south of Erf 23731 (Dabrowski, 2025).

2.1 The Mapped Site Ecological Importance

In addition to the aquatic sensitivities discussed, the Site Ecological Importance (SEI) was determined for the Aalwyndal precinct in Report 1 of the WCDEDT (2025) series. The SEI reflects the highest sensitivity ratings across the relevant biodiversity themes, including aquatic, terrestrial, botanical, and faunal components. According to the mapped SEI for Erf 23731, the majority of the subdivided Erf 23731 falls within a Low Sensitivity area (Fig. 4). The narrow section of the portion identified as High Sensitivity coincides with the 30m watercourse buffer mapped by Dr. Jackie Dabrowski. This sensitive corner is excluded from the proposed Site Development Plan (SDP).

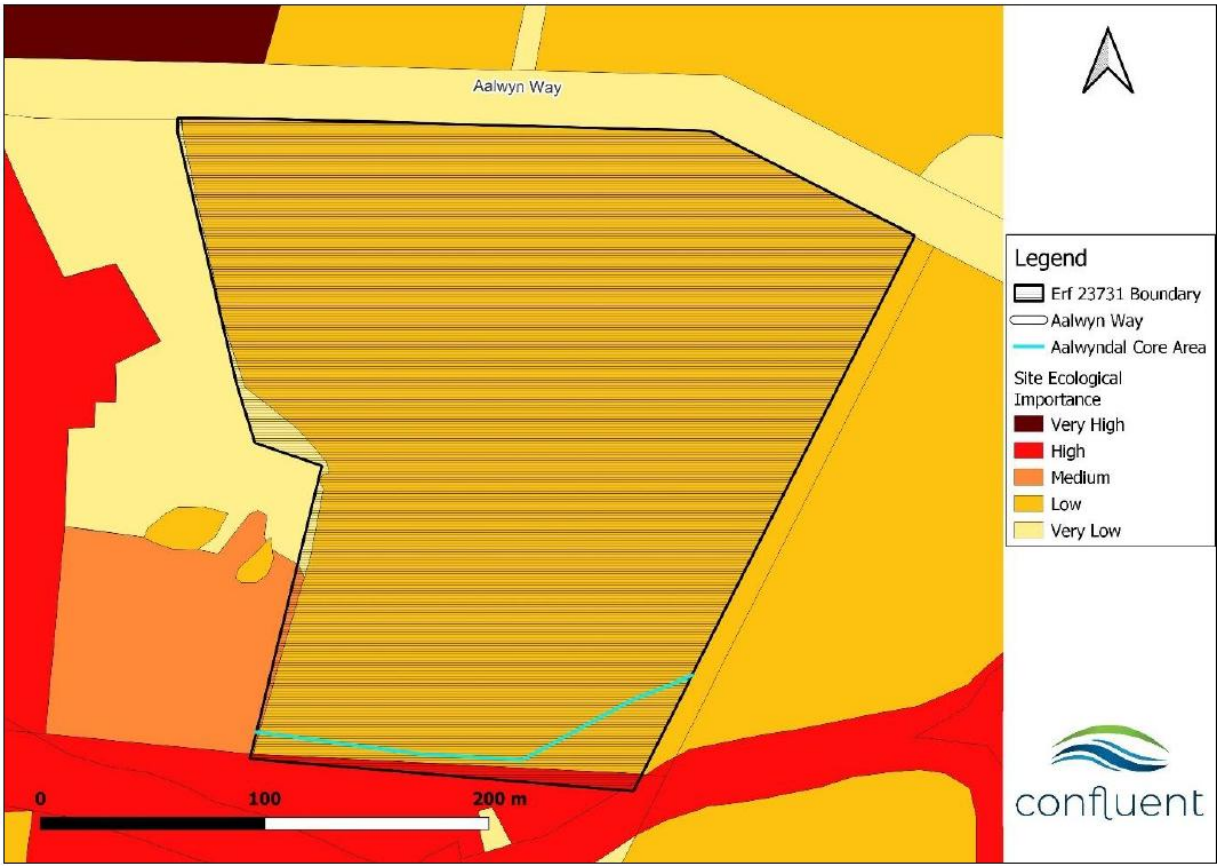

Figure 4: Site Ecological Importance (SEI) determined for Erf 23731 and immediate surroundings (from WCDEDT, 2025). The turquoise line indicates extent of the proposed development, where the core area is mapped south of the line.

2.2 The Core Area

A designated Core Area for conservation has been proposed through Aalwyndal to protect areas of high terrestrial biodiversity value (Fig. 5). In the Core Area, considerations relevant to the themes assessed in this report relate to areas that represent irreplaceable biodiversity and threatened or rare plant species (WCDEDT, Report 1, 2025). The intention for this Core Area is to offer on-site biodiversity offset potential, so that *in-situ* conservation is prioritised. Report 3 of the WCDEDT (2025) series describes the required conservation management of the Core Area. In the aquatic specialist report, Dr. Jackie Dabrowski wrote the following regarding the Core Area of Aalwyndal according to the WCDEDT (2025):

"A small section of the Core Area is located along the southern boundary and south-eastern corner of Erf 23731 which extends onto neighbouring properties to the west and east. To the west, the Core Area extends behind the existing dwellings and guesthouse close to the original boundary of the Erf 21250 (prior to sub-division).

Regardless of whether the Offset Plan is fully adopted or not, the Core Area is aligned with a suitable riparian buffer which aims to protect the watercourse from the housing development. Therefore, a buffer aligned with the Core Area would have been recommended regardless of the status of the Offset Plan for Aalwyndal."

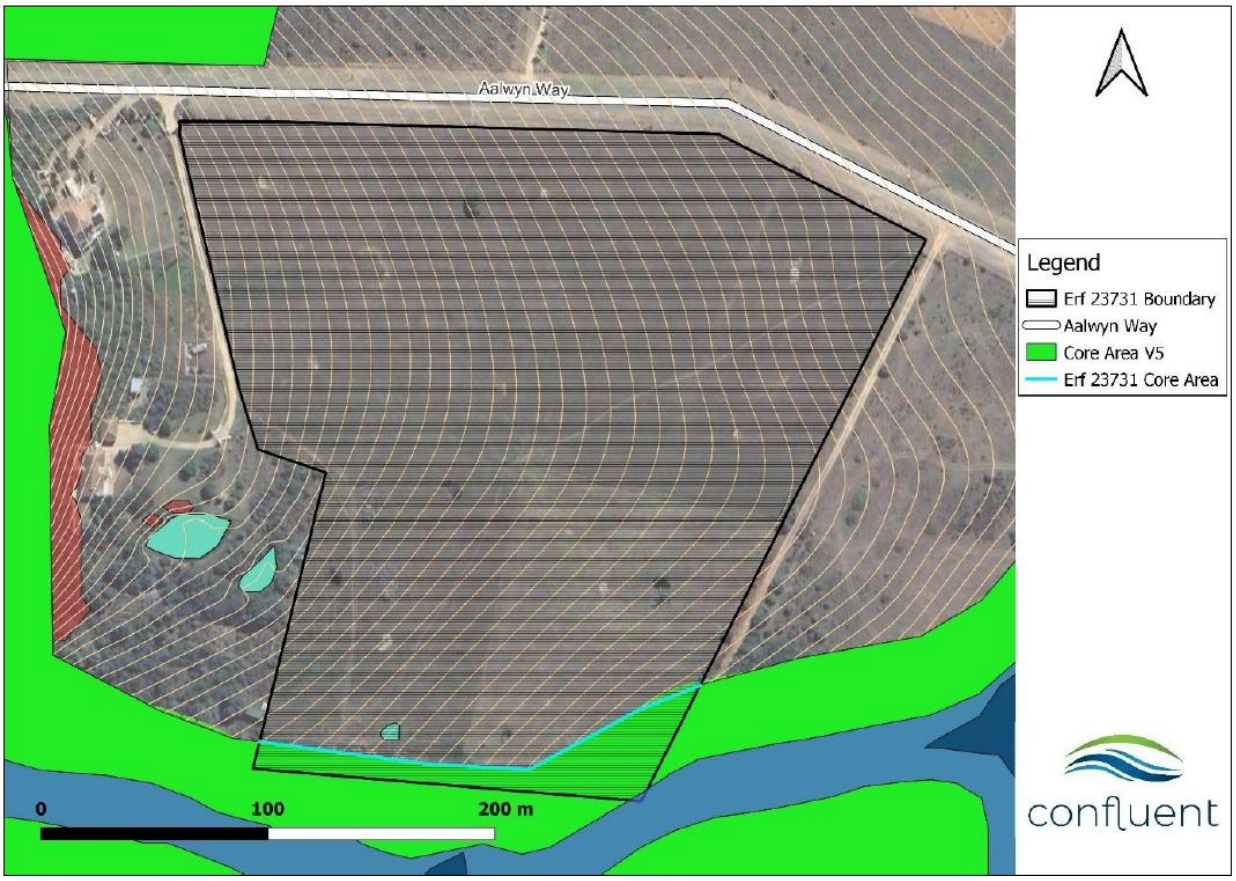

Figure 5: A map of the Core Area in relation to Erf 23731.

3. TERMS OF REFERENCE

This screening tool sensitivity verification report provides information on Terrestrial and Botanical diversity and sensitivity of the proposed development. The results presented are based on a desktop and field assessment, which includes a consideration of historical photographic records of the site. The assessment presented in this report follows the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity, and Terrestrial Plant Species themes. This site sensitivity assessment follows the requirements of:

- The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), which includes:

- The protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species (28 July 2023).
- The protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity (20 March 2020). Additional guidelines for the terrestrial biodiversity theme:
- Ecosystem Guidelines for Environmental Assessment in the Western Cape (de Villiers et al., 2016).
- The Western Cape Biodiversity Spatial Plan Handbook and summary booklet (CapeNature, 2017; Pool-Sandvliet et al., 2017).
- The Subtropical Thicket Ecosystem Programme Handbook: Integrating the natural environment into land-use decisions at the municipal level: towards sustainable development (Pierce & Mader, 2006).

- Additional guidelines for the terrestrial plant species theme:
  - Species Environmental Assessment Guideline: Guidelines for the implementation of the Terrestrial Flora (3c) & Terrestrial Fauna (3d) Species Protocols for environmental impact assessments in South Africa (Verburgt et al., 2020).

The assessment was undertaken by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with relevant expertise in the field of Botanical and/or Ecological science.

3.1 Online Screening Tool

The Department of Forestry, Fisheries, and the Environment (DFFE) screening tool report for the development footprint has identified the **terrestrial plant species theme as having a Medium sensitivity**, and the **terrestrial biodiversity theme as having a Very High sensitivity** (Fig. 6). Note that the Screening Tool plant species theme does not take Near Threatened plant populations into account. For plant species, a Medium sensitivity indicates that models predict the occurrence of some SCC, although there are no confirmed populations. A Very High sensitivity rating for terrestrial biodiversity according to the screening tool is triggered for all Biodiversity Priority Areas (BPAs) and other sensitive features (Stewart et al., 2021). BPAs include the various management layers of the Western Cape Biodiversity Spatial Plan (WC BSP), as well as the other sensitive features. The only BPA that was triggered for the site was Freshwater Ecosystem Priority Areas (FEPA) which refers to freshwater ecosystem catchments, determined through the National Freshwater Ecosystem Priority Area (NFEPA) process. This trigger is best discussed in an aquatic specialist report.

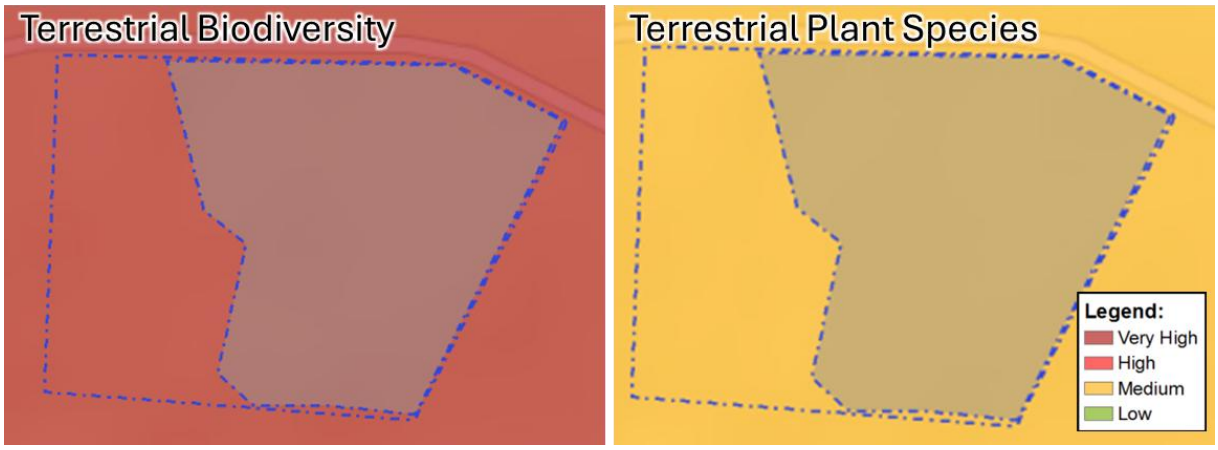

Figure 6: The screening tool report for the subdivided Erf 23731 within the original Erf 21250.

4. METHODOLOGY

4.1 Desktop Assessment

The desktop assessment was performed using Cape Farm Mapper and QGIS version 3.28.3 “Firenze”. Plant species data was sourced from the following sources:

- The DFFE screening tool listed SCC.
- Information on plant occurrence prior to the site visit was sourced from SANBIs Botanical Research and Herbarium Management System (BRAHMS) for the Plants of Southern Africa (POSA) database.
- iNaturalist observations of the property and surrounding areas.
- Past specialist reports and the series of documents prepared for the Aalwyndal Biodiversity Offset Framework Plan (WCDEDT, 2025).

Ecosystem/ vegetation type data was sourced from:

- The 2018 updated South African National Vegetation Map from SANBIs Biodiversity GIS (BGIS) database, and the National Biodiversity Assessment report of 2018 (Skowno et al., 2018).
- Shapefiles for the Western Cape Biodiversity Spatial Plan (WC-BSP) i.e., information on PAs, CBAs, ESAs, and ONAs were downloaded from BGIS database (CapeNature, 2017; Pool-Sandvliet et al., 2017).
- Cape Farm Mapper for additional spatial information required for the site.
- Chief Directorate: National Geo-spatial Information (CD: NGI) Geospatial Portal and Google Earth for the acquisition of historical aerial imagery of the site.
- The conservation status of ecosystems was found in the Revised National List of Ecosystems that are Threatened and in need of protection, published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004, as revised in Nov. 2022), and also using the Vegetation of South Africa, Lesotho, and Swaziland (Mucina & Rutherford, 2006).

4.2 Field Assessment

Fieldwork was undertaken on the 17th of July 2024, with a follow up assessment on the 15th of April 2025. The method for identifying species was similar to a BioBlitz, also described as a “timed meander”, where the specialist records plant species composition of the site, and actively searches for rarer and threatened species. Some Red Listed Plant species are found more easily during a site survey than other species. This survey method is an attempt to account for the short and single survey period, where detection probability of some rare and threatened species (e.g., geophytes, small succulents, small perennials etc.) are low (Garrard et al., 2008; Wintle et al., 2012). Observations of individual species and environmental characteristics were photographed.

4.3 Assumptions & Limitations

This assessment is subject to a few assumptions, uncertainties, and limitations, as listed below:

- Surveys took place in Autumn and Winter. Seasonal and time constraints always somewhat limit the findings of any ecological report.
- The species list and SCC reported are not exhaustive, and more species will be added to the list should more sampling effort, and sampling in different seasons occur (Perret et al., 2023).
- Some rare and threatened plant species are difficult to locate and easily overlooked in the field (e.g., geophytes, small succulents, small shrubs, and cryptic spp.). Furthermore, many plant species flower seasonally and are therefore difficult / not likely to be identified outside of their flowering season.
- Environmental factors such as the prevailing fire regime, successional stage of the vegetation present, previous cultivation of the land, and the level of alien infestation at the site affects the species visible at the time of assessment (Cowling et al., 2010; Privett et al., 2001).
- Dense and tall vegetation on the site made it hard to gain access to some sections of the site. It is also possible that focus on “bundu bashing” and getting access to some parts of the site may have caused a lapse in concentration so that an SCC could have been missed on the site.

5. RESULTS: DESKTOP ASSESSMENT

5.1 Terrestrial Biodiversity

5.1.1 Climate, Geology, and Soil

The climate of Aalwyndal is similar to that of Mossel Bay (Fig. 7). Mossel Bay is often referred to as the “karoo by the sea”, which is an indication of the relatively arid climate here. Average temperatures range between 27℃ and 6℃, with the hottest days experienced from December to March peaking around 36℃ and the coldest days experienced from June-August not falling to 0℃. Rain occurs throughout the year in a bimodal pattern with peaks in autumn (April) and spring (October-November).

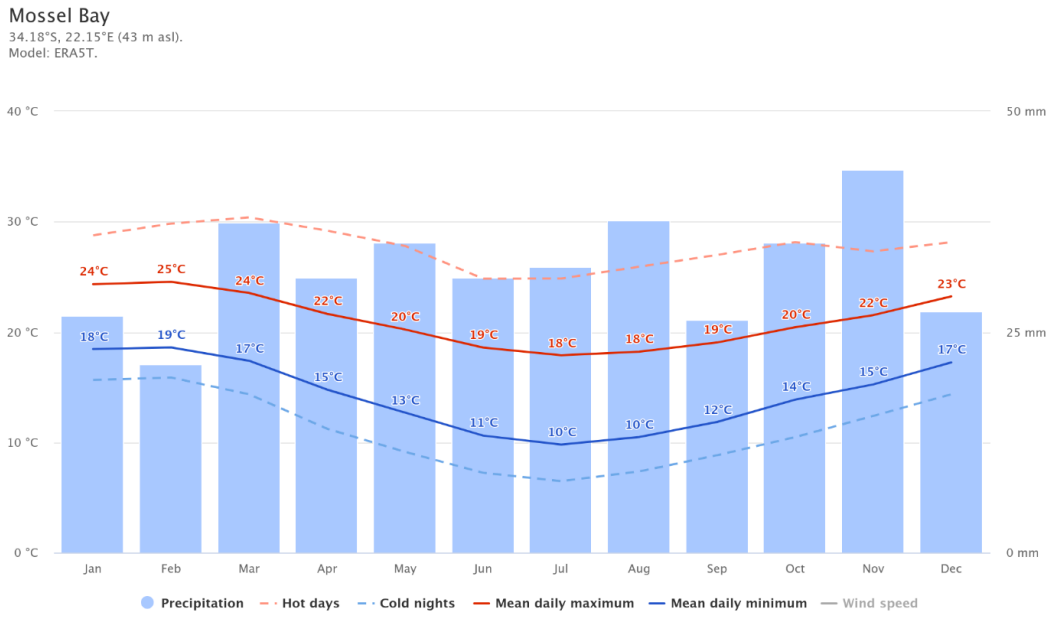

Figure 7: The modelled climate of Mossel Bay, as presented on the meteoblue website.

The substrate of the site is sandstone, with some quartz veins also apparent in some places on the site. These are part of the Table Mountain Group. Soils were shallow on the majority of the property, and Cape Farm Mapper (CFM) indicates that the erodibility of the soils in this area is high (erodibility factor: 0.67).

5.1.2 Vegetation Type(s)

The mapped vegetation type here is critically endangered (CR) Mossel Bay Shale Renosterveld (Fig 8). The regional vegetation variants mapped here (Vlok & de Villiers, 2007) indicates a variant called Brandwag Fynbos-Renoster-Thicket (Fig. 8). This variant suggests that this vegetation of this area can be a mosaic, and is likely within a unique ecotonal area, especially between Fynbos and Renosterveld, with thicket patches occurring in some places, especially nearer the drainage line.

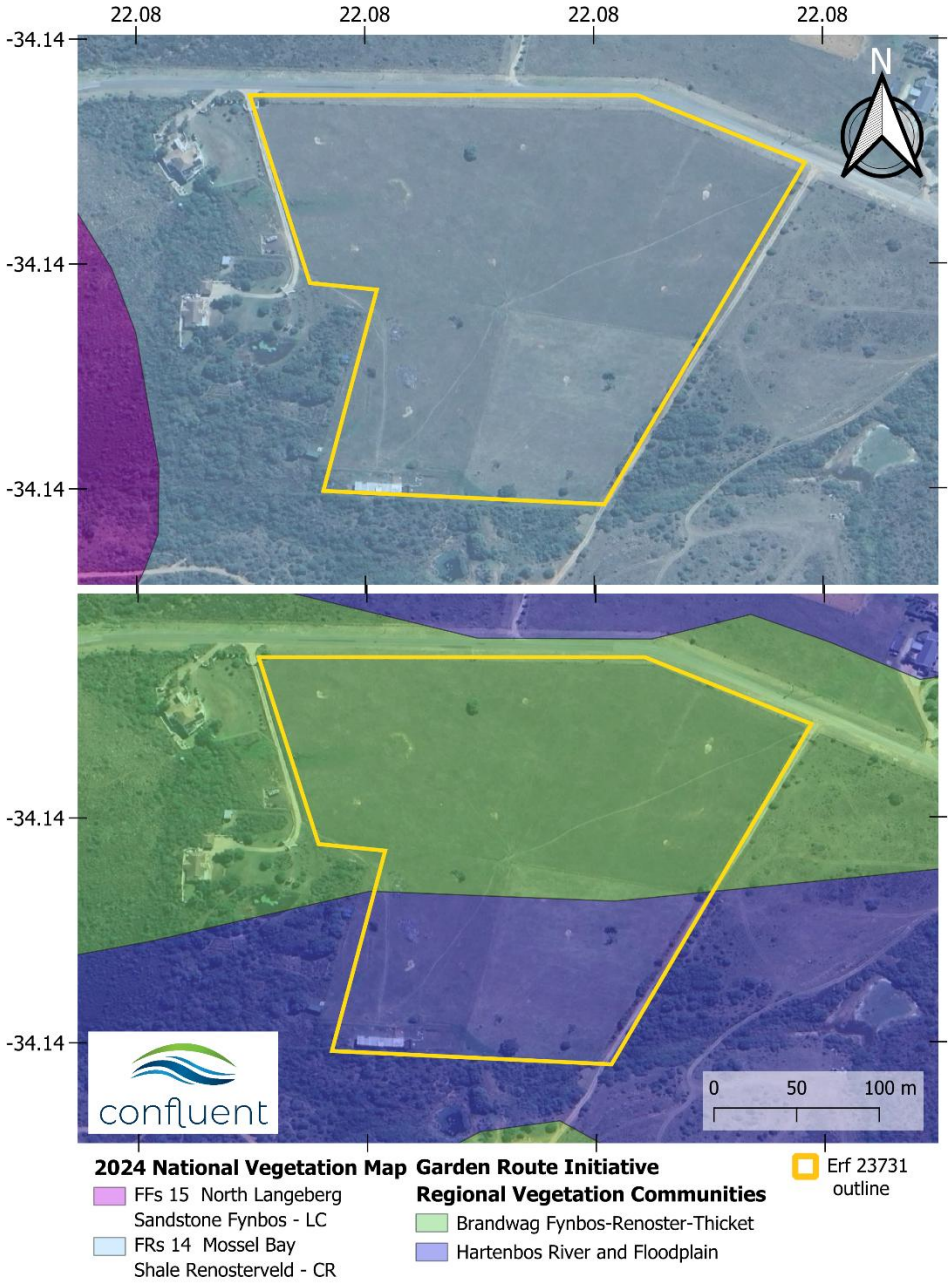

Figure 8: The National Vegetation Map of 2024 (top) and the Vlok vegetation variants (bottom).

5.1.3 Western Cape Biodiversity Spatial Plan

The Western Cape Biodiversity Spatial Plan (WCBSP) was recently updated, and the most current version (2023) is now in effect (Figure 9). While the previous 2017 version is no longer in use for formal planning purposes, it is included here for comparative value to illustrate changes over time (Figure 9). In the updated 2023 BSP, a greater extent of land is classified as Critical Biodiversity Areas (CBA 1 and CBA 2) compared to the 2017 version, which had previously mapped most of Erf 23731 and its surroundings largely as Ecological Support Areas (ESAs).

BOX 2: The Biodiversity Spatial Plan

Critical Biodiversity Area 1

Definition: Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.

Objective: Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

Critical Biodiversity Area 2

Definition: Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.

Objective: Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land-uses are appropriate.

Ecological Support Area 1

Definition: Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs and are often vital for delivering ecosystem services.

Objective: Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

Ecological Support Area 2

Definition: Areas severely degraded or have no natural cover and ecological functioning severely impaired. Not essential for meeting biodiversity targets but support ecological functioning and delivering ecosystem services.

Objective: Restoration required to return ecological functioning. Some limited habitat loss may be acceptable. A greater range of land uses over wider areas is appropriate but ensures the underlying biodiversity objectives and ecological functioning are not compromised.

Other Natural Area

Definition: Areas not currently identified as a priority but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although not prioritised, they are still an important part of the natural ecosystem.

Objective: Minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.

The most notable change on Erf 23731 itself is the reduction in mapped BSP layers, with the latest version only indicating narrow bands along the southern and south-western boundaries as CBA 1 and CBA 2. These areas closely align with aquatic buffer zones previously identified in the Aalwyndal Biodiversity Offset Framework (WCDEDT, 2025).

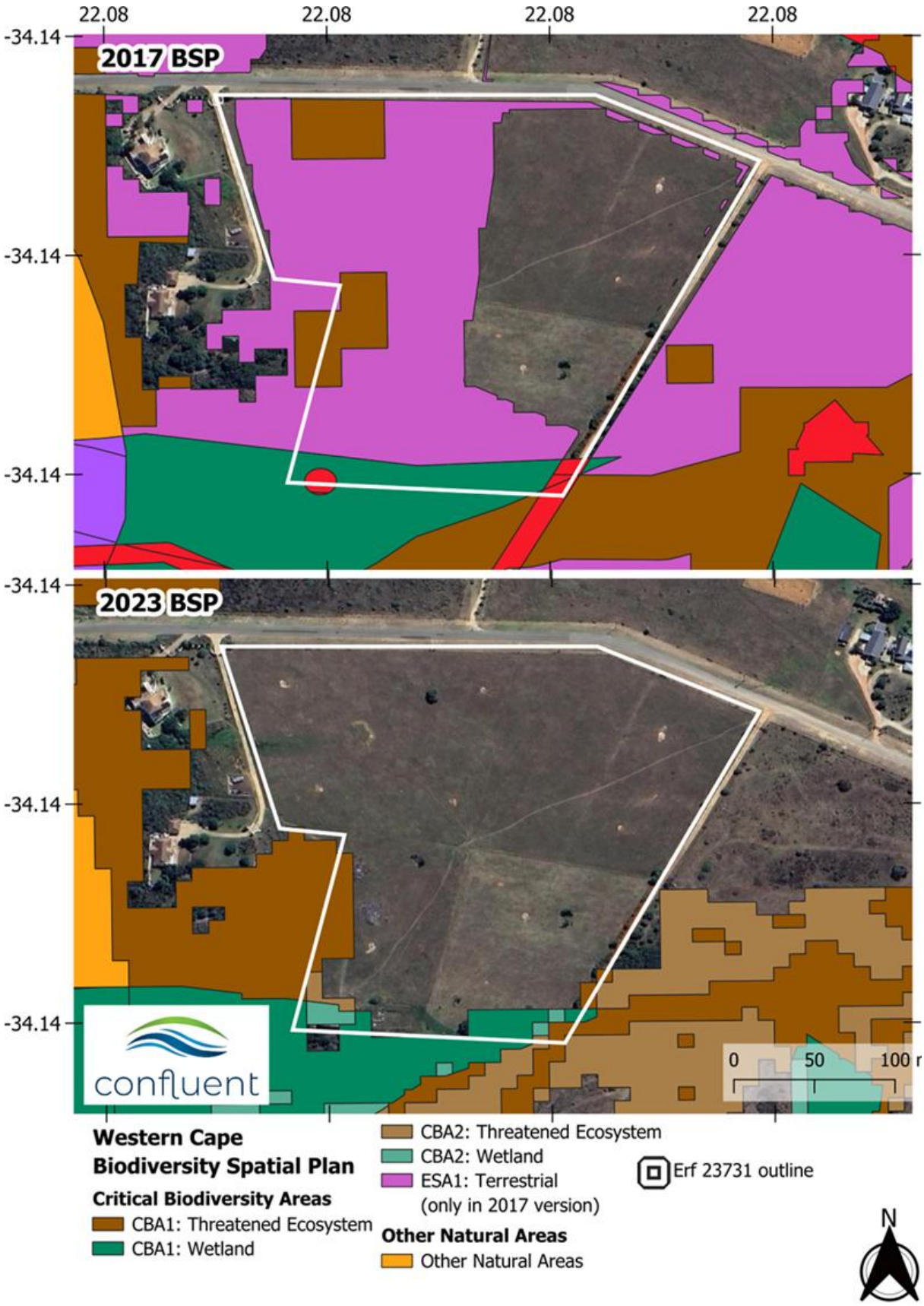

Figure 9: The mapped Western Cape Biodiversity Spatial Plan (WC BSP) categories on and around Erf 23731.

5.1.4 Freshwater Ecosystem Protected Areas

National Freshwater Ecosystem Priority Areas represent freshwater ecosystems that are required to meet the national biodiversity goals of freshwater ecosystems for South Africa. Comment on these falls outside of the scope of a botanical and terrestrial biodiversity report. No naturally occurring freshwater ecosystems were observed within the development area during the site assessment. For further information on this aspect refer to the aquatic specialist report for the site.

5.1.5 *Historical Aerial Imagery*

The subdivided Erf 23731 has undergone minimal changes since 1957. The dark blue circle in the November 2022 imagery indicates an artificial small pond structure that appeared in the historical imagery somewhere between 2013 and 2016. From this small pond water is visibly seeping / leaking out to the south-eastern corner of Erf 23731 (there the aquatic buffer and core area overlaps with Erf 23731, indicated on Fig. 10 with a black triangle over the imagery). The vegetation in this south-eastern corner was only gradually lost / cleared after 2003.

The dwellings on Erf 21250 was first observed between 1991 and 2003. No dwellings were ever visible on the subdivided Erf 23731. Erf 23731 has been subjected to long-term anthropogenic disturbance, as the majority of the erf is maintained as a transformed field. The disturbance caused by agricultural activities on this site is visible throughout the historical imagery dating back to 1957 (ca. 68 years ago). The renosterveld vegetation west of the dwellings on the original Erf 21250 seems to have remained in a near-natural condition.

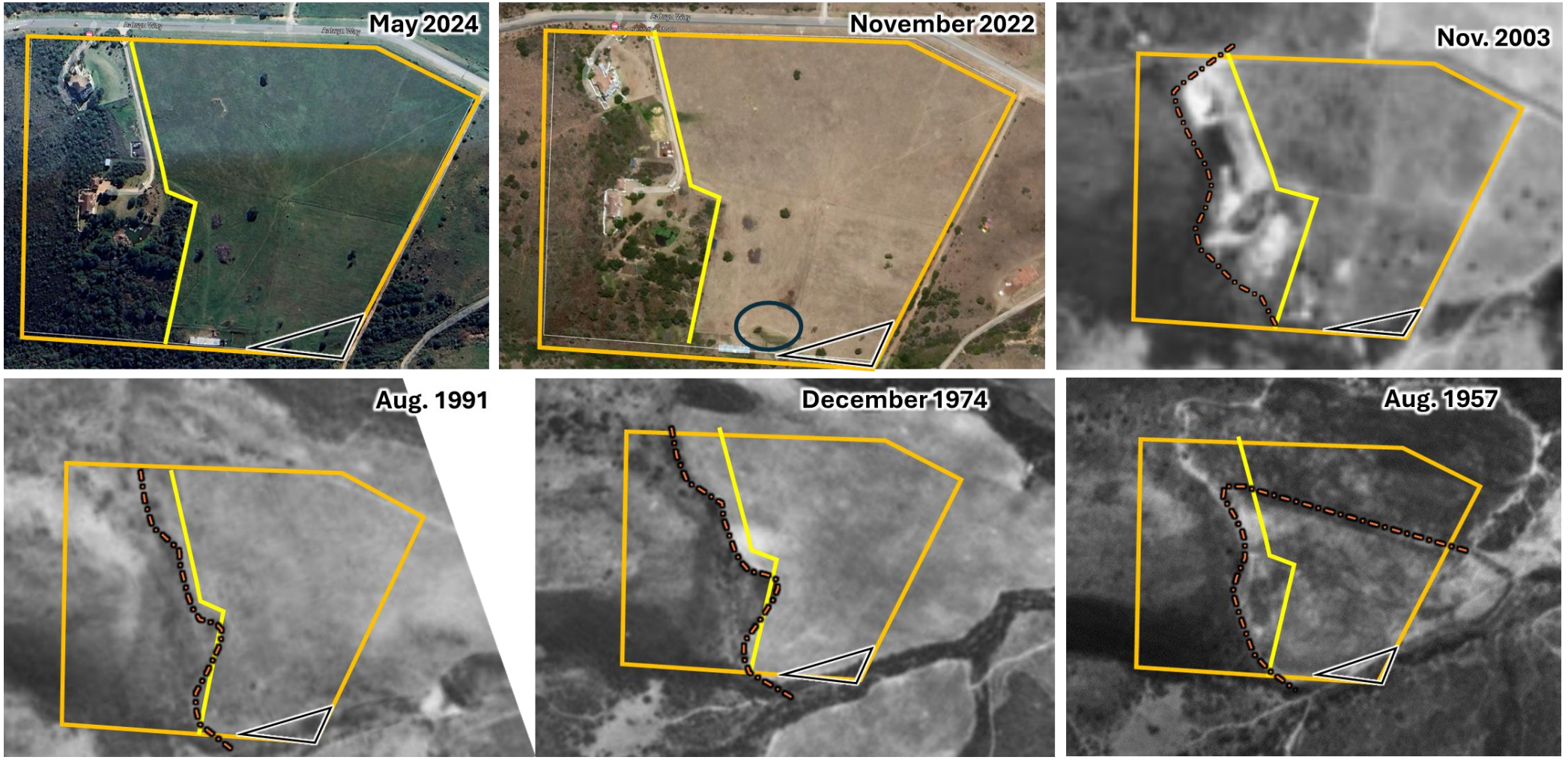

Figure 10: A comparison of recent historical imagery for the subdivided Erf 23731, sourced from Google Earth and the CD:NGI geospatial portal. The orange dotted line indicates historical extents of transformation.

5.2 Plant Species

The national South African Environmental Screening Tool has classified the plant species theme sensitivity of Erf 23731 in Aalwyndal, Mossel Bay, as Medium, primarily due to the potential presence of several plant Species of Conservation Concern (SCC). This sensitivity rating is an indication that the site may support plant taxa that are legally or ecologically important.

The Screening Tool identifies areas with potential SCC presence based on available national datasets, which include occurrence records, habitat preferences, and environmental variables. It is important to note that the tool does not account for species that are Near Threatened or Data Deficient on the South African National Biodiversity Institute's (SANBI) Red List of South African Plants. While the Screening Tool provides a precautionary basis for further investigation, the presence of any SCC on the site, including sensitive or restricted species, must be confirmed or ruled out through a site-specific botanical assessment by a qualified specialist.

In addition, some of the SCC flagged in the Screening Tool report are listed as “Sensitive Species”, a designation used to protect taxa that are vulnerable to illegal collection or exploitation, particularly for commercial or traditional medicinal purposes. In line with SANBI and provincial conservation authority policies, the names, locations, and images of such sensitive species are withheld from public reports to ensure their protection. The list of SCC in the Screening Tool report is:

- *Agathosma eriantha*
- *Agathosma microcarpa*
- *Agathosma muirii*
- *Agathosma riversdalensis*
- *Argyrolobium harmsiamum*
- *Aspalathus campestris*
- *Aspalathus obtusifolia*
- *Athanasia cochlearifolia*
- *Diosma passerinoides*
- *Drosanthemum lavisii*
- *Duvalia immaculata*
- *Erica unicolor subsp. mutica*
- *Euchaetis albertiniana*
- *Freesia fergusoniae*
- *Hermannia lavandulifolia*
- *Lampranthus ceriseus*
- *Lampranthus diutinus*
- *Lampranthus fergusoniae*
- *Lampranthus foliosus*
- *Lampranthus pauciflorus*
- *Lebeckia gracilis*
- *Leucadendron galpinii*
- *Leucospermum praecox*
- *Marsilea schelpeana*
- *Muraltia cliffortiifolia*
- *Muraltia knysnaensis*
- *Nanobubon hypogaeum*
- *Polygala pubiflora*
- *Relhania garnotii*
- *Ruellia pilosa*
- *Ruschia leptocalyx*
- *Selago glandulosa*
- *Selago ramosissima*
- *Selago villicaulis*
- Sensitive species 1024
- Sensitive species 153
- Sensitive species 268
- Sensitive species 500
- Sensitive species 516
- Sensitive species 633
- Sensitive species 654
- Sensitive species 763
- Sensitive species 800
- Sensitive species 980
- *Wahlenbergia polyantha*
- *Thamnochortus muirii*

6. RESULTS: FIELD ASSESSMENT

6.1 Vegetation and Habitats Observed

The site assessments on Erf 23731 served to assess the current condition of the vegetation and ecology in support of environmental sensitivity mapping and planning. The majority of the erf is highly transformed, having been converted into a field / large lawn that is regularly mowed and grazed, thereby preventing the natural regeneration of indigenous vegetation. This transformed area supports a limited assemblage of common, ruderal grasses such as *Eragrostis capensis*, *Cynodon dactylon*, and *Mellinis repens*, among others. These species are typical of adventive-managed environments and are not indicative of natural habitat in Aalwyndal.

Natural vegetation persists primarily beyond the edges of the erf, particularly along the southern and western boundaries which connect to adjacent more natural areas on neighbouring properties. These bordering habitats include patches of renosterveld, thicket, and fynbos, forming part of a broader ecological mosaic that still retains a relatively high degree of biodiversity.

Some invasive species are also present around the property, particularly *Acacia cyclops* (rooikrans), which poses an ongoing ecological management concern in Aalwyndal. One or two individual indigenous trees remain within the erf. These trees may offer some value and could potentially be retained in future development plans, provided they do not create significant constraints in terms of layout, access, or engineering requirements. Additionally, a small man-made pond which provides drinking water for livestock was noted in the mid-southern portion of the erf, containing a small patch of *Typha capensis* (see Table 1). This feature lies outside of the aquatic buffer zone aligned to the Core Area.

Table 1: Observations made on Erf 23731 and features observed.

Photo	Description
	A small pond with bullrushes (*Typha capensis*) near the aquatic buffer area in the south-eastern corner of subdivided Erf 23731
	The majority of the subdivided Erf 23731 is a transformed lawn, as indicated in the image above.

6.2 Species Observed.

The species observed on Erf 23731 are not consistent with the natural vegetation of Aalwyndal, and furthermore no SCC were observed on the erf. On the remainder of the original Erf 21250, several SCC were observed. The SCC found in the surrounding landscape included notable species such as *Agathosma microcarpa* (Less common in Aalwyndal) and common SCCs for Aalwyndal like *Hermannia lavandulifilia*, *Polygala pubflora* and *Freesia fergusoniae*. However, none of the SCC observed are likely to occur within Erf 23731 itself, due to the extensive and long-term transformation of the site from natural vegetation to a maintained, non-natural field.

In addition to the SCC observed, invasive species such as kikuyu grass (*Cenchrus clandestinus*) and rooikrans (*Acacia cyclops*) were also found. A provisional species list for plants on Erf 23731 is in Table 2. The NEMBA invasive species categories are defined as follows:

- Category 1a: Invasive species that require immediate eradication. No permits are allowed for their presence or propagation.
- Category 1b: Invasive species that must be controlled, and management plans are required to prevent their spread. They cannot be sold or propagated without specific permits.
- Category 2: Invasive species that can be cultivated or used in controlled environments with permits. They are restricted to designated areas and must not spread into natural ecosystems.
- Category 3: Invasive species that may remain in certain areas but cannot be propagated, traded, or transported. These species are banned from environmentally sensitive areas

Another Act also concerns invasive species, namely the Conservation of Agricultural Resources Act (CARA). CARA focuses on managing and conserving South Africa's agricultural resources, and also classifies invasive plant species into three categories:

- Category 1: Prohibited plants that must be controlled or eradicated to prevent harm to ecosystems.
- Category 2: Plants that can only be grown under controlled conditions and with permits.
- Category 3: Plants that may remain in specific areas but cannot be propagated or further spread.

Table 2: A provisional species list made for plants found on subdivided Portion 23731. Orange entries are exotic species, and red entries are listed invasive species.

Family	Species	Common name	Information
Liliopsida (Monocotyledons)			
Iridaceae	*Bobartia robusta*	Giant Rushiris	Near the edges of the Erf
Poaceae	*Cenchrus clandestinus*	Kikuyu grass	
Amaryllidaceae	*Crossyne guttata*	April-fool Parasol	Near the edges of the Erf
Poaceae	***Cynodon dactylon***	**Bermuda grass**	**Dominant**
Poaceae	***Eragrostis capensis***	**Cape Love Grass**	**Dominant**
Poaceae	***Themeda triandra***	**Kangaroo Grass**	**Dominant**
Typhaceae	*Typha capensis*	Bullrush	
Magnoliopsida (Dicotyledons)			
Fabaceae	*Acacia cyclops*	western coastal wattle	Invasive. NEMBA category 1b. CARA category 2
Asteraceae	*Athanasia quinquedentata*	Fivetooth Kanniedood	
Aizoaceae	*Carpobrotus deliciosus*	Delicious Sourfig	Near the edges of the Erf
Scrophulariaceae	*Chaenostoma caeruleum*	Blue Skunkbush	
Asteraceae	*Chrysocoma ciliata*	Bitterbush	
Asteraceae	*Dicerothamnus rhinocerotis*	Renosterbush	Near the edges of the Erf
Campanulaceae	*Lobelia erinus*	Garden Lobelia	
Fabaceae	*Lotononis pungens*	Pea species	
Primulaceae	*Lysimachia loeflingii*	Blue Scarlet Pimpernel	Naturalised exotic
Oxalidaceae	*Oxalis punctata*	Sorrel	
Plantaginaceae	*Plantago lanceolata*	Ribwort plantain	
Fabaceae	*Podalyria myrtillifolia*	Myrtle Sweetpea	Near the edges of the Erf
Fabaceae	*Rhynchosia ciliata*	Snoutbeans	
Anacardiaceae	*Searsia pallens*	Ribbed Kunirhus	Near the edges of the Erf
Scrophulariaceae	*Selago corymbosa*	Stiff Bitterbush	Near the edges of the Erf
Asteraceae	*Seriphium plumosum*	Bankrupt Bush	Near the edges of the Erf
Fabaceae	*Tephrosia capensis*	Cape Hoarypea	

6.3 Additional SCC That May be Found

All SCC that may be present on the site have been identified using the screening tool report for the site, iNaturalist nearby observations, and the POSA database.These tools collectively provide a broad overview of species distributions, historical records, habitat preferences, and known ecological associations with SCC.

Following this desktop analysis, each of the flagged SCC was reviewed in terms of its habitat requirements, ecological preferences, and known local distribution, and this was compared directly with the current condition of Erf 23731. The site is highly transformed, consisting primarily of a grazed and managed field or lawn, with little to no remaining natural vegetation. The floristic composition is dominated by widespread, disturbance-tolerant grasses and forbs, with no suitable habitat niches present for most SCC.

Given this context, it is the considered opinion of the author that all of the SCC flagged through the screening process have a *low* to *very low* likelihood of occurring on Erf 23731. Many of the species flagged are specialist taxa associated with intact fynbos, renosterveld, or thicket ecosystems, all of which are absent within the erf boundaries. While these vegetation types are still present in the surrounding landscape (and indeed support SCC populations nearby) the transformed condition of Erf 23731 itself precludes the presence of such species within the development footprint.

Furthermore, no SCC were observed on the erf during the site assessment, nor were any signs of remnant habitat features (e.g. geophyte bulbs, seed banks, or regenerating woody elements) identified that would support the future re-establishment of these species. It is therefore concluded that, while the broader area supports several SCC, Erf 23731 does not currently provide suitable conditions for their persistence.

7. SITE SENSITIVITY VERIFICATION

7.1 Terrestrial Biodiversity

The Terrestrial Biodiversity theme sensitivity of Erf 23731 is confirmed to be **Low**, as opposed to the medium sensitivity identified by the Screening Tool, due to the transformed nature of this newly subdivided erf. The following reasoning supports this finding:

- The Erf is covered by a grazed field which no longer supports natural vegetation.
- The majority of Erf 23731 falls outside of the Western Cape Biodiversity Spatial Plan.
- The watercourse is being protected as part of the Aalwyndal Core Area. Refer to the aquatic specialist report for further details on aquatic sensitivities.

7.2 Botanical Diversity

The terrestrial plant species theme is confirmed with a **Low** sensitivity due to the unlikely presence of any SCC on the lawn that is Erf 23731. The following supports this finding:

- No SCC were observed at the time of the site assessment.
- Erf 23731 is in a transformed state and is being managed as a field / lawn. No SCC are likely to occur here.

8. COMPLIANCE STATEMENT AND RECOMMENDATIONS

Based on the findings from the desktop assessment and the field assessment on Erf 23731, it is the opinion of the author that that the terrestrial biodiversity and plant species themes on the site are of low sensitivity, despite the Screening Tool's original identification of Very High and Medium sensitivity respectively. The current state of the site as a long-transformed, grazed, and managed field with little to no natural vegetation remaining, does not support any plant species of conservation concern (SCC) or provide suitable habitat for them. As discussed in the report, the transformed and managed nature of this erf means no SCC are likely to occur here, despite several SCC being present on neighbouring properties.

As such, this report confirms compliance with the requirements of the Terrestrial Biodiversity and Terrestrial Plant Species Protocols (as promulgated under the 2014 EIA Regulations, amended 2017), and the site is regarded as being of Low sensitivity from a botanical and terrestrial biodiversity perspective. Therefore, no further specialist assessment is required for Erf 23731 under these themes, provided that development remains within the currently assessed footprint and away from the sensitive features mapped as part of the Aalwyndal Biodiversity Offset report series compiled by Confluent Environmental and Eco-Pulse (WCDEDT, 2025). Although Erf 23731 is confirmed to be of low sensitivity, the following recommendations may help to promote ecological sustainability and biodiversity-conscious development:

1. Prioritise indigenous and locally sourced plants in landscaping and gardening in any open space or common areas within the development. Local indigenous plant species should be selected based on those historically occurring in renosterveld, thicket, and fynbos mosaics of the area. A list of suitable plants was compiled as part of the Biodiversity Offset Framework Plan (Table 4 of Report 3) and is presented in Table 3.
2. Minimise the extent of lawns and areas requiring regular mowing. Lawns are ecologically poor. Where possible, these areas should be replaced with low-maintenance indigenous groundcovers or gravelled paths or steps. Where lawns will be planted use *Cynodon dactylon* (Kweek) and/or *Stenotaphrum secondatum* (Buffalo Grass). Do not plant Kikuyu grass anywhere as it is highly invasive.
3. Retain and protect existing indigenous trees on-site, especially if they are structurally sound and do not interfere with essential services or infrastructure.
4. Implement invasive species clearing, especially targeting *Acacia cyclops* (rooikrans) and *Cenchrus clandestinus* (kikuyu grass), both of which were observed on-site. Ongoing control of these species is recommended in accordance with the NEM:BA and CARA regulations.
5. Protect the Core Area. This should remain outside of any future development footprint and degraded areas could be revegetated with appropriate indigenous vegetation if aligned with Report 2 of the Biodiversity Offset Framework Plan. While almost no plants on Erf 23731 warrant a search and rescue, the developer might consider collection of the indigenous bulbs *Moraea lewisiae* and *M. polyanthos* (both Least Concern) during grubbing of the soil. These have attractive flowers and could be relocated to degraded parts of the Core Area or replanted in landscaping areas within the development with a likely high success rate.

Table 3: List of recommended plant species for gardens and landscaping in Aalwyndal (from Table 4 of Report 3 of the Biodiversity Offset Framework Plan).

Species Name	Common Name	Broad Vegetation Type
Trees		
Buddleja saligna	False olive	Thicket / Riverine
Cussonia thyrsiflora	Cape coastal cabbage tree	Thicket / Riverine
Pittosporum viridiflorum	Cheesewood	Thicket / Riverine
Polygala myrtifolia	September bush	Thicket / Riverine
Schotia afra	Karoo boer-bean	Thicket / Riverine
Searsia glauca	Blue kunibush	Thicket / Riverine
Searsia lucida	Glossy crowberry	Thicket / Riverine
Searsia pallens	Ribbed kuni-bush	Thicket / Riverine
Sideroxylon inerme	Milkwood	Thicket / Riverine
Tarchonanthus littoralis	Coastal Camphor Tree	Thicket / Riverine
Vachellia karroo	n/a	Thicket / Riverine
Shrubs		
Agathosma ovata	False buchu	Fynbos / Renosterveld
Aloe arborescens	Candelabra aloe	Thicket
Aloe ferox	Bitter aloe	Thicket / Renosterveld
Bobartia robusta	Blombiesie	Fynbos
Carissa bispinosa	Forest Numnum	Thicket
Gnidia squarossa	Saffron bush	Fynbos / Renosterveld
Grewia occidentalis	Crossberry	Thicket
Gymnosporia buxifolia	Common spike-thorn	Thicket
Leucadendron salignum	Sunshine conebush	Fynbos
Osteospermum moniliferum	Bietou	Thicket / Renosterveld / Fynbos
Passerina corymbose	Common gonna	Renosterveld / Fynbos
Pelargonium capitatum	Rose-scented pelargonium	Renosterveld / Fynbos
Pelargonium fruticosum	n/a	Renosterveld / Fynbos
Tecomaria capensis	Cape honeysuckle	Thicket
Thamnochortus insignis	Dekriet	Renosterveld / Fynbos
Perennials, Bulbs & Creepers		
Aristea ecklonii	Blue stars	Thicket / Renosterveld / Fynbos
Bulbine frutescens	Stalked bulbine	Thicket / Renosterveld / Fynbos
Carpobrotus edulis	Sour fig	Thicket / Renosterveld / Fynbos
Cotyledon orbiculata	Pig's ear	Thicket / Renosterveld / Fynbos
Hermannia flammula	Dollrose	Renosterveld / Fynbos
Hypoxis sp.	African potato	Thicket / Renosterveld / Fynbos
Metalasia acuta	n/a	Renosterveld / Fynbos
Metalasia muricata	Blombos	Renosterveld / Fynbos
Rhoicissus digitata	Baboon grape	Thicket / Riverine
Grasses		
Cynodon dactylon	Kweek	Thicket / Renosterveld / Fynbos
Stenotaphrum secondatum	Buffalo grass	Thicket / Renosterveld / Fynbos
Eragrostis curvula	Weeping love grass	Thicket / Renosterveld / Fynbos
Themeda triandra	Red oat grass	Thicket / Renosterveld / Fynbos
Wetland		
Cyperus textilis	Mat sedge	Permanent / Seasonal
Eleocharis limosa	Finger sedge	Permanent / Seasonal
Falkia repens	Little ears	Seasonal
Juncus effussus	n/a	Permanent / Seasonal
Juncus kraussii	n/a	Permanent / Seasonal
Zantedeschia aethiopica	Arum lilly	Seasonal

9. REFERENCES

CapeNature. (2017). *An overview of the Western Cape Biodiversity Spatial Plan*.

Cowling, R. M., Knight, A. T., Privett, S. D. J., & Sharma, G. (2010). Invest in opportunity, not inventory of hotspots. In *Conservation Biology* (Vol. 24, Issue 2).

Dabrowski, J. (2025). *Proposed Residential Development on Erf 23731 in Aalwyndal, Mossel Bay, Western Cape. Aquatic Biodiversity Site Sensitivity Verification and Impact Assessment*.

de Villiers, C., Holmes, P., Rebelo, T., Helme, N., Brown, D.-E., Clark, B., Milton, S., Dean, W. R., Brownlie, S., Snaddon, K., Day, L., Ollis, D., Job, N., Dorse, C., Wood, J., Harrison, J., Palmer, G., Cadman, M., Maree, K., … Driver, A. (2016). *Ecosystem Guidelines for Environmental Assessment in the Western Cape* (M. Cadman, Ed.; 2nd ed.). Fynbos Forum.

Garrard, G. E., Bekessy, S. A., McCarthy, M. A., & Wintle, B. A. (2008). When have we looked hard enough? A novel method for setting minimum survey effort protocols for flora surveys. *Austral Ecology*, *33*(8), 986–998.

Hannes Lourens. (2025a). *Proposed development of Erf 23731, Aalwyndal, Mossel Bay: Civil Engineering Services Report*.

Hannes Lourens. (2025b). *Proposed development of Erf 23731, Aalwyndal, Mossel Bay Stormwater Management Report*.

Hannes Lourens. (2025c). *Proposed development of Erf 23731, Aalwyndal, Mossel Bay Treated Water Management Report*.

Mucina, L., & Rutherford, M. C. (2006). *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia.

National Environmental Management Act, 1998 (Act No. 107 of 1998): Procedures for Assessment and Minimum Criteria for Reporting on Identified Environmental Themes When Applying for Environmental Authorisation, Government Gazette of South Africa (2020).

NEM:BA Act, 2004 (Act no. 10 of 2004). (2022). *The Revised National List of Ecosystems that are Threatened and in Need of Protection.*

Perret, J., Besnard, A., Charpentier, A., & Papuga, G. (2023). Plants stand still but hide: Imperfect and heterogeneous detection is the rule when counting plants. *Journal of Ecology*, 1–14.

Pierce, S. M., & Mader, A. D. (2006). *The Subtropical Thicket Ecosystem Programme Handbook: Integrating the natural environment into land-use decisions at the municipal level: towards sustainable development* (2nd ed.).

Pool-Sandvliet, R., Duffel-Canham, A., Pence, G., & Smart, R. (2017). *Western Cape Biodiversity Spatial Plan Handbook*.

Privett, S. D. J., Cowling, R. M., & Taylor, H. C. (2001). Thirty years of change in the fynbos vegetation of the Cape of Good Hope Nature Reserve, South Africa. *Bothalia*, *31*(1), 99-115.

Skowno, A. L., Poole, C. J., Raimondo, D. C., Sink, K. J., van Deventer, H., van Niekerk, L., Harris, L. R., Smith-Adao, L. B., Tolley, K. A., Zengeya, T. A., Foden, W. B., Midgley, G. F., Driver, A., Adams, J. B., Adams, R., da Silva, J. M., Fizzotti, B., Jansen van Vuuren, B., Kelly, C., … Whitehead, T. O. (2018). *National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity*.

Stewart, W., Bahindwa, A., Adams, A., Daniels, F., Nzimande, M., Job, N., Dabrowski, J., Ollis, D., & Palmer, R. (2021). *Environmental Assessment Guideline for Ecosystem-related aspects of the Terrestrial Biodiversity and Aquatic Biodiversity Protocols: Final Draft*.

Verburgt, L., McCleland, W., McKenzie, D., Laurence, S., Niemand, L., & Raimondo, D. (2020). *Species Environmental Assessment Guideline: Guidelines for the implementation of the Terrestrial Flora (3c) & Terrestrial Fauna (3d) Species Protocols for environmental impact assessments in South Africa.* SANBI.

Vlok, J. H. J., & de Villiers, M. E. (2007). *Vegetation map for the Riversdale domain* (Issue March).

Wintle, B. A., Walshe, T. v., Parris, K. M., & Mccarthy, M. A. (2012). Designing occupancy surveys and interpreting non-detection when observations are imperfect. *Diversity and Distributions*, *18*(4), 417–424.