

## **APPENDIX C: TERRESTRIAL BIODIVERSITY SCREENING REPORT**



# Terrestrial Biodiversity Scoping Report

Newlyn Saldanha Manganese Facility

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Author: J. Pote

# Terrestrial Biodiversity Scoping Report

## Newlyn Saldanha Manganese Facility

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Date of report: **07/01/2026**

### Draft Report

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# 1 Introduction & Background

## 1.1 Project Locality & Description

Newlyn Group (Newlyn) is proposing to operate a bulk manganese and iron ore terminal on Farm RE/1139 located in Saldanha Bay, Western Cape (Figure 1). The storage and handling facility will have a capacity of 5 million tons per annum (mtpa) for manganese and 10 mtpa for iron ore. The site is situated on Farm 1139 is approximately 180.17 ha in extent and located to the east of Saldanha Bay and to the north of the Port of Saldanha. The proposed storage and handling site is situated on approximately 61 ha of the northernmost section of Farm RE/ 1139. Approximate central coordinates: 32°58'47.70"S; 18° 0'3.56"E.

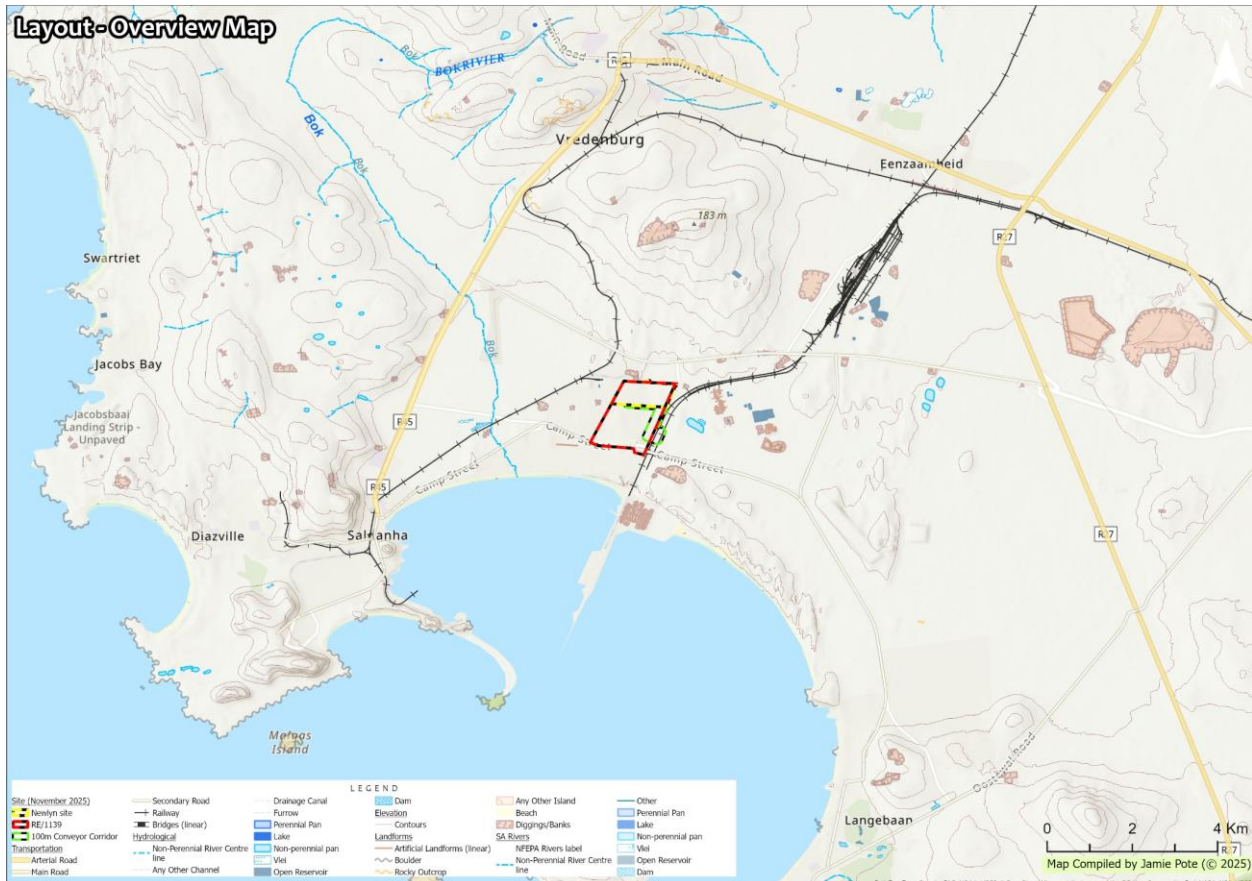


Figure 1: Site Locality.

Newlyn has designed a near-zero emission export terminal for back-of-port storage and handling of various export mineral ores. The design uses mechanical silos which are closed to the environment, and dispatches to the ships at a rate of 10,000 tons per hour. The proposed facility will have a capacity of 20 million tons per year. There would be 2 tipplers for the incoming ore, one for Mn and one for Iron; and 20 silos. The facility would have dust extraction systems and limited air emissions.

Two alternative SDP options are proposed as indicated below, with slight layout variation, primarily pertaining to the conveyor routes, namely Alternative 1 or Preferred (Figure 2) and Alternative 2 (Figure 3). **NOTE:** This reporting pertains only to the Newlyn Mn component and excludes the AfriSam facility, which is only indicated for context.

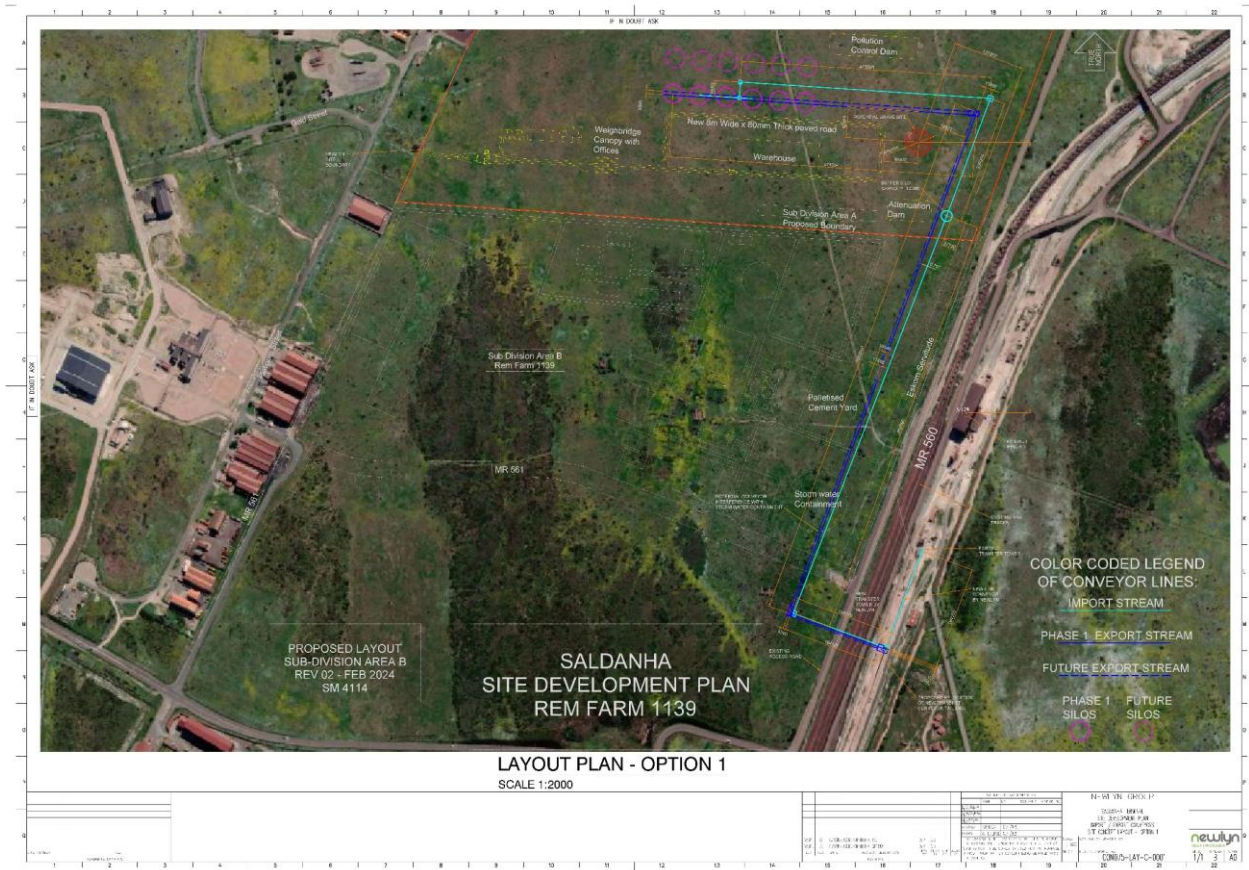


Figure 2: Site Development Plan (Alternative 1).



Figure 3: Site Development Plan (Alternative 2).

The infrastructure will be comprised of the following:

- **Site Development Plan:** AfriSam has a planned developed on the southern section of the property (other application/assessment); the bulk storage terminal (this assessment) is planned on the northern section of the property. A total of 12 silos are planned; each will have a 35-meter diameter and will be 20 meters in height.
- **Transport to Newlyn Dry Bulk Terminal:** The manganese ore will be shipped to Saldanha by rail from mines located in the Northern Cape Province. The current maximum weight per wagon including cargo is 120 tons, implying that each wagon will contain approximately 100 tons of ore. The full train length is 348 wagons carrying a total of approximately 34 800 tons of ore.
- **Design of Newlyn Dry Bulk Terminal:** The proposed Newlyn Dry Bulk Terminal in Saldanha will be a near zero-environment-impact terminal designed to export heavy minerals. The Terminal will store minerals in mechanical silos which are closed to the environment, until required for loading of ships. The entire process of mineral handling through the terminal is a closed process and is designed for near zero dust emission.
- **Unloading Train:** The fully loaded train will be moved into the Transnet rail siding on arrival. The siding can accommodate the complete train (348 wagons). The wagons will be unloaded using the existing Transnet Tippler 3. The ore will be tipped into a hopper from where it will be fed to a conveyor for transport to silos onto Newlyn property at a rate of 8000tph.
- **Ore Storage:** From the tippler, the conveyor belts will be enclosed units, totally enclosing the material, traversing the distance between the tippler and transfer tower above ground. At the transfer tower the material will be diverted to either one of two conveyor belts so that either of the two silos can be accessed. The ore will be dropped into a chute at the top of the silo. Each silo will have capacity of 100 000 tons and will be filled one at a time. Discharge from the silos will be designed as mass flow through hoppers. The discharge will be initiated through the control system once a ship is ready to receive material after which discharge will occur to conveyors at the bottom of each silo via a discharge chute. Each belt will transfer at the rate of 8 000 tph.
- **Conveying ore export:** The outgoing conveyor belts will be through conveyors contained in fully enclosed housing and connected to the jetty conveyors. The jetty conveyor will be completely enclosed in a housing structure.
- **Ship-loading:** Each ship loader can load at the rate of 5 000 tons per hour. The two ship loaders can load two ships at a rate of 5 000 tons per hour each, or a single ship at 10 000 tons per hour
- Supporting infrastructures and bulk services will also be developed; and include, site access and internal roads, offices, storage areas, stormwater management, water supply, electric supply, waste management facilities.
  - Minerals are imported by rail from the mine.
  - Train is unloaded at a rate of 6500 tons per hour, via a rotary tippler onto hopper.
  - The conveyor moves cargo at a rate of 6500 tons per hour. The pipe conveyor is emptied at the top of the silo via a chute.
  - Storage capacity of silo is up to 100 000 tons per silo. The silo is bottom discharged. (20 silos – 2 million tonne storage capacity).

### 1.1.1 Assumptions, Uncertainties and Gaps in Knowledge

The findings and recommendations of this report may be susceptible to the following uncertainties and limitation:

- Any botanical (and faunal) surveys based upon a limited sampling time-period, may not reflect the actual complete species composition of the site due to seasonal variations in flowering times, which can affect specific flora groups and/or individual species. In such instances inferences are made as far as possible, based on available species distribution data. As far as possible, data collected on site has been supplemented with desktop and database-centred distribution data.

Additionally, the composition of fire adapted vegetation including fynbos and renosterveld may vary depending on level of maturity or time since last burn.

- No assessment has been made of aquatic aspects relating to any wetlands, pans, and rivers/seeps outside of the scope of a terrestrial biodiversity report. For screening purposes, all aquatic-like features that are identified are assumed to have a high or possible no-go sensitivity (i.e. require further aquatic assessment).

### 1.1.2 Site Visit

A site verification was undertaken on 05 – 07 August 2025, during late winter/early spring. At the time of the site visit, it was the beginning of the flowering season in the area, at the end of the winter rainfall season, which did provide opportunity to observe several flora groups. This period is considered to be within the optimum season for terrestrial biodiversity survey and assessment for the area.

## 2 Legislation Framework

In terms of NEMA EIA Regulations (07 April 2014, as amended), the following specific listing notices have bearing on the proposed activity and terrestrial biodiversity<sup>1</sup>:

### Listing Notice 1 (GNR):

27. The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—

- (i) the undertaking of a linear activity; or
- (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

*Indigenous vegetation is present on site, and the listed activity will be triggered as clearing of natural vegetation (or more than 10 years since previous clearing) will exceed 1 Ha for the silo facility. The conveyors are linear hence will not trigger.*

### Listing Notice 2 (GNR):

4. The development of facilities or infrastructure, for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.

*The silo facility will involve the storage and handling of a dangerous good, with a combined capacity exceeding 500 cubic meters, hence a full Scoping and EIA process is triggered.*

### Listing Notice 3 (GNR):

4. The development of a road wider than 4 metres with a reserve less than 13,5 metres

(f) In Western Cape:

i. Areas outside urban areas;

(aa) Areas containing indigenous vegetation;

ii. In urban areas:

*The listed activity would be triggered if access roads exceed the threshold (wider than 4 m).*

<sup>1</sup> The listed activities itemized are only those with Biodiversity relevance to this report and is not a complete list of potential triggers.

12. The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

*(a) In Eastern Cape, Free State, Gauteng, Limpopo, North West and Western Cape provinces:*

*(i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;*

*(ii) Within critical biodiversity areas identified in bioregional plans; or*

*(iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning].*

*The listed activity will be triggered as clearing of indigenous vegetation (or more than 10 years since previous clearing) will exceed 300 m<sup>2</sup> and occurs within designated critical biodiversity areas as well as indigenous vegetation of Critically Endangered and/or Endangered vegetation.*

### Implications:

- The proposed activity will require the clearing of more than 300 m<sup>2</sup>, as well as more than 1 Ha of indigenous vegetation (or indigenous vegetation older than 10 years) within a designated Critical Biodiversity Area as well as Critically Endangered and Endangered Ecosystems, in terms of EIA listing notices 1 and 3, hence as a minimum would trigger a Basic Assessment process.
- The storage and handling of a dangerous good will further trigger a full Scoping & EIA process.
- Additional listed activities may pertain to the type of activity and or other listed activities that do not relate to terrestrial biodiversity impacts and are not considered in depth. Refer to EIA reporting for full list.

## 2.1 National Environmental Screening Tool Risks

The DEA National Environmental Screening Tool (referred to hereafter as 'NEST') identifies Very High Terrestrial Biodiversity (CBA1 & 2, ESA 1 & 2, Critically Endangered & Endangered Ecosystem); Medium/High Animal Species (several species), Medium Plant Species (numerous species), mostly Low Aquatic sensitivities in proximity to or within the site (Figure 4).

The content of the report will address the findings of the screening tool as well as any site-specific sensitivities that may not have been identified the screening tool. The site screening has verified the likely presence of flagged species and other potential species not identified in the screening tool, based on available distribution data sourced from GBIF, which includes iNaturalist records as well as those contained in fauna collections and flora herbarium records. Not all features are necessarily directly affected by the activity but being in proximity, the associated risks will be investigated further and addressed in the report where appropriate. The National Environmental Screening Tool identifies the following terrestrial related risks:

- Terrestrial Biodiversity is Very High across the site (Figure 2).
- Plant species sensitivity is Medium (Figure 3).

Table 1: Summary of Screening Tool flagged sensitivities.

SENSITIVITY	FEATURE(S) IN PROXIMITY
<b>Terrestrial (Ecological)</b>	
Very High	CBA 1: Terrestrial, CBA 2: Terrestrial, CR Saldanha Limestone Strandveld, EN Saldanha Flats Strandveld
High	None

SENSITIVITY	FEATURE(S) IN PROXIMITY
Medium	None
Low	Present
<b>Plants (Flora)</b>	
Very High	None
High	None.
Medium	<i>Antimima limbata, Ruschia cupulata, Ruschia langebaanensis, Ruschia tecta, Drosanthemum hispifolium, Cephalophyllum rostellum, Indigofera platypoda, Otholobium venustum, Wiborgia fusca subsp. macrocarpa, Podalyria sericea, Leucadendron cinereum, Leucospermum hypophyllocarpodendron subsp. canaliculatum, Manulea augei, Manulea corymbosa, Echiostachys spicatus, Geissorhiza lewisiae, Sparaxis calcicola, Ixia purpureorosea, Romulea barkerae, Romulea saldanhensis, Ferraria densepunctulata, Ferraria parva, Pauridia longituba, Pauridia linearis, Empodium veratrifolium, Oxalis burtoniae, Oxalis subsessilis, Erica trichostigma, Hermannia procumbens subsp. myrrhifolia, Galenia crystallina var. maritima, Hessea mathewsii, Annesorhiza calcicola, Cynanchum zeyheri, Felicia elongata, Steirodiscus tagetes, Cineraria angulosa, Cotula duckittiae, Cotula eckloniana, Osteospermum calcicola, Helichrysum bachmannii, Agathosma thymifolia, Limonium acuminatum, Limonium purpuratum, Muraltia harveyana, Silene ornata, Silene saldanhensis, Phyllica greyii, Wiborgiella dahlgrenii, Argyrolobium velutinum, Xiphotheca reflexa, Leucospermum rodolentum, Cotula pusilla, Helichrysum dunense, Muraltia obovata, Sensitive species 1225, 244, 878, 222, 93, 840, 333, 156, 599, 881, 816, 127, 272, 1243,</i>
Low	Present



Figure 4: Terrestrial Biodiversity Sensitivity.



Figure 5: Plant Species Sensitivity.

The terrestrial biodiversity assessment will also physically screen for the presence of the listed, and other possible species and/or sensitivities that are not identified in the screening tool in addition to those that are flagged. Not all features are directly affected, but being in proximity, the risks associated with the activity will be investigated further and addressed in the report.

The following is deduced from the DFFE National Environmental Screening Tool:

- The terrestrial biodiversity theme is Very High due to the site overlapping with designated CBA 1 & 2 areas as well as Endangered & Critically Endangered vegetation units (Saldanha Limestone Strandveld & Saldanha Flats Strandveld). While the Very High sensitivity designation for the specific footprints is confirmed due the conservation status of the represented units, it is disputed pertaining to the CBA 1 designations, as the site assessment and analysis of historical imagery indicate that the site is secondary vegetation where historical natural vegetation was likely removed for agricultural purposes. The specialist is thus required to assign a very high terrestrial biodiversity sensitivity as per reporting protocol requirements.
- Several flora (plant) species regarded as being of concern are flagged as potentially being present (Medium sensitivity) and are assessed further in the report, however none were found to be present during the site visit and are furthermore due to the transformed nature of the site, it is not deemed to be suitable habitat for any functional species population. The Medium sensitivity designation is thus disputed for the specific footprints and the specialist thus assigns a low plant

(flora) species sensitivity. The absence of flora (plant) species of conservation concern and presence of species indicative as pioneers of strandveld are further indicators of significant historical transformation and/or degradation, likely when used for agriculture.

- Fauna (animal) species regarded as being of concern are flagged as potentially being present (High sensitivity) but are assessed under a separate faunal specialist assessment and will not be considered in detail in this report.
- The aquatic sensitivity is assessed under a separate aquatic specialist assessment and will not be considered in detail in this report.
- The impacts pertaining to terrestrial biodiversity and flora (plant) species are assessed further in the relevant report sections in the assessment report.

### 3 Systematic Planning Frameworks

A screening of Systematic Planning Framework for the region was undertaken (summarised in Table 2), that included the following features:

- Critically Endangered and Endangered Ecosystems.
- Critical Biodiversity Areas & Ecological Support Areas.
- Vulnerable Ecosystems.
- Rivers, Watercourses, Estuaries, Wetland Freshwater Ecosystem Priority Areas (FEPAs), Strategic Water Source Areas (SWSA's) as well as any associated buffers.
- Protected Areas (and buffers) and National Protected Area Expansion Strategy Area (NPAES).
- Critical Habitat for listed endemic, protected or species of conservation concern.

Table 2: Summary of Regional Planning characteristics.

FEATURE	DESCRIPTION	IMPLICATIONS/COMMENT
National Environmental Screening Tool (Terrestrial Biodiversity)	Very High Terrestrial Medium Plant Species	High sensitivity biodiversity indicators and designations including CBA and Endangered & Critically Endangered vegetation unit status. Several flagged sensitive species which have known localities in the requin site, with suitable habitat potentially present.
National Vegetation Map (NVM, 2018)	Saldanha Limestone Strandveld Saldanha Flats Strandveld	Critically Endangered Endangered
Critically Endangered and Endangered Ecosystems (RLE, 2022)	Saldanha Flats Strandveld Saldanha Limestone Strandveld	Presence of intact Endangered/Critically Endangered vegetation would pose a risk within intact vegetation and might trigger biodiversity offsets.
Vulnerable Ecosystems (RLE, 2022)	None	N/A
Western Cape Biodiversity Spatial Plan (2017)	Site is designated ESA 1 with CBA 2 on south-west and north-east corners.	Actual footprint is largely outside of CBA, but within ESA 1. Superseded by more recent designations.
Western Cape Biodiversity Spatial Plan (2023)	CBA 1 & CBA 2	CBA 1 & 2 may have implications into feasibility and/or biodiversity offsets.
Protected Areas (SAPAD)	None in close proximity	N/A
NPAES	Site does not overlap with NPAES designated areas.	No designated NPAES will be directly affected.
Important Bird Areas (IBA's)	Project footprint is outside of any designated IBA areas	Avifaunal aspects are outside the scope of this terrestrial assessment.

FEATURE	DESCRIPTION	IMPLICATIONS/COMMENT
Within 32 m of Watercourse	No non-perennial watercourses are present within the site.	Aquatic aspects are outside the scope of this terrestrial assessment.
Within 100 m of a River	No perennial rivers present within the site.	Aquatic aspects are outside the scope of this terrestrial assessment.
Within 500 m of a Wetland	No wetlands present within the site.	Aquatic aspects are outside the scope of this terrestrial assessment.
Critical Habitat for listed endemic/ protected species	There are several red listed flora & faunal species in the surrounding area and vegetation units that are known to have limited distributions and elevated conservation status. Further on-site screening would be required to clarify risk. These species, if present, could potentially have small, localized populations. Based on available information, there is likely an elevated species risk (in area with confirmed localities in vicinity and suitable habitat is potentially present).	

### 3.1 Vegetation and Conservation Status (Red List of Ecosystems)

The project is located within an area characterised by Coastal Strandveld. Coastal Strandveld consists of communities of medium dense to closed (sometimes forming an impenetrable tangle) shrublands dominated by sclerophyllous, broad-leaved shrubs. Along arid stretches (especially at the West Coast) the succulent shrubby element becomes obvious. The shrublands are very low, especially closer to the seashore, but can grow tall in sheltered sites and become replaced by low scrub milkwood forest (especially on the Agulhas Plain). Structural and floristic differences between strandveld and neighbouring fynbos are striking. Although restios (*Ischyrolepis*, *Thamnochortus*, *Willdenowia*) can be a common element on deep soils, the Proteaceae are absent and Ericaceae are extremely rare. Strandveld vegetation is usually found close to the sea (hence the Afrikaans term 'strandveld' or 'beach vegetation') but never in habitats under direct influence of sea spray and other factors associated with the influence of the sea water- these habitats are occupied by the azonal coastal vegetation (Cape Seashore Vegetation).

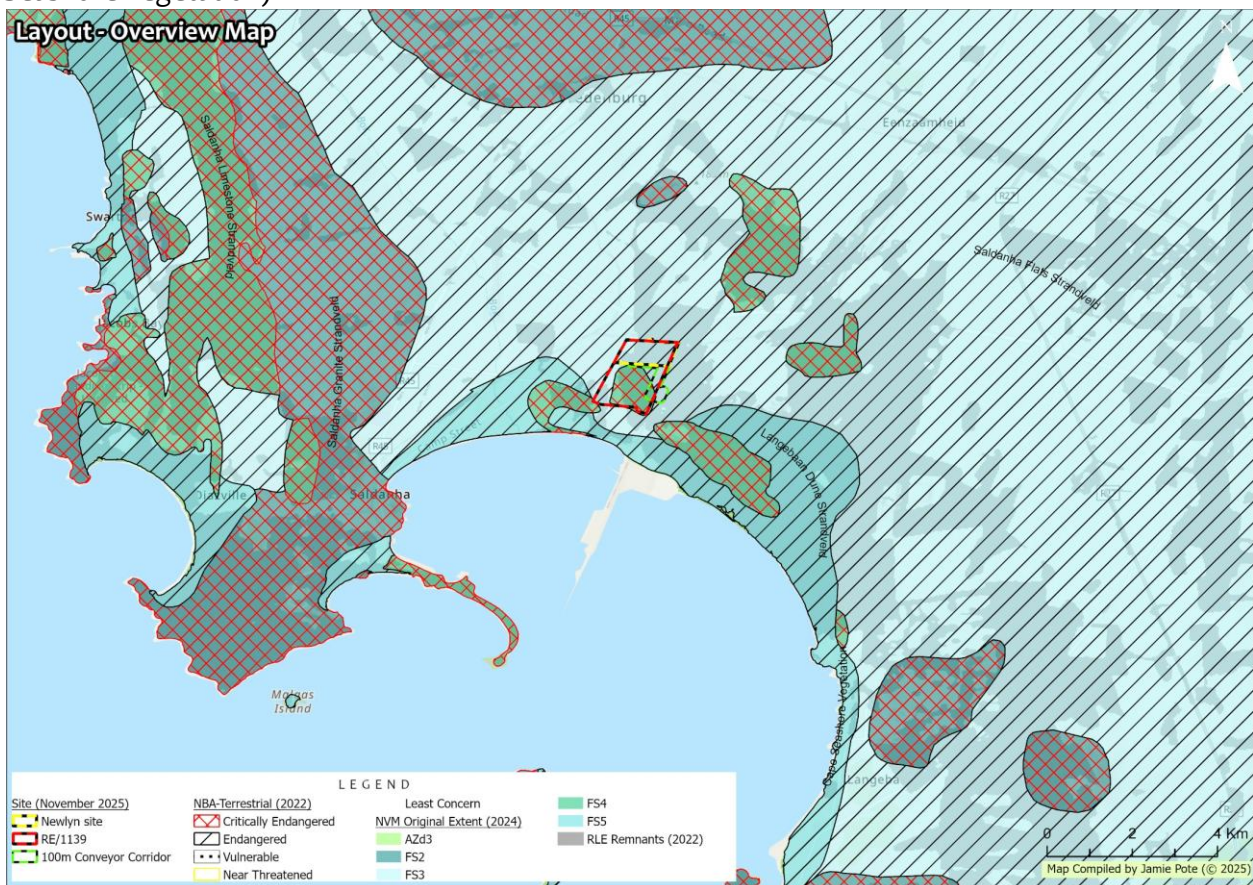


Figure 6: National Vegetation Map (2018) and National Biodiversity Assessment Status (2022) for site. Light shading indicative of historically transformed areas and darker areas of intact habitat.

Immediate coastal hinterland with its stabilised dunes showing signs of soil formation is the characteristic habitat of the typical strandveld vegetation of the southwestern and southern Cape. In the coastal hinterland, strandveld also occurs on harder substrates supporting shallow soils, such as on granites (surrounds of Vredenburg, Saldanha), Tertiary limestones of the West Coast (Langebaan area). Strandveld penetrates deep inland in several localities, such as east of Langebaan and Saldanha (here found over sandy overlying calcrete pavements), along limestone krantzies (cliffs) fringing De Hoop Vlei and in the hinterland of the sedimented portion of Mossel Bay. As opposed to the sand fynbos (often bordering on the strandveld units), the substrate of the strandveld is mineral-rich, with high concentrations of calcium. Intricate relationships between topography, local waterlogging and fire dictate the nature of the delimitation of strandveld and sand fynbos on calcium-rich coastal sands of the South Coast.

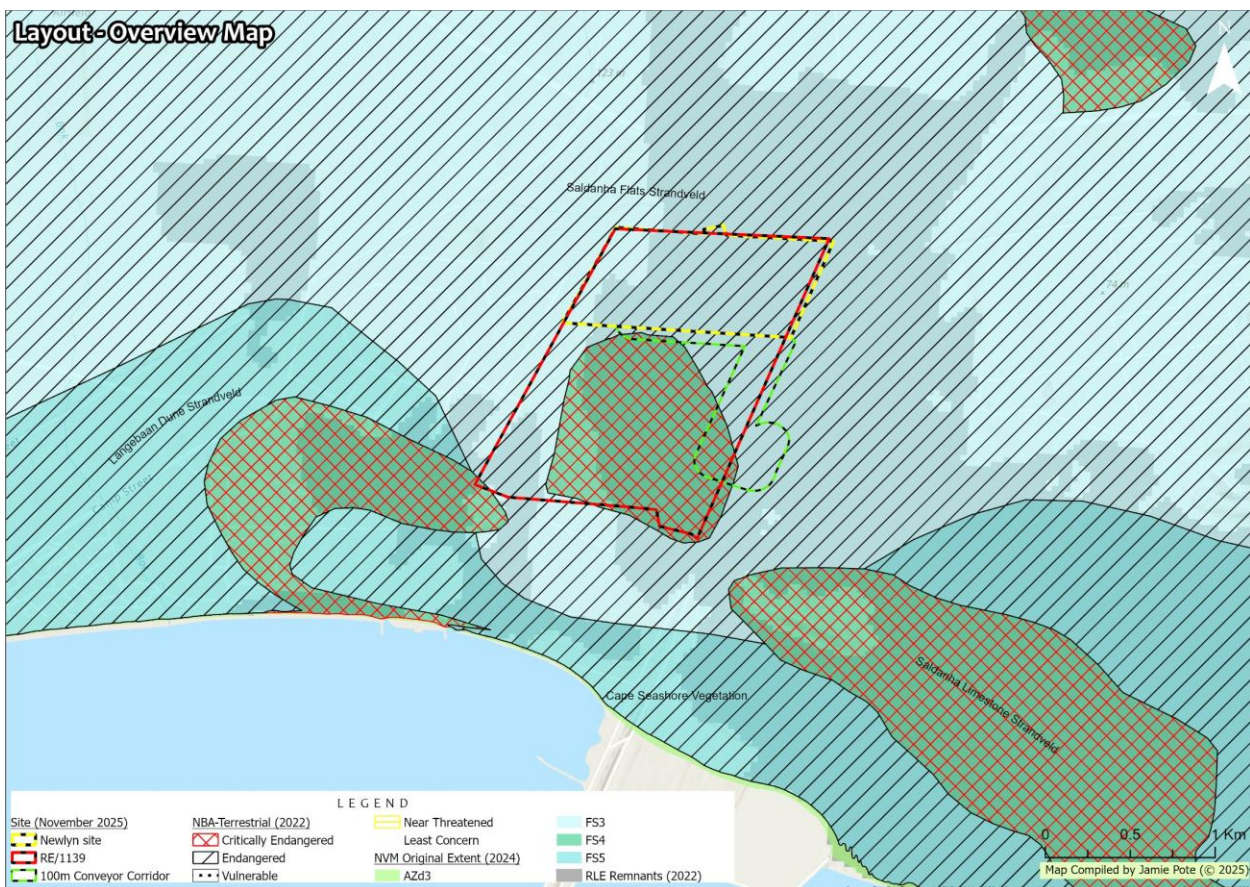


Figure 7: National Vegetation Map (2018) and National Biodiversity Assessment Status (2022) for the site and conveyor corridor. Light shading indicative of historically transformed areas and darker areas of intact habitat (based on RLE 2022 datasets).

Unlike in fynbos or renosterveld, fire plays a lesser role in the strandveld communities. Despite high cover of the strandveld shrublands, fire frequency is low, the succulent nature of strandveld impedes the spread of fire, except under exceptional conditions.

The major floristic component of the Strandveld communities, especially on the South Coast, shows subtropical biogeographical links. The notable genera occurring in strandveld and pointing towards this (sub)tropical link include for example *Aloe*, *Azima*, *Cassine*, *Clausena*, *Cussonia*, *Euclea*, *Diospyros*, *Grewia*, *Gymnosporia*, *Lauridia*, *Maytenus*, *Mystroxydon*, *Pterocelastrus*, *Rhus*, *Robsonodendron*, *Sideroxylon* and *Tarchonanthus*. The strandveld units of the West Coast also show a link to the

Succulent Karoo (through the increased occurrence of succulent shrubs of genera such as *Antimima*, *Cheiridopsis*, *Cotyledon*, *Crassula*, *Dorotheanthus*, *Drosanthemum*, *Euphorbia*, *Mesembryanthemum*, *Prenia*, *Ruschia*, *Tetragonia*, *Tylecodon*, *Zygophyllum* etc.). Floristic links to the Fynbos and Renosterveld (especially the granite renosterveld) are indicated by the occurrence of genera such as *Aspalathus*, *Babiana*, *Ehrharta*, *Ischyrolepis*, *Metalasia*, *Oscularia*, *Oxalis*, *Phylca*, *Psoralea*, *Ramu/ea*, *Thamnochortus*, *Thesium*, *Ursinia* and *Willdenowia*.

The silo facility falls within a single vegetation unit (Figure 6 & Figure 7), **Saldanha Flats Strandveld**, with both **Saldanha Limestone Strandveld** (adjacent to the footprint) and **Langebaan Dune Strandveld** along the coast being in proximity but not directly affected (Mucina & Rutherford, 2006). **Saldanha Flats Strandveld** and **Langebaan Dune Strandveld** have an **Endangered** conservation status, while **Saldanha Limestone Strandveld** has a **Critically Endangered** Status (NBA: RLE, 2022), and generally designated a No-Go (avoid) status. **Critically Endangered** is generally indicative of more than 60 % of the original extent being transformed. **Endangered** being indicative of having lost significant amounts (more than 60 % lost) of their original natural habitat, so their functioning is compromised. The calculated original and remaining extent of the represented vegetation units (RLE, 2022) is indicated in Table 3.

Table 3: Original and remaining extent of the represented vegetation units (NVM/RLE, 2022 & 2025).

VEGETATION UNIT	ORIG EXTENT (sq km)	REM EXTENT (sq km/Ha)	% REMAINING (%LOST)
Saldanha Flats Strandveld (Endangered)	1 643.38 sq km (164 338 Ha)	584.79 sq km (58 479 Ha)	35.6 % (64.4 %)
Saldanha Limestone Strandveld (Critically Endangered)	61.58 sq km (6 158.0 Ha)	49.92 sq km (4 992 Ha)	81.1 % (18.9)
Langebaan Dune Strandveld (Endangered)	344.34 sq km (34 434 Ha)	293.30 sq km (29 330 Ha)	85.2% (14.8)

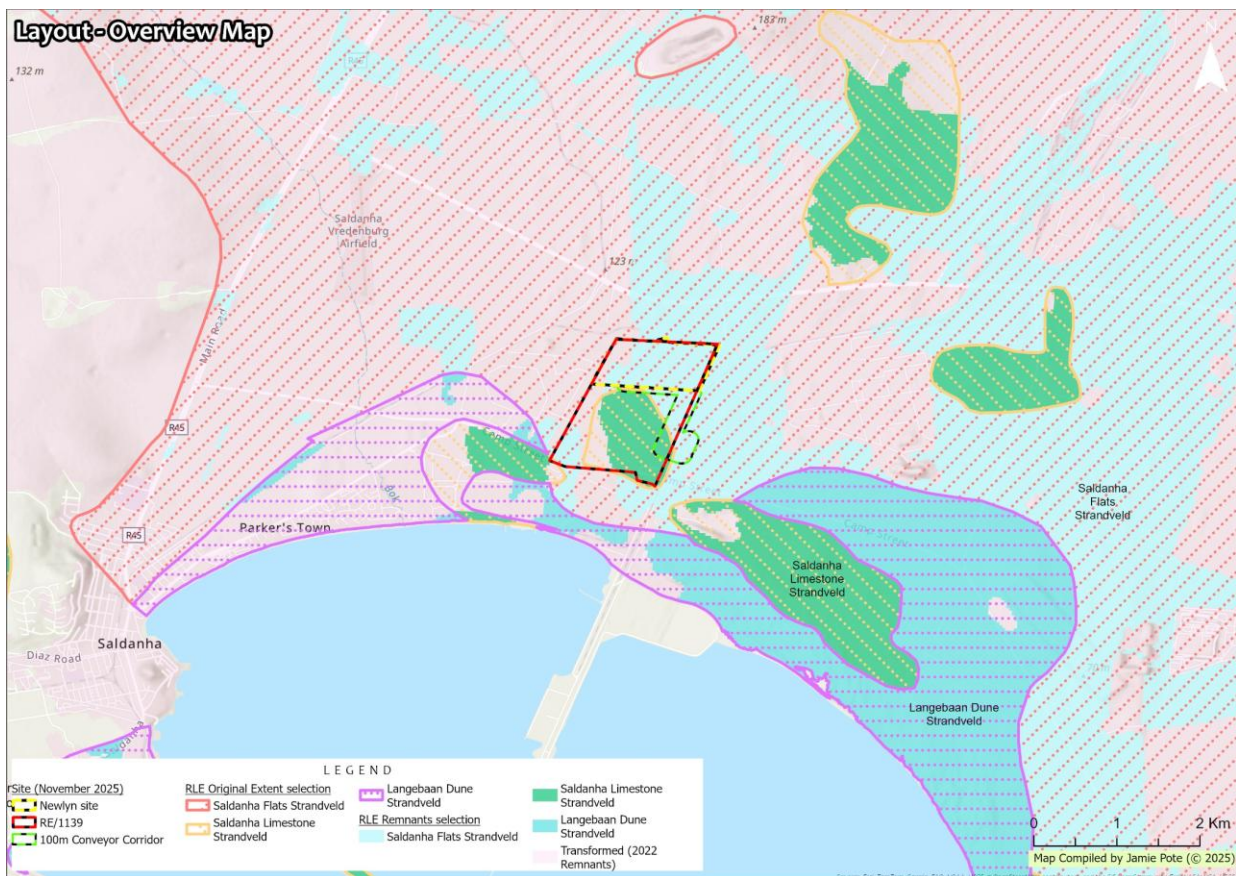


Figure 8: National Vegetation Map (2018) remaining areas and for the site and surrounds.

The Critically Endangered status of the Saldanha Limestone Strandveld and Endangered status of the Langebaan Dune Strandveld is due to the units having a very small coverage area, despite having low levels of transformation. Any loss of the remaining extent of (remaining intact vegetation, where not already transformed) would have a significant residual impact. The proposed activity will not result in any loss or direct impact to these units. In contrast, the Endangered status of the Saldanha Flats Strandveld is due to high levels of historical transformation with only 35.6 % (~585 sq km) remaining, primarily resulting from agriculture, as well as loss due to industrial and urban development.

Saldanha Flats Strandveld, the primary affected unit, occurs on the extensive coastal flats from St Helena Bay and the southern banks of the Great Berg River near its mouth in the north to Saldanha and Langebaan in the south, with the southernmost extension at the coast near Yzerfontein and Rietduin. Extensive and significant areas have already been transformed predominantly for cultivation, but also roads and urban development. Serious alien infestation is caused by trees such as *Acacia cyclops* and *Acacia saligna* and herbs including *Bromus diandrus* and *Medicago hispida*. Erosion is generally very low, as the affected landscape is relatively flat.

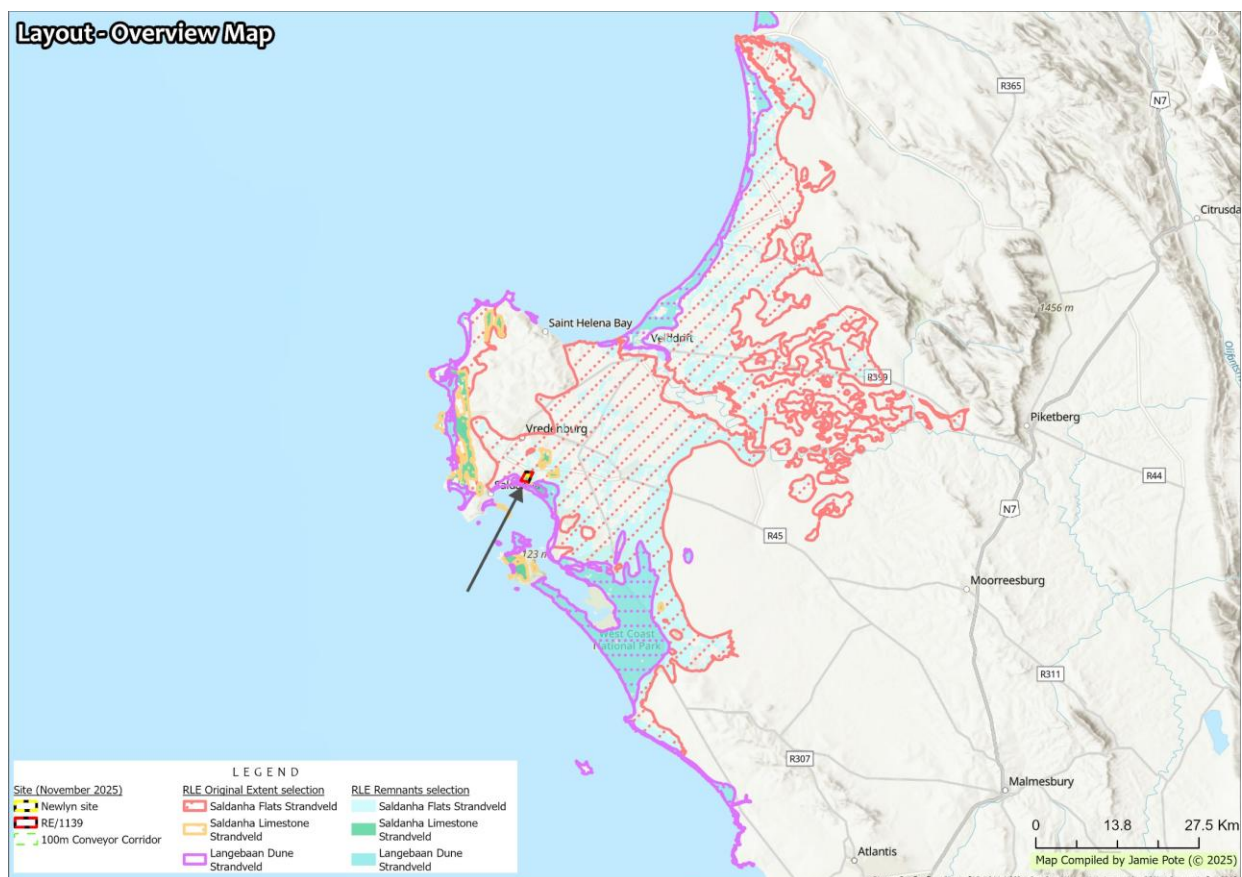


Figure 9: National Vegetation Map remaining areas and extent of vegetation units (NVM, 2018) for the original extent of the represented units. Note extensive areas of Saldanha Flats Strandveld lost due to historical agriculture.

As per Figure 8 & Figure 9, the site is situated somewhat peripheral to the areas where more extensive patches of the Saldanha Flats Strandveld remaining to the east of the site, and also to the east of Langebaan, including portions that are within the West Coast National Park complex. Saldanha Limestone Strandveld covers a very limited area with a larger patch on the Kliprug ridge between Saldanha and Paternoster and several smaller outliers including those between Saldanha and north of Club Mykonos on the Langebaan Lagoon. The patch of Saldanha Limestone Strandveld that overlaps with a small area of the 100m conveyor corridor, but does not overlap with the proposed conveyor

itself, and thus there will be no direct loss. It is also noteworthy that the AfriSam site adjacent development plan has also avoided this patch. Remnant patches of [Saldanha Limestone Strandveld](#) are confined to elevated areas where urban development has so far been limited. This includes a small hill to the south of the site and to the west of the conveyor, where the conveyor traverses at the foot of the hill on the eastern side. Site verification confirms that the extent of [Saldanha Limestone Strandveld](#) does not extend into the conveyor corridor, as incorrectly indicated on the remnant National Vegetation Map delineations. [Saldanha Dune Strandveld](#) is reasonable extensive to the east and south-east with an extensive area falling within the West Coast National Park complex around Langebaan.

**NOTE:** One purpose of the terrestrial biodiversity specialist assessment is to refine National Vegetation mapping, which is acknowledged to be at a scale that might not align with local conditions.

A more extensive band of [Saldanha Limestone Strandveld](#) remains on the hills along the west coast between Saldanha Bay and Paternoster. Several smaller scattered pockets also still remain relatively undisturbed on elevated hills around Langebaan. [Saldanha Limestone Strandveld](#) and [Langebaan Dune Strandveld](#) have relatively localised and habitat specific distributions, with the Limestone Strandveld limited to the ridges around Saldanha and Langebaan, with Dune Strandveld occurring in three large, disconnected patches, a narrow coastal strip from Elands Bay to Velddrif, Britannia Bay to Danger Bay near Saldanha Bay and surrounding Langebaan Lagoon past Yzerfontein towards Bokbaai (west of Atlantis).

The site and proposed footprint represent a small fraction of the overall original extent of the Strandveld, where most of the loss can be associated with historical agriculture and urban expansion. Furthermore, the remnant habitat represented within the footprint also represents a fraction of the remaining extent of the represented units, thus likely that the loss associated with the proposed activity will not have significant regional implications.

#### *Implications:*

- The primary vegetation unit Saldanha Flats Strandveld, has high levels of transformation.
- The nearby units, Saldanha Limestone Strandveld and Langebaan Dune Strandveld, do not have as high levels of transformation but have extremely restricted distributions.
- Saldanha Flats Strandveld and Langebaan Dune Strandveld have an Endangered status, while Saldanha Limestone Strandveld is Critically Endangered.
- Remnant elements pristine Flats Strandveld would thus be considered to have a high to very high terrestrial biodiversity sensitivity (i.e. No-Go, and/or Biodiversity offsets would be required for any loss). Development of transformed areas will also depend to some extent on Regional Planning designations (i.e. CBA, ESA) and occurrence of species of conservation concern.

### 3.1.1 Western Cape Biodiversity Spatial Plan (WCBSP, 2017 & 2023) – Terrestrial

The Biodiversity Spatial Plan indicates areas of land as well as aquatic features which must to be safeguarded in their natural state if biodiversity is to persist and ecosystems are to continue functioning. With reference to Table 4, which outlines the designated categories and recommended land uses, land in this category is referred to as a [Critical Biodiversity Area](#) and incorporate:

- Areas that need to be safeguarded in order to meet national biodiversity thresholds.
- Areas required to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services; and/or
- Important locations for biodiversity features or rare species.

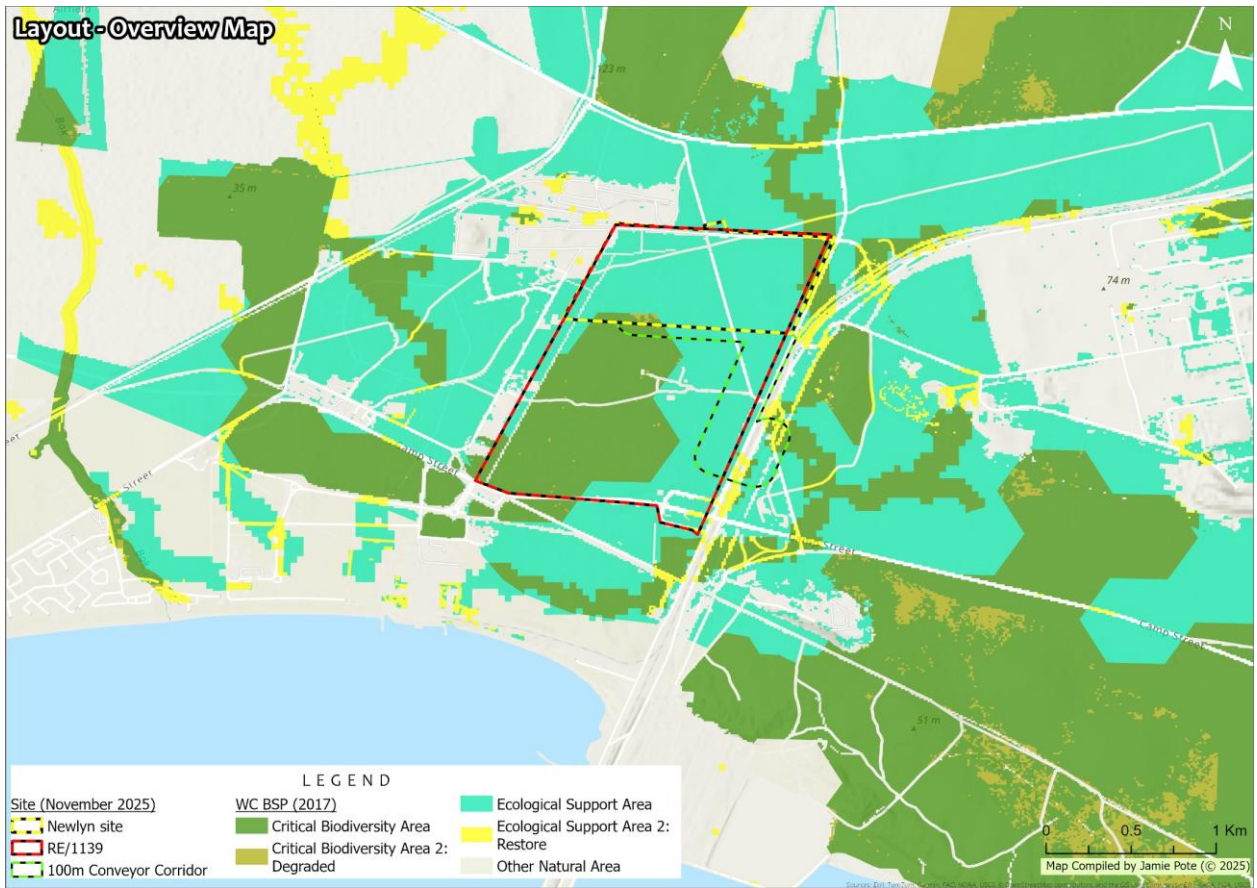


Figure 10: Western Cape Biodiversity Spatial Plan (WC BSP, 2017) – The site overlaps with CBA 2 & ESA 2 areas.

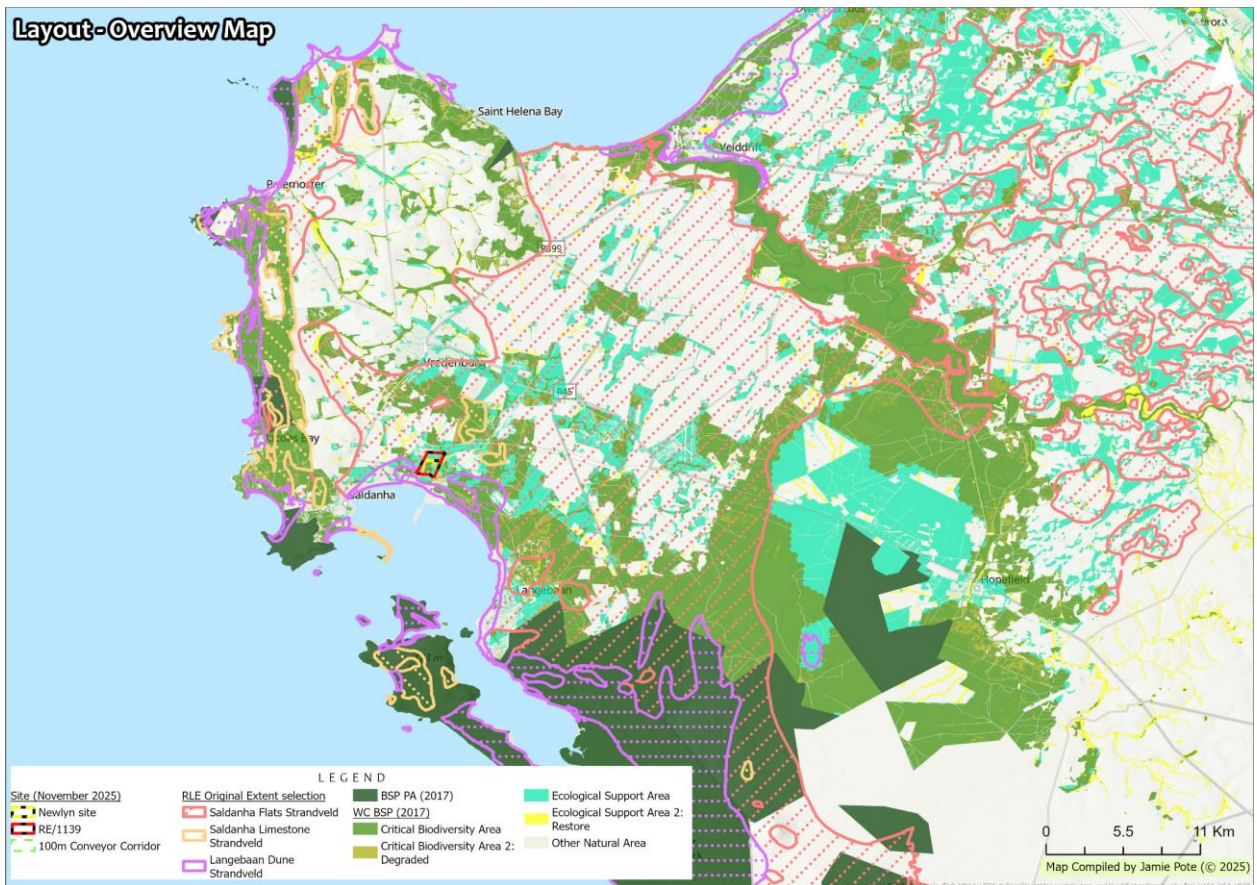


Figure 11: Western Cape Biodiversity Spatial Plan (WC BSP, 2017) – The site overlaps with CBA 2 & ESA 2 areas.

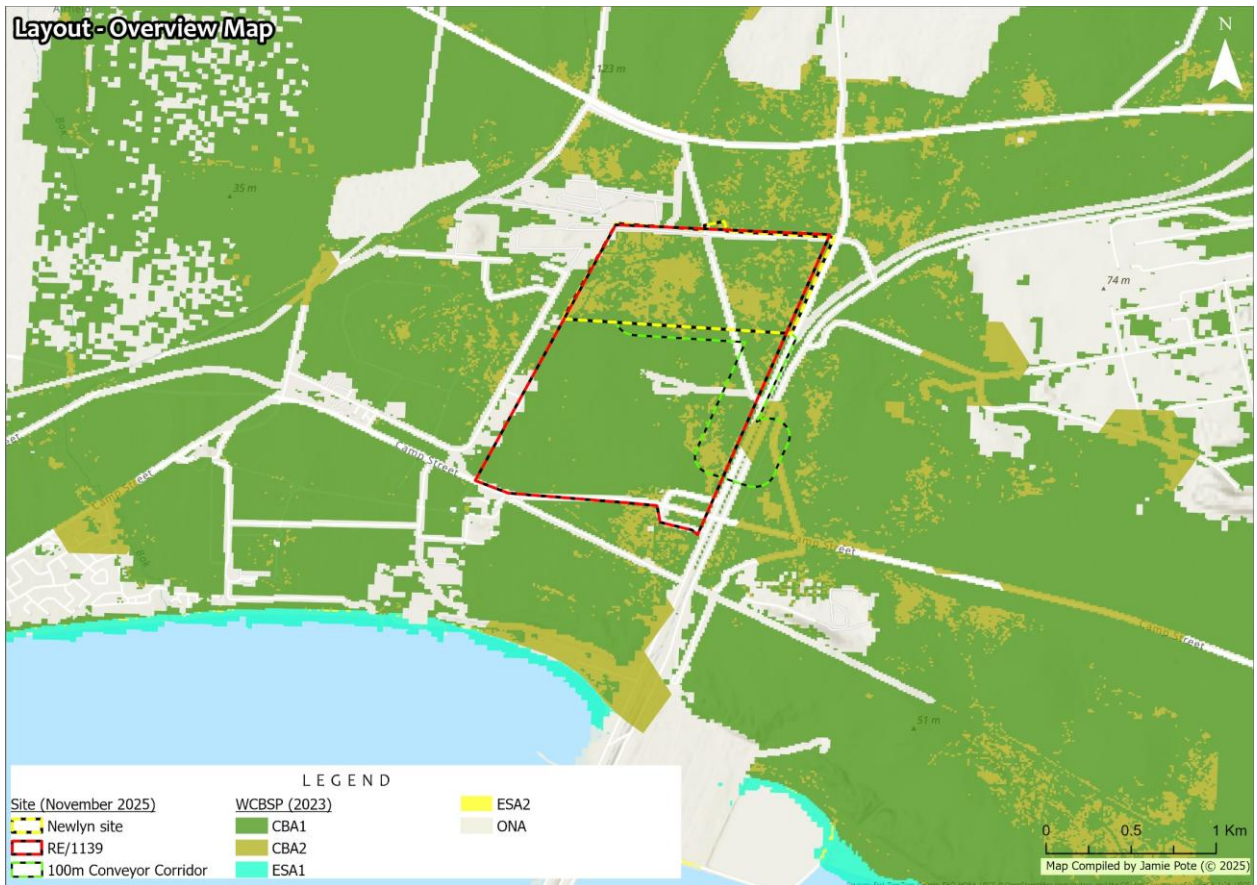


Figure 12: Western Cape Biodiversity Spatial Plan (WCBSBP, 2023) – The site overlaps with CBA 2 & ESA 2 areas.

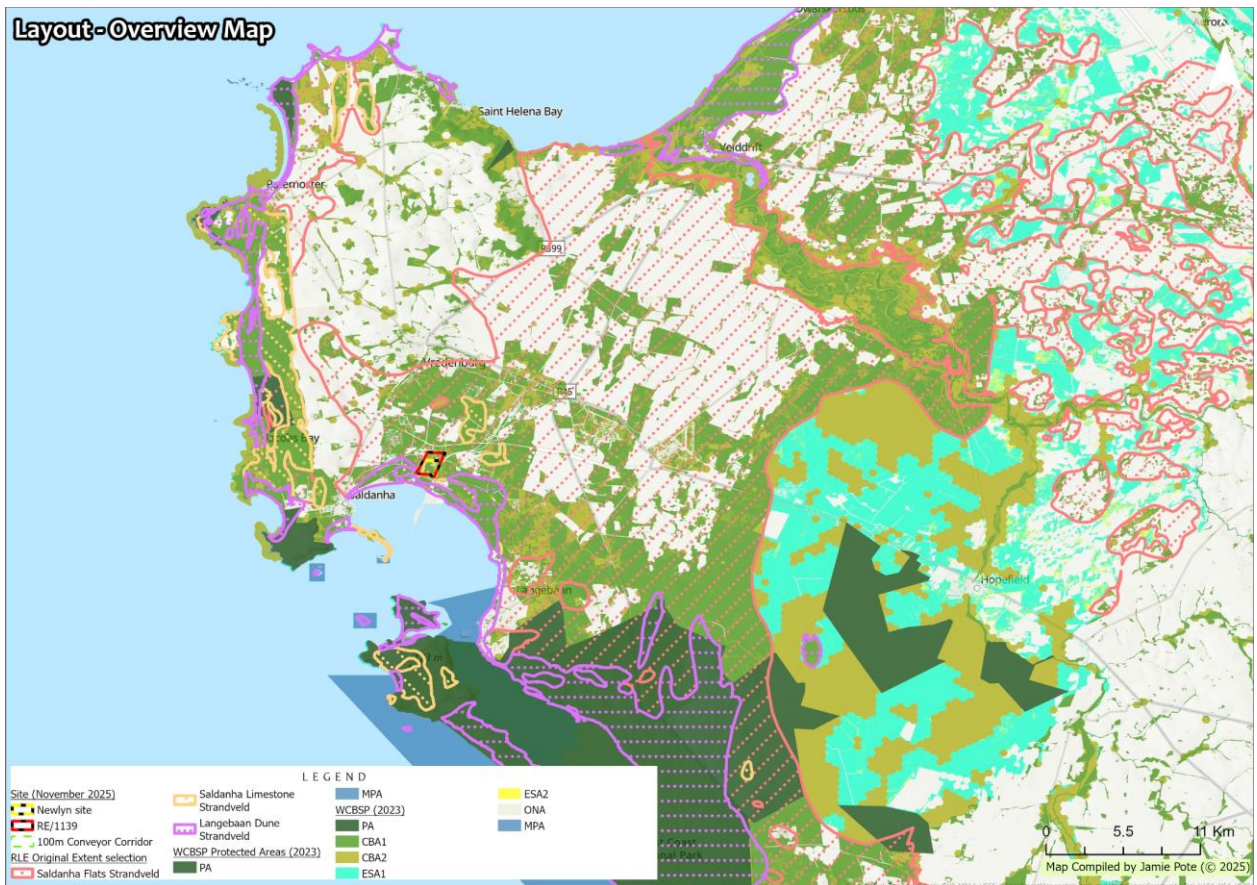


Figure 13: Western Cape Biodiversity Spatial Plan (WCBSBP, 2023) – The site overlaps with CBA 2 & ESA 2 areas.

In addition, Ecological Support Areas (ESAs) are also designated, which comprise supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. An ESA may be an ecological process area that connects and therefore sustains Critical Biodiversity Areas or a terrestrial feature. Small fragments of designated ESA 2 are present, associated with adjacent designated CBA features.

As per WC BSP (2017), the site overlaps with any designated ESA 1 and a small CBA 2 area (Figure 10). As per more recent WC BSP (2023), the site overlaps with designated CBA 1 & CBA 2 areas (Figure 11).

Corridor pathways in fragmented landscapes are complex and affects different flora and fauna to different extents. Highly mobile and less habitat specific birds for example are likely to move freely across fragmented landscapes, whereas habitat specialists might become isolated, but some may move across the landscape (i.e. from ‘island to island’). Larger and moderate sized mammals may or may not be affected by fragmentation and/or fencing (i.e. in particular game fencing). Small reptiles are more likely to be affected by fragmentation, in particular habitat specific species, which may become isolated to islands within the broader landscape.

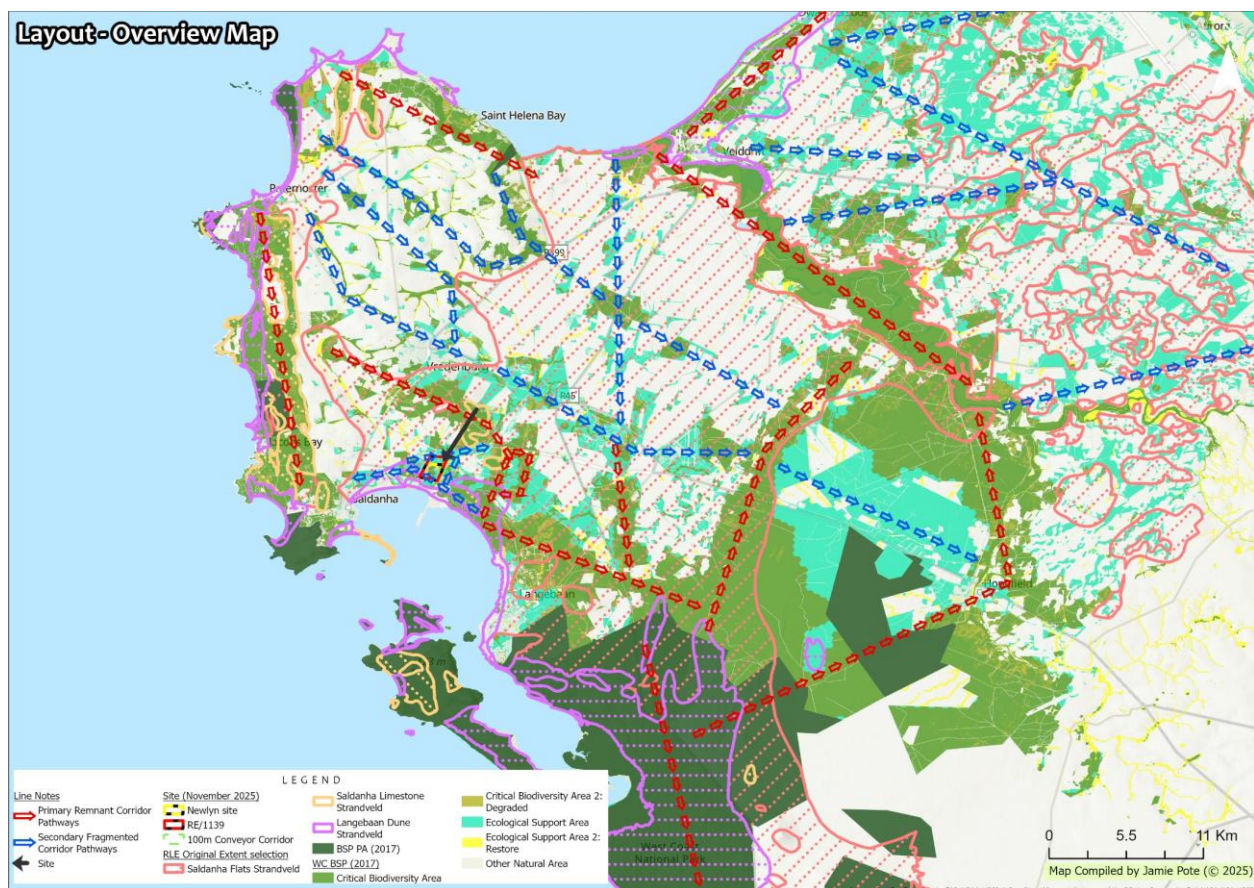


Figure 14: Western Cape Biodiversity Spatial Plan (WCBSBP, 2017) – Core Corridor Pathways.

The main contiguous corridors within and adjacent to Flats Strandveld are indicated in Figure 14 (WC BSP, 2017) & Figure 15 (WC BSP, 2023) with red arrows indicating the primary (most intact and/or CBA) corridor pathways and blue arrows secondary highly fragmented corridor pathways (mostly designated ESA). Since the levels of fragmentation and transformation are so high, the key pathways between the 2017 & 2023 plans more or less correspond. The revised 2023 WC BSP does have more extensive CBA designation in the area immediately surrounding the site (brown arrows), with a radius of around 4 – 6 km, but much of this was designated No Natural Area Remaining in older WC BSP

versions and is not necessarily representative on intact natural habitat. The more recent 2023 version also has increased the overall density of CBA ‘fragments’ in order to reflect a more connected overall framework, due to the significant levels of transformation. Much of this designated area comprises old lands and similar that are not necessarily intact or natural but rather secondary Strandveld elements including old lands (which may be temporarily old lands at the time of designation).

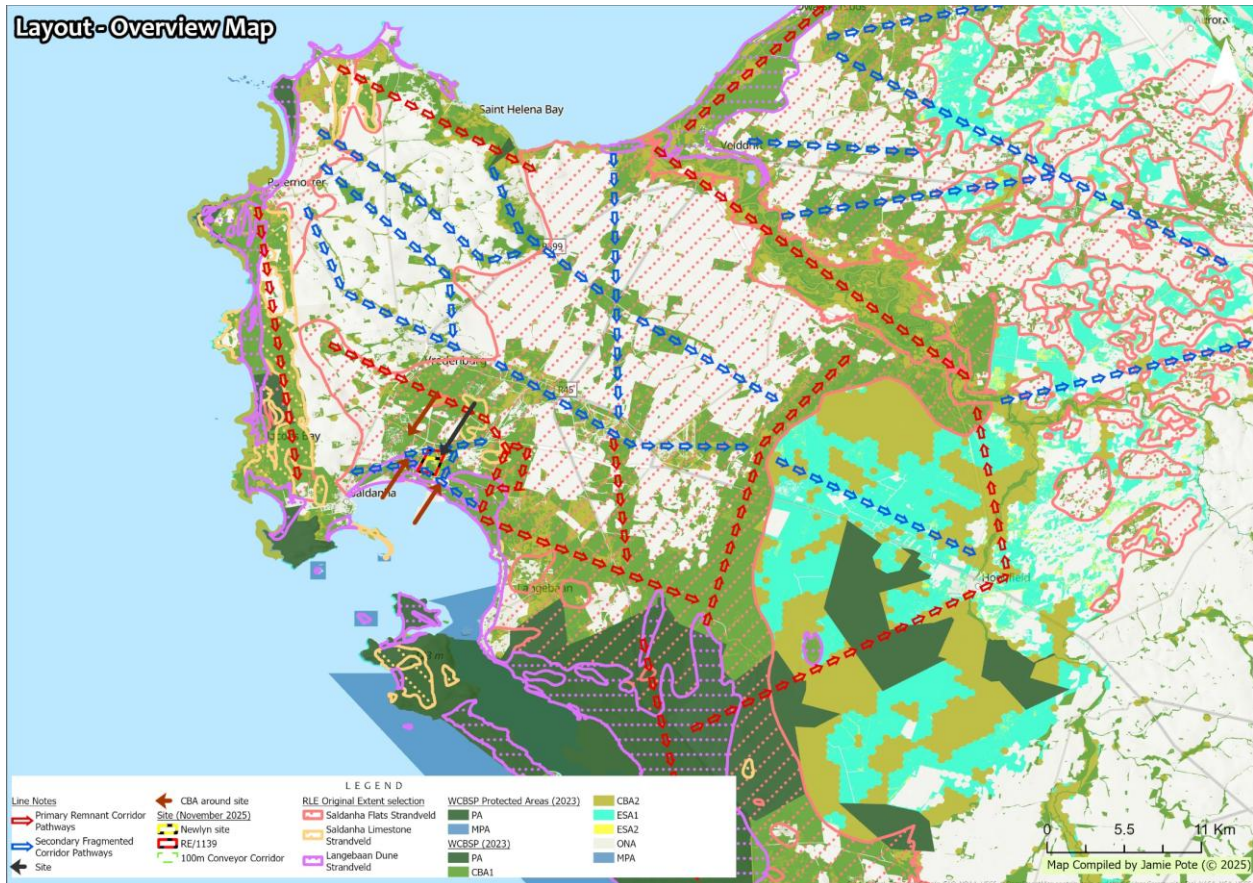


Figure 15: Western Cape Biodiversity Spatial Plan (WC BSP, 2023) – Core Corridor Pathways.

While the primary simplified objective of a CBA designation is to meet conservation targets and ESA to accommodate landscape connectivity, CBA must also accommodate connectivity objectives, as isolated fragments will have a significantly reduced effectiveness. Corridor pathways are significantly fragmented with only ephemeral islands of natural creating pathway ‘stepping stones’ across the landscape. Species that are confined to natural habitat and that do not move across transformed habitat are likely significantly affected. Species that are adapted to movement across modified landscapes will persist.

Table 4: Criteria defining Critical Biodiversity Areas (Source: WC BSP, 2017)

CBA MAP CATEGORY:	DEFINING CRITERIA
Protected Areas	Areas that are proclaimed as protected areas under national or provincial legislation. Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.
Critical Biodiversity Areas 1 (CBA 1)	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. 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 Areas 1 (CBA 2)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.

CBA MAP CATEGORY:	DEFINING CRITERIA
	Maintain in a functional, natural, or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated.
Ecological Support Areas 1 (ESA 1)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PA's or CBA's and are often vital for delivering ecosystem services. 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 Areas 2 (ESA 2)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PA's or CBA's and are often vital for delivering ecosystem services. Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services.
Other Natural Areas (ONA)	Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem. Minimise 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.
No Natural Area Remaining (NNAR)	Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritised for conservation action. Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Offers the most flexibility regarding potential land uses, but some authorisation may still be required for high impact land uses.

### Implications:

- The entire project footprint overlaps with Saldanha Flats Strandveld, having an *Endangered* conservation Status (RLE, 2022).
- The site is in the vicinity of Saldanha Dune Strandveld and Saldanha Limestone Strandveld, both having a *Critically Endangered* conservation status, but the activity avoids these units, and will result in no loss or direct impact.
- The site overlaps with WC BSP (2023) designated Critical Biodiversity Area 1 (CBA 1) and Critical Biodiversity Area 2 (CBA 2).

## 3.2 Protected Areas

Several Nature Reserves and a National Parks are situated within 5 & 10 km of the site (Table 5 & Figure 16). The West Coast National Park, a significant regional protected area is situated 3.6 km to the north-west, the Jakalsfontein Private Nature reserve is located 4 km to the south and the Pierre-Jeanne No 2 Private Nature Reserve is 6.4 km to the north-east. The 22 Ha Tinie Versfeld Wild-Flower Reserve, which is not a declared nature reserve is located on the eastern boundary of the site. (Refer to Table 5 & Figure 16). Numerous other nature reserves are also present in the wider area, between 10 km and 50 km away. The site is also situated within the West Coast Biosphere Reserve (Figure 16, SACAD, 2025). Further assessment may be required during an assessment stage, should the project proceed in order to evaluate overlap in conservation of both vegetation and species between the site and potential protected areas.

Table 5: List of Protected Areas in vicinity (including SAPAD, SACAD (2025), WCBSP).

NAME	DISTANCE
West Coast National Park (Marcus Island)	3.8 km south
West Coast National Park	8 km south-east
SAS Saldanha Provincial NR. Jutten Island MPA, Langebaan Lagoon MPA, Malgas Island MPA, Marcus Island MPA, Postberg NR	Within 10 km

NAME	DISTANCE
Sixteen Mile Beach MPA, Columbine NR, Yzerfontein Local NR, Dassen Island Provincial NR, Jacob's Rock Provincial NR, Langebaan Nature Area, Paternoster Rocks Provincial NR, Vondeling Island Provincial NR, Groot Paternoster Private NR, Sonquas Fontein Wildlife Private NR, Swartriet Private NR, West Point Private NR, Jakkalsfontein Private NR, Hopefield Private NR, Cape Canyon MPA, Rocher Pan MPA	10 – 50 km

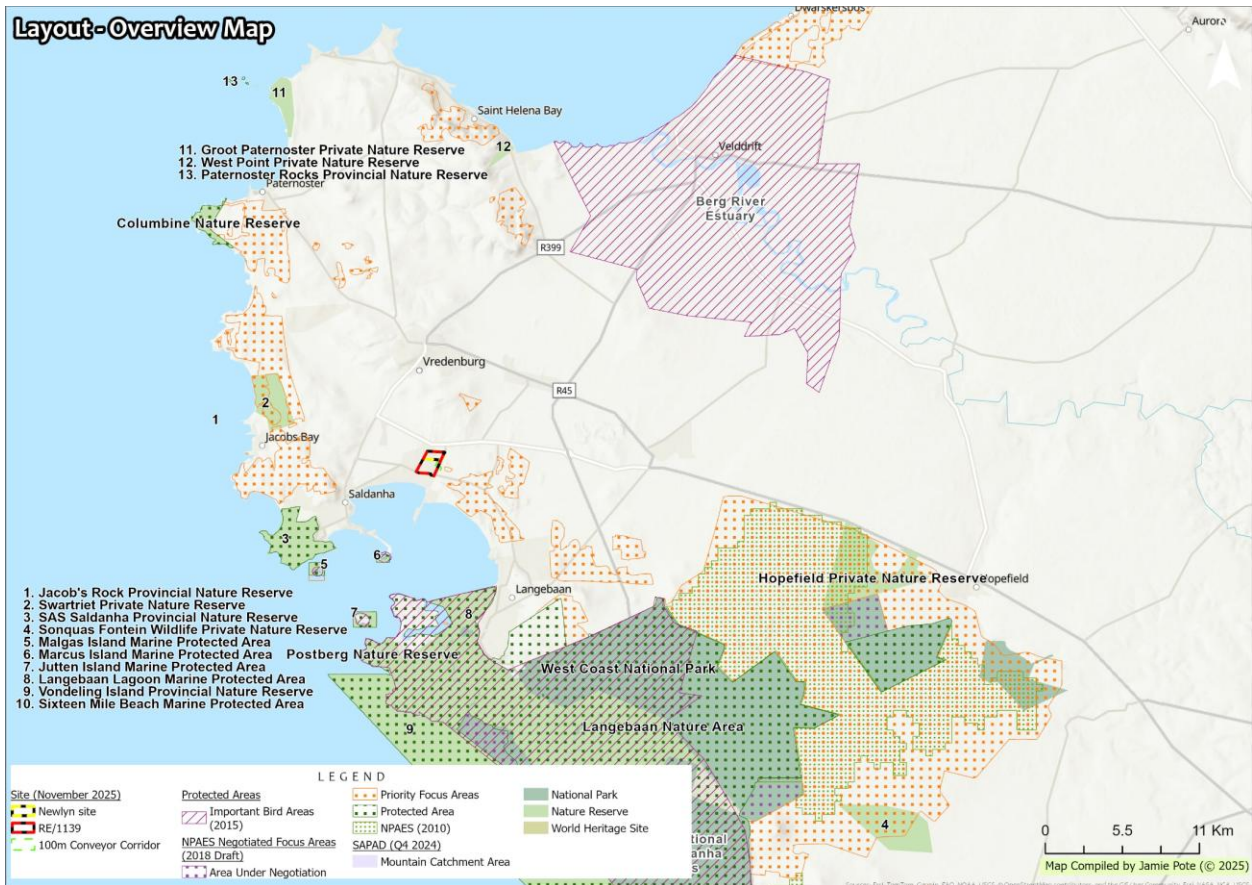


Figure 16: Protected Areas (SAPAD) and NPAES.

The site is thus within 10 km of a National Park but not within 5 km of any Nature Reserve, with respect to the NEMA EIA listed activities. Development of the site is unlikely to pose any significant direct, indirect or cumulative risk to nearby protected areas, although it could potentially provide disjunct or fragmented habitat for flora and fauna species that are represented in the nearby protected areas. Due to the limited footprint of the site and activity, it is not anticipated to pose any significant risk to nearby protected areas and is also within a designated industrial area.

### 3.3 Landcover

Landcover is more or less aligned with the remaining extent of the vegetation units, which is expected as the remaining extent calculated for the units are derived from landcover classifications. The landcover maps indicate primarily low shrubland, which is as represented on the site (Figure 17 & Figure 18).

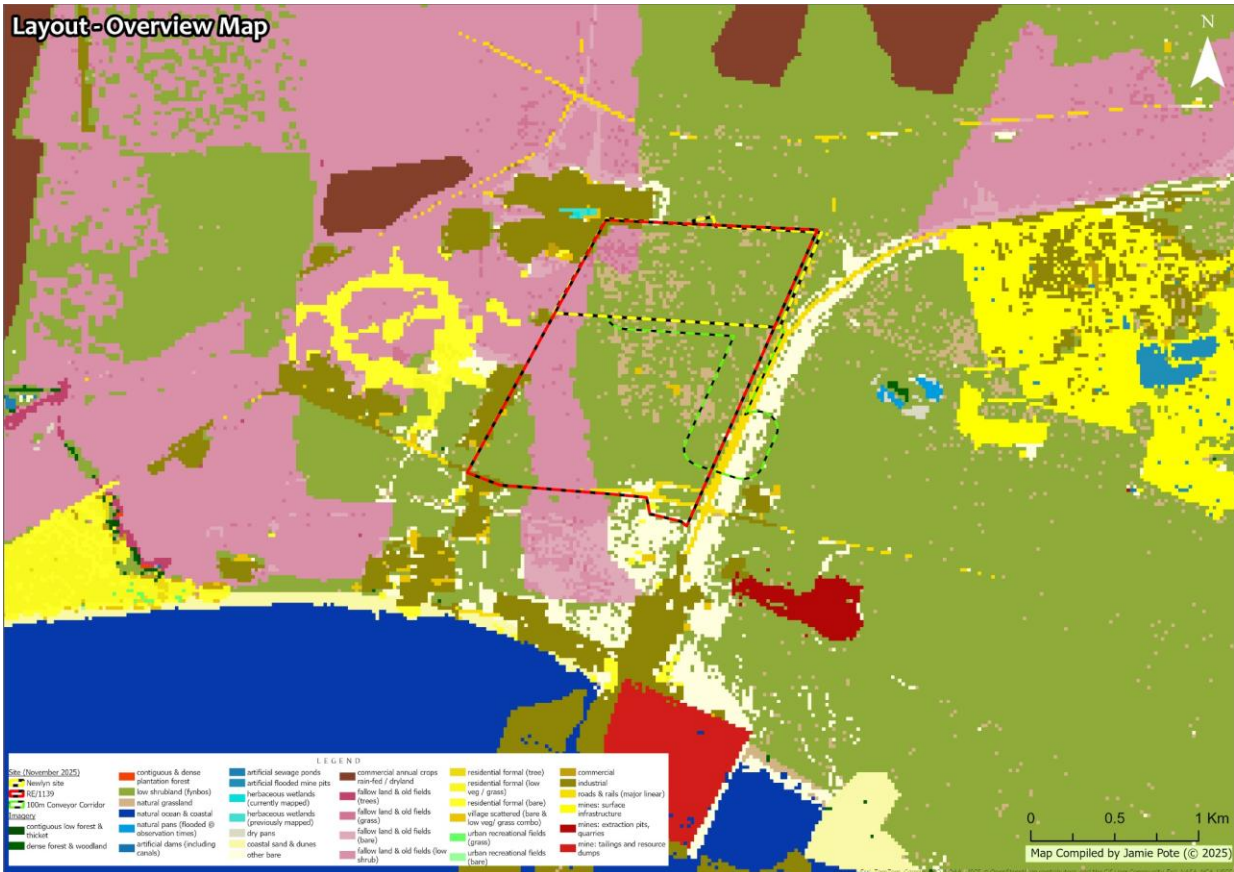


Figure 17: SA National Landcover (2020): Brown - cultivated, blue – wetland/ watercourses, light green – low shrubland (fynbos), dark green - forest/woodland, pink – fallow/grass, cream – natural grassland.

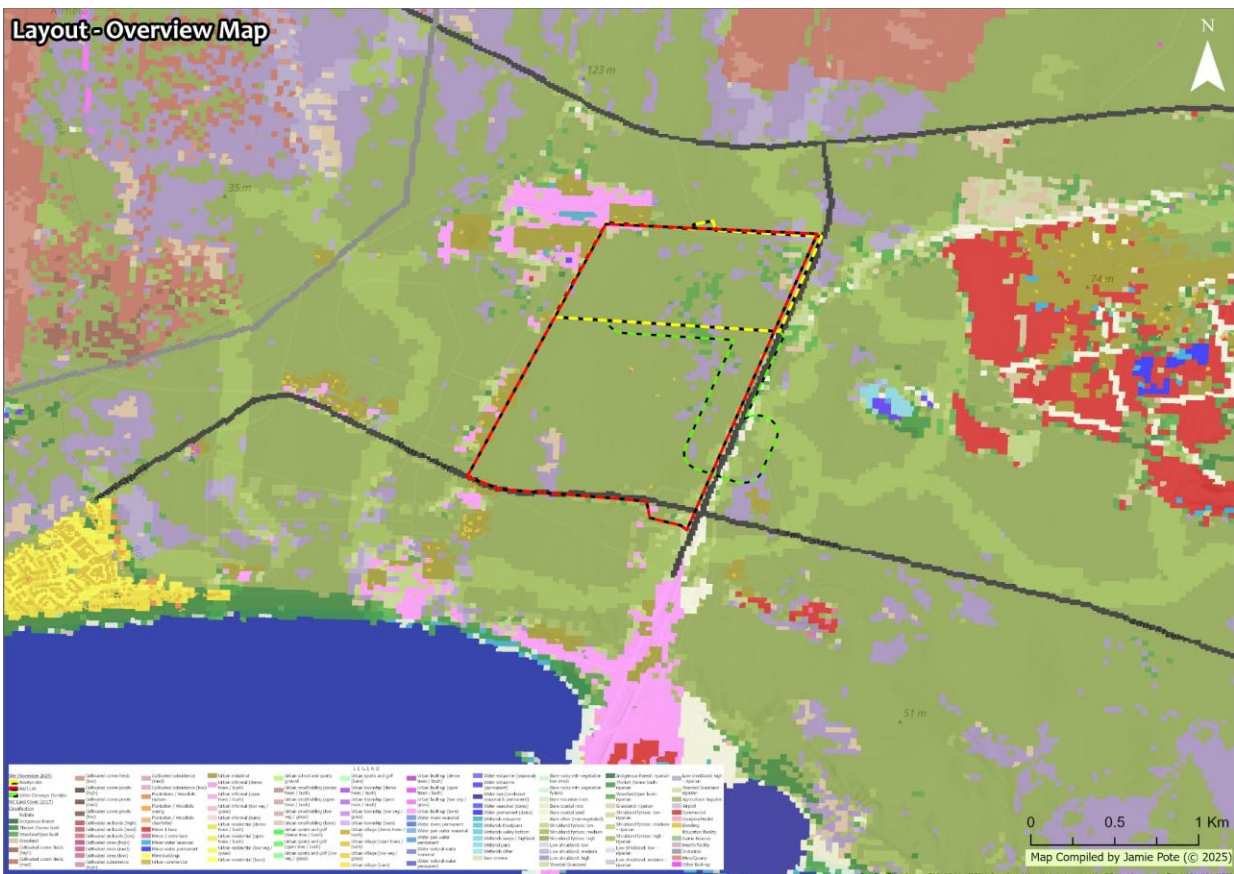


Figure 18: Western Cape Landcover (2017): Brown - cultivated, blue – wetland/ watercourses, light green – low shrubland (fynbos), dark green - forest/woodland, pink – fallow/grass, cream – natural grassland.

### 3.4 Biodiversity Offset Guidelines

Refer to **Section Error! Reference source not found.: Error! Reference source not found.** for detailed Biodiversity Offset information. Findings of the preliminary screening that are relevant are as follows:

AFFECTED VEGETATION UNIT	SALDANHA FLATS STRANDVELD	SALDANHA LIMESTONE STRANDVELD	LANGEBAAAN DUNE STRANDVELD
<b>Ecosystem Threat Status (RLE, 2022):</b>	Endangered, with High levels of transformation	Critically Endangered, with Very High levels of transformation	Endangered, with High levels of transformation
<b>Remaining Ecosystem Extents</b>	~37 %	~82 %	~87 %
<b>Critical Biodiversity Areas</b>	CBA 1 & 2(WC BSP 2023)	CBA 1 & 2(WC BSP 2023)	CBA 1 & 2(WC BSP 2023)
<b>Ecological Support Areas</b>	ESA 1 (WC BSP 2023)	ESA 1 (WC BSP 2023)	ESA 1 (WC BSP 2023)
<b>Other legislation</b>	None are applicable	None are applicable	None are applicable

A portion of the site overlaps with a mosaic of CBA 1 and 2 representing remnant Strandveld. Should it be determined that development of the site would trigger a medium or high residual impact after mitigation, this would trigger the potential need for biodiversity offset.

The Biodiversity Guidelines indicate that a biodiversity offset is required when a proposed listed or specified activity, or activities, is/are likely to have residual negative impacts on biodiversity of **medium or high significance**. If impacts assessed are deemed to have a **low significance** after mitigation, no Biodiversity Offsets would be required, but if deemed to be **medium or high**, then need for Biodiversity Offset would require consideration. This would depend on final footprint as percentage of project area, siting of footprint as well as other ecological features present on site. Site verification would be required to assess this risk adequately. Refer to Table 6 for respective Biodiversity Offset information summary.

Table 6: Biodiversity Offset Guidelines Status for vegetation units represented.

ECOSYSTEM TYPE	SALDANHA FLATS STRANDVELD	SALDANHA LIMESTONE STRANDVELD	LANGEBAAAN DUNE STRANDVELD
<b>ETS<sup>2</sup></b>	Endangered <sup>3</sup>	Critically Endangered	Endangered
<b>REE<sup>4</sup> (% remaining)</b>	~37 %	~82 %	~87 %
<b>Transformation Band<sup>5</sup></b>	2A	4	4
<b>A. TPC<sup>6</sup> Ratio</b>	-	-	-
<b>B. RE<sup>7</sup> &amp; EPL<sup>8</sup> Ratios</b>	10:1 (Poorly Protected)	0 (Moderately Protected)	0 (Well Protected)
<b>C. ETS Ratios</b>	10:1 (Poorly Protected)	30:1 (Moderately Protected)	10:1 (Well Protected)
<b>D. Starting Ratios</b>	10:1 (Poorly Protected)	30:1 (Moderately Protected)	10:1 (Well Protected)
<b>Implications</b>	<b>Vegetation unit affected</b>	<b>Vegetation unit not affected</b>	<b>Vegetation unit not affected</b>

Biodiversity offsets are not appropriate when an activity, or activities, will have residual impacts on biodiversity of **very high significance, including when residual negative impacts will result in loss of**

<sup>2</sup> Ecosystem Threat Status

<sup>3</sup> Biodiversity Offset Ratios & Conservation status

<sup>4</sup> Remaining Ecosystem Extent

<sup>5</sup> Several “transformation bands” were developed based on REE and EPL. The ratios allocated to each band are based on expert advice and what according to the experts would be reasonable but would still promote the cautionary and risk-averse approach and strengthen the application of the mitigation hierarchy.

<sup>6</sup> Threshold of Potential Concern

<sup>7</sup> Remaining Extent

<sup>8</sup> Ecosystem Protection Levels

irreplaceable biodiversity. Site verification will be required in order to decisively determine irreplaceability of the habitat on site.

Should the residual impacts (i.e., loss of any degraded or secondary Saldanha Limestone/Dune Strandveld) be determined to be medium or high a minimum offset ratio of 1:30 would be applicable for consideration. In this instance development of a portion will not affect the Critically Endangered vegetation unit.

It is recommended in the Guideline that significant negative impacts on biodiversity in CBA 1's are avoided because of the irreplaceability of those sites. For this reason, a punitive 30:1 ratio is applied to all CBA 1 sites. In most of those spatial biodiversity plans, CBA 1 sites are selected because there are no other options in the relevant planning domain for the relevant target to be met. They are therefore sometimes called CBA: Irreplaceable.

It is emphasised that the standard approach is not binding, but a guide based on relevant scientific information on ecosystems. Competent authorities must apply their minds to each case, which would involve considering additional factors, such as the size of the historical extent of the ecosystem measured against the extent of the residual negative impact (if a large percentage of the extent of the ecosystem would be impacted on, a higher ratio would be justified) and the cumulative residual negative impact of the activity, or activities, on biodiversity.

An additional consideration is that the site is situated within the Saldanha Strategic Offset Strategy (SSOS) area (*see below*), which could potentially result in the respective conservation authorities requiring Biodiversity Offset consideration, regardless of the findings of this assessment to the national biodiversity offset guidelines.

### 3.5 Saldanha Strategic Offset Strategy (SSOS)

The Provincial Spatial Development Framework (PSDF) that was approved by Western Cape Minister of Local Government, Environmental Affairs and Development Planning in March 2014 sets out the province's agenda for the sustainable development and management of its urban and rural areas. The PSDF identified three functional regions where significant development trends and / or development potentials were seen to exist. One of these identified functional regions is the emerging Greater Saldanha Regional Industrial Complex, with the Saldanha Bay/Vredenburg growth centre at its heart. The Department of Environmental Affairs and Development Planning (the Department), in partnership with other Provincial Departments and the Municipalities in the West Coast District, agreed to collaborate in preparing a Regional Spatial Implementation Framework (RSIF) for the broadly defined Greater Saldanha Region. The Western Cape Biodiversity Spatial Plan, 2016 (WCBSP) identifies the priority biodiversity areas and ecological infrastructure that need to be secured in the Greater Saldanha Region. The WCBSP also gives attention to increasing the resilience of ecosystems, especially in the face of climate change. As habitat fragmentation in the Greater Saldanha Region is one of the greatest threats to biodiversity, it increases the vulnerability of ecosystems to climate change. The WCBSP recommended response to climate change is to promote habitat connectivity so that plant and animal communities can move. By linking up areas of high conservation value the effectiveness of landscape connectivity is enhanced.

The WCBSP advocates integrating areas of climate change resilience; areas of large intact ecosystems; and ecological corridors that facilitate the movement of species in response to a changing environment. Within the Greater Saldanha Region it identifies the West Coast National Park – Berg

River Corridor as one of the Western Cape's six priority landscape scale conservation corridors. The Riverlands-Pella-Bokbaai Corridor which partially falls within the Greater Saldanha Region is also identified as one of the provincial priorities. The other landscape level conservation corridor is identified as the Vredenburg Peninsula Coastal Corridor Climate Adaptation Scenarios, 2009), one of the only two strictly coastal corridors in the province and runs through the Saldanha Bay Municipality (SBM). Through the work undertaken on updating the Greater Saldanha Environmental Management Framework (EMF) as part of the RSIF process, it becomes increasingly clear that the conflict between Critical Biodiversity Areas (CBAs) and the area designated for large scale industrial expansion around the Port of Saldanha and the Saldanha Bay Industrial Development Zone (SBIDZ) is extensive. On the back of growing calls for a speedy resolution of this conflict, the need for a strategic study to facilitate trade-offs between competing land uses and to optimise and expedite development in the future industrial area was identified.

The Department and CapeNature decided that the possibility of pursuing a strategic biodiversity offset to unlock development potential in this growth node, whilst ensuring that conservation targets for the ecosystem types in the Greater Saldanha Region can be met and maintained properly, should be investigated. Collectively, it was agreed that this investigation should not occur on a piecemeal basis, as would happen when investors submit development/environmental applications individually. Instead, it was decided that this investigation should occur at a strategic level and that the RSIF was the most appropriate platform through which to initiate a specialist study. The National Environmental Management Act, 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2017 call for a hierarchical approach to impact management – i.e. the application of the Impact Mitigation Hierarchy to project level assessment:

- Firstly, alternatives must be investigated to avoid negative impacts altogether.
- Secondly, after it has been found that the negative impacts cannot be avoided, alternatives must be investigated to reduce (mitigate and manage) unavoidable negative impact.
- Thirdly, alternatives must be investigated to remediate (rehabilitate and restore).
- Fourthly, unavoidable impact that remain after mitigation and remediation must be compensated for through investigating options to offset the negative impacts.
- While throughout, alternatives must be investigated to optimise positive impact.

Whilst the Western Cape does have a Draft Guideline on Biodiversity Offsets (2015) that deals with biodiversity offsets within the context of applying the Impact Mitigation Hierarchy to project level decision making, the Saldanha Strategic Offset Strategy (SSOS) initiative is unique in its endeavour to apply biodiversity offsets to a strategic context (i.e. beyond an individual project level to a broader geographical area). However, the principles outlined in the aforementioned Guideline have been adopted and have been upheld wherever possible in the SSOS. The specific aim of the SSOS is to unlock development potential in Saldanha Bay whilst ensuring that conservation targets for the ecosystem types in the Greater Saldanha Bay Area can be partly met and maintained in perpetuity. To implement this initiative, a phased approach will be followed and therefore entails continued efforts towards the realisation thereof.

The site falls within 'offset required' area and outside of core corridor area (Figure 19 & Figure 20), DEA&DP designated offset ratio is 10:1 and the site is outside of designated 'not developable' area (Figure 21 & Figure 22).

Note the site in relation to the original core corridor as per Holness (2018), the original recommended corridor, which has been modified as per the SSOS (2020), for reasons outlined in that report.

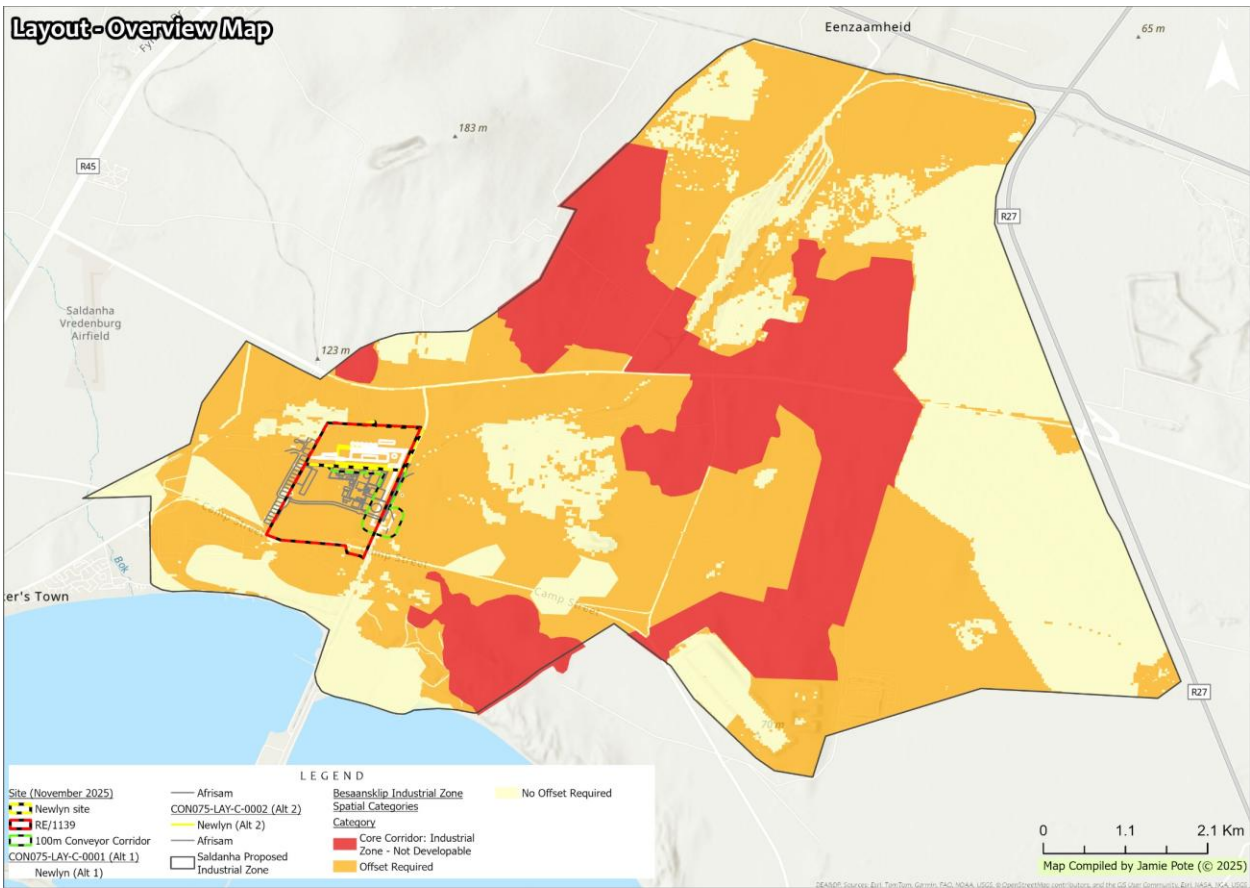


Figure 19: Saldanha Strategic Offset Strategy (SSOS, 2020) categories.

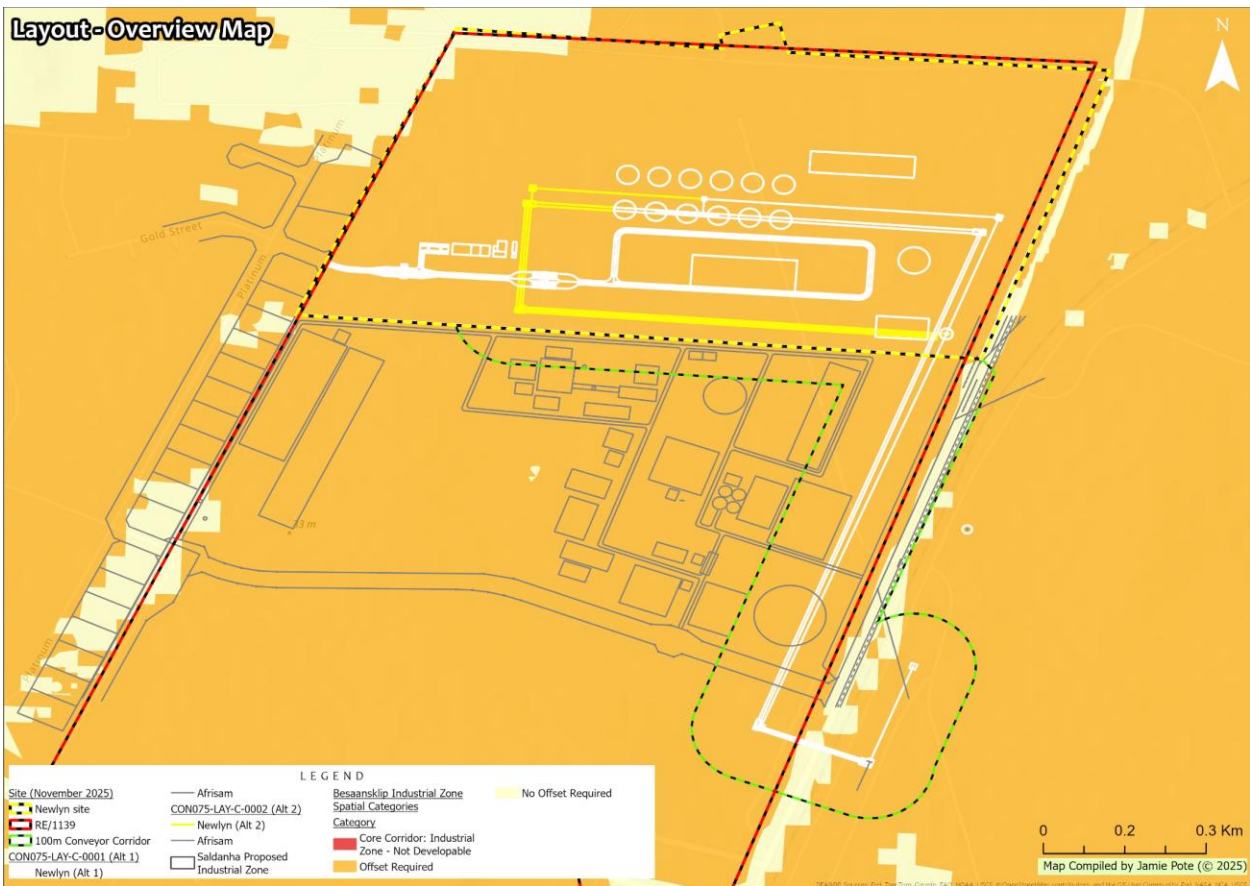


Figure 20: Saldanha Strategic Offset Strategy (SSOS, 2020) categories.

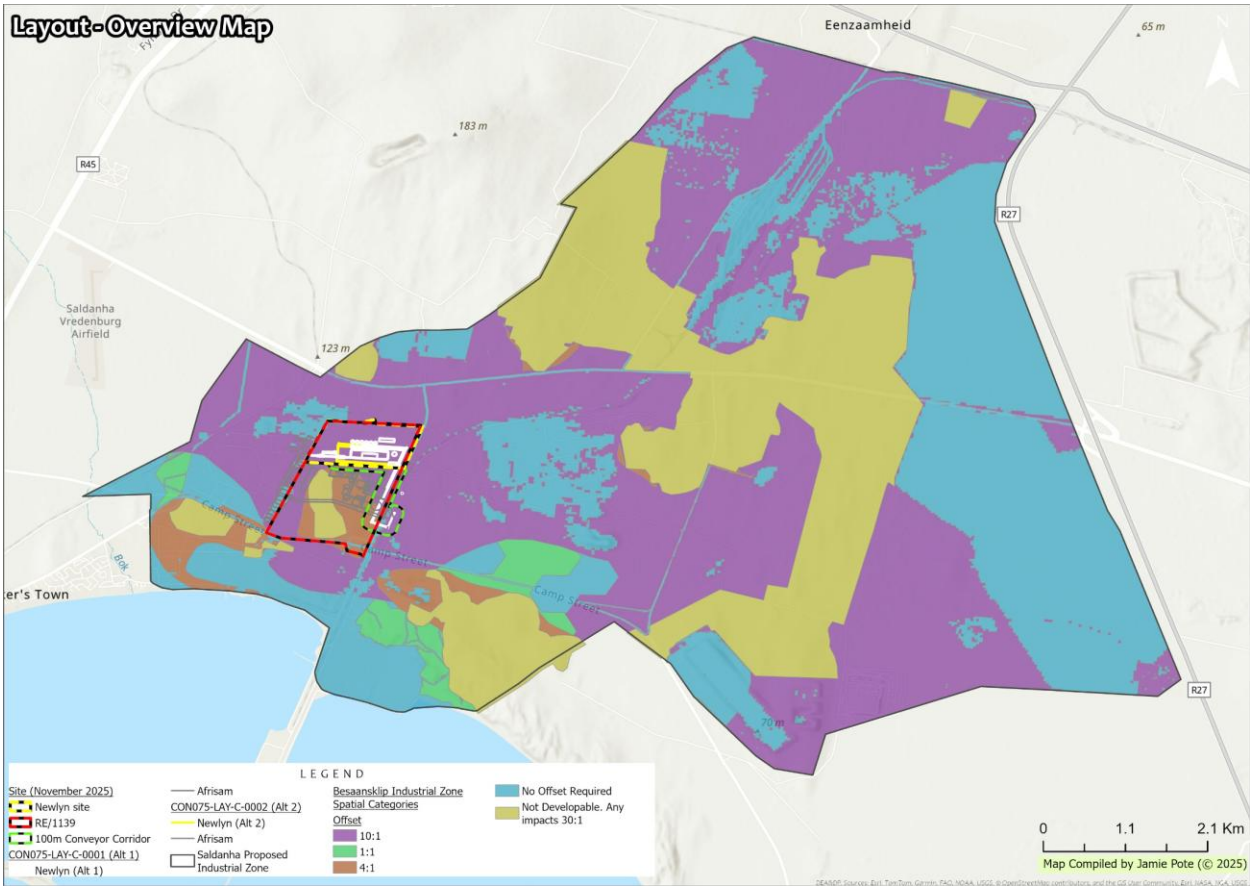


Figure 21: Saldanha Strategic Offset Strategy (SSOS, 2020) designated offset ratios & no-go areas.

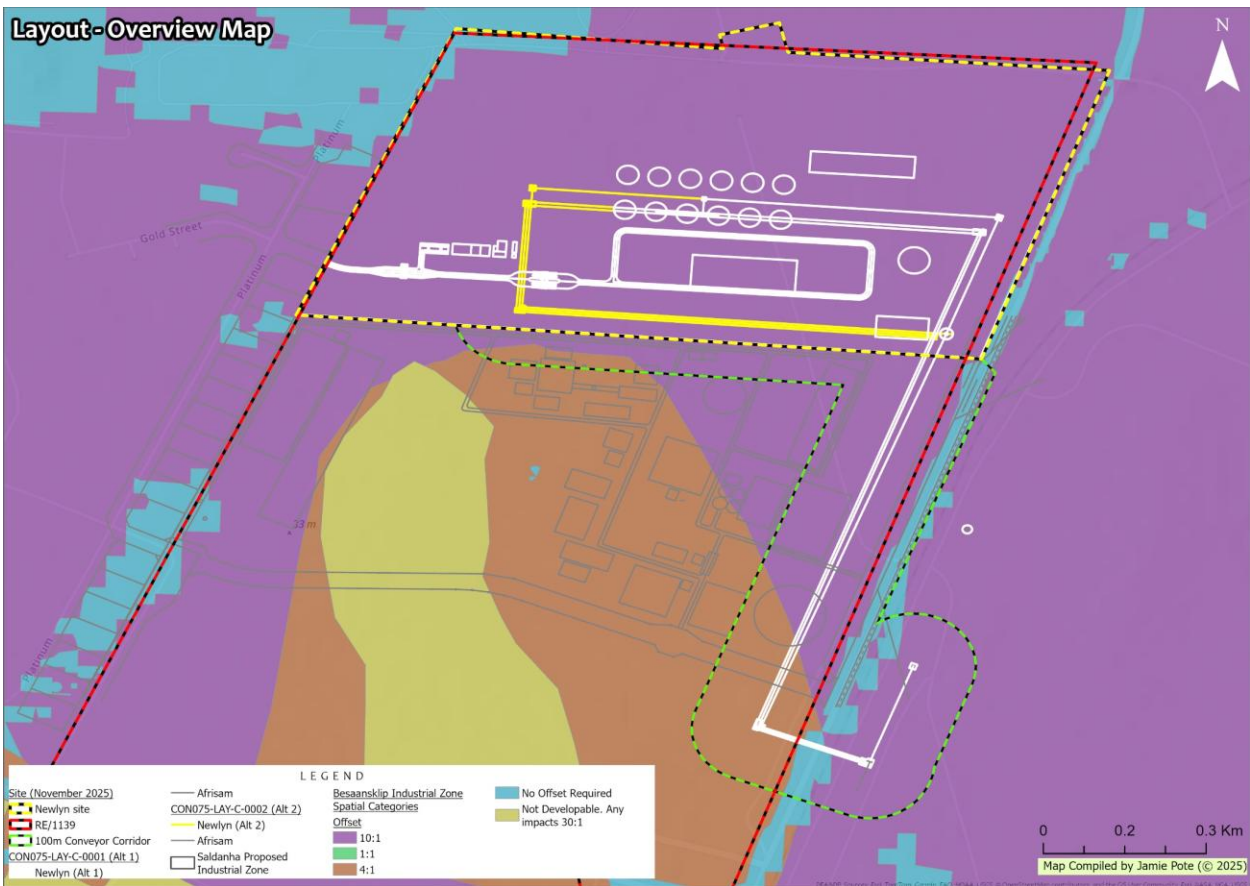


Figure 22: Saldanha Strategic Offset Strategy (SSOS, 2020) designated offset ratios & no-go areas.

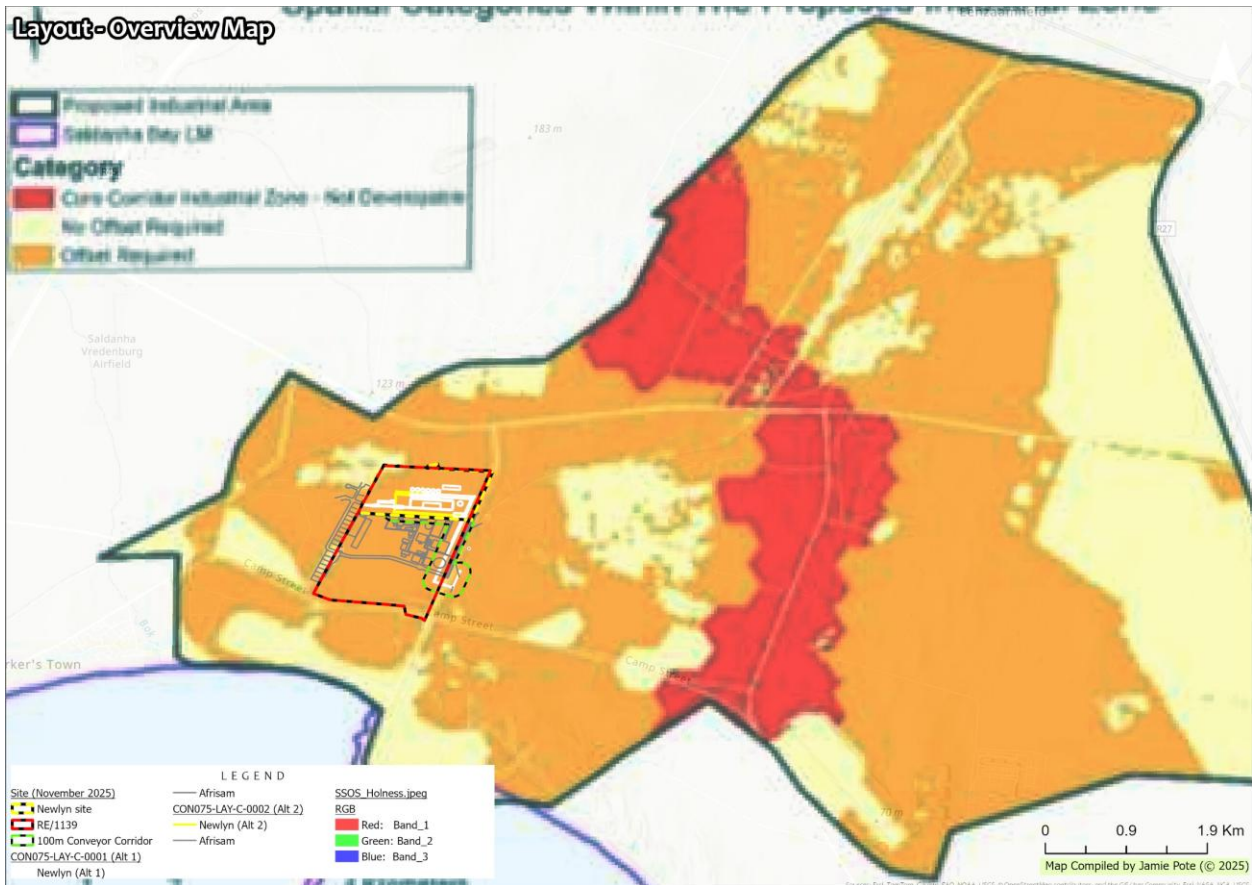


Figure 23: Draft Saldanha Strategic Offset Strategy (Holness, 2018) categories (red-corridor, orange-offset required, yellow-no offset required).

### 3.6 Species of Conservation Concern

Several flora and fauna species are flagged in the National Screening Tool based on potential distributions. Some are less likely to occur than others but based on distribution maps and habitat present. These are red-listed flora & faunal species that occur within in the surrounding area and/or the represented vegetation unit(s) that are known to have limited distributions and or are under threat of extinction. Further screening would be required during detailed assessment and/or site verification and screening. Refer to tables below (Table 7) for summary of species and potential risk. Distributions records for the species are indicated in Figure 24 & Figure 25.

Note that Screening Tool distributions are predictive based on various factors including similar habitat. Where current distribution records indicate a species is found in areas outside of the site, it does not exclude the possibility that it may be present, but likelihood is reduced.

#### 3.6.1 Flora Species of Conservation Concern

The **flagged flora** species include numerous species, refer to Table 7 and Figure 24 & Figure 25 with 68 flora species flagged in total, with around 13 of these having records in proximity (within 2-3 km), or potentially within the site. Note: Sensitive species locality records may have a position offset, so exact positions are uncertain but usually indicative of a local presence. None of the flagged species have a High NEST status, while the remaining have a Medium NEST status, indicative that screening is required, but may include species that occur outside of the immediate area.



Several species have confirmed localities in the vicinity of the site. The site verification and field survey visit was undertaken in the optimum season (early spring) after favourable seasonal rainfall and during the flowering season.

Table 7: Summary of flora species status and potential risk.

SCIENTIFIC NAME	STATUS	COMMENT/HABITAT
<i>Agathosma thymifolia</i>	NEST (M),	No records in vicinity
<i>Annesorhiza calcicola</i>	NEST (M)	No records in vicinity
<i>Antimima limbata</i>	NEST (M)	No records in vicinity
<i>Argyrobium velutinum</i>	NEST (M), VU A2c	East of Site, within 3 km
<i>Cephalophyllum rostellum</i>	NEST (M), EN B1ab (ii,iv,v) +2ab (ii,iv,v)	West, East of Site, within 3 km
<i>Cineraria angulosa</i>	NEST (M)	No records in vicinity
<i>Cotula duckittiae</i>	NEST (M)	No records in vicinity
<i>Cotula eckloniana</i>	NEST (M)	No records in vicinity
<i>Cotula pusilla</i>	NEST (M)	No records in vicinity
<i>Cynanchum zeyheri</i>	NEST (M)	No records in vicinity
<i>Drosanthemum hispifolium</i>	NEST (M)	No records in vicinity
<i>Echiostachys spicatus</i> ( <i>Lobostemon spicatus</i> )	NEST (M), VU A2ac; B1ab (ii,iii,iv,v)	within 3 km
<i>Empodium veratrifolium</i>	NEST (M), EN B1ab (ii,iii,iv,v)	No records in vicinity
<i>Erica trichostigma</i>	NEST (M)	No records in vicinity
<i>Felicia elongata</i>	NEST (M), VU C2a (i)	East, SE of Site, within 3 km
<i>Ferraria densepunctulata</i>	NEST (M)	No records in vicinity
<i>Ferraria parva</i>	NEST (M), EN C2a (i)	within 3 km
<i>Galenia crystallina</i> var. <i>maritima</i>	NEST (M)	No records in vicinity
<i>Geissorhiza lewisiae</i>	NEST (M)	No records in vicinity
<i>Helichrysum bachmannii</i>	NEST (M)	No records in vicinity
<i>Helichrysum dunense</i>	NEST (M), VU B1ab (ii,iii,v)	SE of Site
<i>Hermannia procumbens</i> subsp. <i>myrrhifolia</i>	NEST (M), EN B1ab(ii,iii,iv,v)	No records in vicinity
<i>Hessea mathewsii</i>	NEST (M), Critically EN B1ab (iii,v) +2ab (iii,v)	No records in vicinity
<i>Indigofera platypoda</i>	NEST (M)	No records in vicinity
<i>Ixia purpureorosea</i>	NEST (M)	No records in vicinity
<i>Leucadendron cinereum</i>	NEST (M)	No records in vicinity
<i>Leucospermum hypophyllocarpodendron</i> subsp. <i>canaliculatum</i>	NEST (M)	No records in vicinity
<i>Leucospermum rodolentum</i>	NEST (M)	No records in vicinity
<i>Limonium acuminatum</i>	NEST (M), VU A2c; B1ab (iii,iv,v) +2ab (iii,iv,v); C1	within 3 km
<i>Limonium purpuratum</i>	NEST (M)	No records in vicinity
<i>Manulea augei</i>	NEST (M)	No records in vicinity
<i>Manulea corymbosa</i>	NEST (M)	No records in vicinity
<i>Muraltia harveyana</i>	NEST (M), VU B1ab (ii,iii,v) 2ab(ii,iii,v)	East of Site, within 3 km

SCIENTIFIC NAME	STATUS	COMMENT/HABITAT
<i>Muraltia obovata</i>	NEST (M)	No records in vicinity
<i>Osteospermum calcicola</i>	NEST (M), VU B1ab (ii,iii,iv,v) +2ab (ii,iii,iv,v)	No records in vicinity
<i>Otholobium venustum</i>	NEST (M)	No records in vicinity
<i>Oxalis burtoniae</i>	NEST (M)	No records in vicinity
<i>Oxalis subsessilis</i>	NEST (M)	No records in vicinity
<i>Pauridia linearis</i>	NEST (M), VU B1ab (ii,iii,iv,v) +2ab (ii,iii,iv,v)	No records in vicinity
<i>Pauridia longituba</i>	NEST (M)	No records in vicinity
<i>Phylica greyii</i>	NEST (M)	No records in vicinity
<i>Podalyria sericea</i>	NEST (M)	No records in vicinity
<i>Romulea barkerae</i>	NEST (M)	No records in vicinity
<i>Romulea saldanhensis</i>	NEST (M)	No records in vicinity
<i>Ruschia cupulata</i>	NEST (M), EN B1ab (i,ii,iii,iv,v) +2ab (i,ii,iii,iv,v)	within 3 km
<i>Ruschia langebaanensis</i>	NEST (M), VU B1ab (i,ii,iii,iv,v) +2ab (i,ii,iii,iv,v)	No records in vicinity
<i>Ruschia tecta</i>	NEST (M)	No records in vicinity
Sensitive species 1225	NEST (M), VU A2c	No records in vicinity
Sensitive species 1243	NEST (M), VU B1ab (i,ii,iii,iv,v) +2ab (i,ii,iii,iv,v)	East, SW of Site, within 3 km
Sensitive species 127	NEST (M)	No records in vicinity
Sensitive species 156	NEST (M)	No records in vicinity
Sensitive species 222	NEST (M), VU B1ab (i,ii,iii,iv,v)	No records in vicinity
Sensitive species 244	NEST (M), VU B1ab (ii,iii,iv,v)	East of Site, within 3 km
Sensitive species 272	NEST (M)	No records in vicinity
Sensitive species 333	NEST (M), VU C2a (i)	within 3 km
Sensitive species 599	NEST (M), VU A2c	No records in vicinity
Sensitive species 816	NEST (M)	No records in vicinity
Sensitive species 840	NEST (M)	No records in vicinity
Sensitive species 878	NEST (M), EN B2ab(ii,iii,v)	No records in vicinity
Sensitive species 881	NEST (M)	No records in vicinity
Sensitive species 93	NEST (M)	No records in vicinity
<i>Silene ornata</i>	NEST (M)	No records in vicinity
<i>Silene saldanhensis</i>	NEST (M)	No records in vicinity
<i>Sparaxis calcicola</i>	NEST (M), VU B1ab (i,ii,iii,iv,v) +2ab (i,ii,iii,iv,v)	No records in vicinity
<i>Steirodiscus tagetes</i>	NEST (M)	No records in vicinity
<i>Wiborgia fusca subsp. macrocarpa</i>	NEST (M), EN B1ab (ii,iii,iv,v) +2ab (ii,iii,iv,v)	within 3 km
<i>Wiborgiella dahlgrenii</i>	NEST (M), EN C2a (i); D	within 3 km
<i>Xiphotheca reflexa</i>	NEST (M)	No records in vicinity

If any of the Critically Endangered species are confirmed, it is likely to result in the exclusion of a much larger area (i.e. a buffer of suitable habitat) than where any actual specimens are found. Refer to Table 7 for a species summary and Figure 24 for distributions.

Of the above prioritised flagged species, the following have records in close proximity (within 2 km, within the same vegetation unit): *Argyrobium velutinum*, *Muraltia harveyana*, *Felicia elongata*, *Cephalophyllum rostellum*, *Echiostachys spicatus* (*Lobostemon spicatus*), *Ferraria parva*, *Limonium acuminatum*, *Ruschia cupulata*, *Wiborgia fusca* subsp. *macrocarpa*, *Wiborgiella dahlgrenii*, Sensitive species 1243, 244 & 333.

### 3.6.2 Fauna Species of Conservation Concern

While a separate faunal assessment has been conducted, faunal aspects will be briefly considered pertaining to terrestrial biodiversity.

### 3.6.3 Potential Development Footprints

The remainder of the site outside of the identified no-go areas above is considered to be developable.

## 3.7 Risks and Potential Impacts to Biodiversity

### 3.7.1 Summary of actions, activities, or processes that require mitigation.

The main impacts associated with the unauthorised activity include the following:

1. Permanent or temporary loss of indigenous vegetation cover.
2. Loss of flora Species of Conservation Concern.
3. Susceptibility of post construction disturbed areas to invasion by exotic and alien invasive species.
4. Susceptibility of some areas to wind and water erosion associated with uncontrolled runoff.
5. Disturbances to ecological processes.

### 3.7.2 Criteria of assigning significance to potential impacts

The assessment criteria utilised in the Basic Assessment Report is based on, and adapted from, the Guideline on Impact Significance, Integrated Environmental Management Information Series 5 (Department of Environmental Affairs and Tourism (DEAT), 2002) and the Guideline 5: Assessment of Alternatives and Impacts in Support of the Environmental Impact Assessment Regulations (DEAT, 2006).

#### Determination of Extent (Scale):

<b>Site specific</b>	On site or within 100 m of the site boundary, but not beyond the property boundaries.
<b>Local</b>	The impacted area includes the whole or a measurable portion of the site and property, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area.
<b>Regional</b>	The impact would affect the broader region (e.g., neighbouring towns) beyond the boundaries of the adjacent properties.
<b>National</b>	The impact would affect the whole country (if applicable).

#### Determination of Duration:

<b>Temporary</b>	The impact will be limited to the construction phase.
<b>Short term</b>	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than 8 months after the completion of the construction phase.
<b>Medium term</b>	The impact will last up to the end of the construction phase, where after it will be entirely negated in a period shorter than 3 years after the completion of construction activities.

<b>Long term</b>	The impact will continue for the entire operational lifetime of the development but will be mitigated by direct human action or by natural processes thereafter.
<b>Permanent</b>	This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied.

**Determination of Probability:**

<b>Improbable</b>	The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
<b>Probable</b>	There is a possibility that the impact will occur to the extent that provisions must therefore be made.
<b>Highly probable</b>	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences.
<b>Definite</b>	The impact will take place regardless of any prevention plans.

**Determination of Significance (without mitigation):**

<b>No significance</b>	The impact is not substantial and does not require any mitigation action.
<b>Low</b>	The impact is of little importance but may require limited mitigation.
<b>Medium</b>	The impact is of sufficient importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
<b>Medium-High</b>	The impact is of high importance and is therefore considered to have a negative impact. Mitigation is required to manage the negative impacts to acceptable levels.
<b>High</b>	The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.
<b>Very High</b>	The impact is critical. Mitigation measures cannot reduce the impact to acceptable levels. As such the impact renders the proposal unacceptable.

**Determination of Significance (with mitigation):**

<b>No significance</b>	The impact will be mitigated to the point where it is regarded to be insubstantial.
<b>Low</b>	The impact will be mitigated to the point where it is of limited importance.
<b>Medium</b>	Notwithstanding the successful implementation of the mitigation measures, the impact will remain of significance. However, taken within the overall context of the project, such a persistent impact does not constitute a fatal flaw.
<b>High</b>	Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and taken within the overall context of the project, is considered to be a fatal flaw in the project proposal.

**Determination of Reversibility:**

<b>Completely Reversible</b>	The impact is reversible with implementation of minor mitigation measures
<b>Partly Reversible</b>	The impact is partly reversible but more intense mitigation measures
<b>Barely Reversible</b>	The impact is unlikely to be reversed even with intense mitigation measures
<b>Irreversible</b>	The impact is irreversible, and no mitigation measures exist

**Determination of Degree to which an Impact can be Mitigated:**

<b>Can be mitigated</b>	The impact is reversible with implementation of minor mitigation measures
<b>Can be partly mitigated</b>	The impact is partly reversible but more intense mitigation measures
<b>Can be barely mitigated</b>	The impact is unlikely to be reversed even with intense mitigation measures
<b>Not able to mitigate</b>	The impact is irreversible, and no mitigation measures exist

**Determination of Loss of Resources:**

<b>No loss of resource</b>	The impact will not result in the loss of any resources
<b>Marginal loss of resource</b>	The impact will result in marginal loss of resources

<b>Significant loss of resources</b>	The impact will result in significant loss of resources
<b>Complete loss of resources</b>	The impact will result in a complete loss of all resources

**Determination of Cumulative Impact:**

<b>Negligible</b>	The impact would result in negligible to no cumulative effects
<b>Low</b>	The impact would result in insignificant cumulative effects
<b>Medium</b>	The impact would result in minor cumulative effects
<b>High</b>	The impact would result in significant cumulative effects

**Determination of Consequence significance:**

<b>Negligible</b>	The impact would result in negligible to no consequences
<b>Low</b>	The impact would result in insignificant consequences
<b>Medium</b>	The impact would result in minor consequences
<b>High</b>	The impact would result in significant consequences

### 3.7.3 Potential Terrestrial Biodiversity Impacts (Cumulative)

No cumulative impacts are expected because of the development of the site providing recommendation and mitigation measures are adhered to, due to the limited size of the site relative to the remaining extent of the vegetation unit.

### 3.7.4 Terrestrial Biodiversity Impact Reversibility

In general, impacts where there are hardened surfaces (i.e. concrete) will have a LOW reversibility, as it will result in construction of a permanent structure, but HIGH reversibility where impacts might be temporary or where topsoil will be removed and replaced (i.e. installation of underground services).

### 3.7.5 Impacts and Risks to Irreplaceable Biodiversity Resources

Risks to Irreplaceable Biodiversity Resources is potentially moderate to high, but will be assessed further.

### 3.7.6 Residual Risks and Uncertainties

No residual risks or uncertainties are anticipated.

## 4 Findings, Outcomes and Recommendations

### 4.1 Summary of Preliminary Findings

- The vegetation represented on site is comprised of Saldanha Flats Strandveld, having an Endangered conservation status (RLE, 2022).
- Several Sensitive plant species identified as per the National Environmental Screening Tool are known to occur in the area and will be assessed on site.
- The site falls within designated CBA 1 & CBA 2 areas.
- No No-go areas are identified within the site footprint itself but would include intact Saldanha Limestone Strandveld.

- The activity could trigger biodiversity offset requirements.
- The site falls within 'offset required' area, outside of core corridor area (Figure 19 & Figure 20). The DEA&DP designated offset ratio is 10:1 and the site is outside of designated 'not developable' area (Figure 21 & Figure 22).
- No other significant direct, indirect or cumulative impacts are anticipated.
- The site and proposed footprint represent a small fraction of the overall original extent of the Strandveld, where most of the loss can be associated with historical agriculture and urban expansion. Furthermore, the remnant habitat represented within the footprint also represents a fraction of the remaining extent of the represented units, thus likely that the loss associated with the proposed activity will not have significant regional implications.

## 4.2 Methodology and Approach

The methodology and approach that will be implemented for the assessment is as follows:

- Conduct a desktop study and identify potential risks relating to vegetation and flora of the site and surrounding area, for a Terrestrial Biodiversity and Plant Species Assessment. This will include the relevant Regional Planning and legislated frameworks, which will also be represented in a series of associated maps.
- Conduct a site verification to assess the following:
  - Field survey of vegetation, flora and habitats present and confirmation of presence of sensitive animal and plant species.
  - Reporting will be comprised of a Scoping Report and Assessment Report (for public review and comment) and a Final Report for submission. The draft and final detailed reports will address the following:
- To define the Present Ecological State (PES) of the biodiversity resources within the site.
- To determine and describe the current as well as the pre-development habitats, communities and the ecological state associated with the unlawful activities.
- To consider all sensitive landscapes including rocky ridges, wetlands and any other ecologically important features, if present.
- To determine the environmental impacts that the lawful activity will have on the biodiversity of the area, as well as the impact that the ongoing operational activities have on the terrestrial biodiversity associated with the site, and to develop mitigation and management measures to manage the current and future impacts as a result of the development activities.
- Indicate any assumptions made and gaps in available information. Assessment of all the vegetation types and habitat units within the relevant Regional Planning Frameworks.
- A species list highlighting the various species of special concern categories (endemic, threatened, Red Data species and other protected species requiring permits for destruction/relocation and invasive/exotic weeds).
- Assessment of Impacts and Mitigation Measure, as well as specific measure that may be required for alternative development plans.
- A biodiversity EMP for inclusion in the reports and EMP with specific management actions for construction and Operation.
- A map indicating buffers (if required) to accommodate Regional Planning and other requirements.

## 5 Appendices

### 5.1 Appendix A: Bioregional Planning

#### 5.1.1 Vegetation Unit Descriptions

##### Saldanha Flats Strandveld (FS 3): Predominant unit

VT 47 Coastal Macchia (64%) (Acocks 1953). West Coast Strandveld p.p. (Boucher 1983). LR 4 Dune Thicket (84%) (Low & Rebelo 1996). BHU 4 Langebaan Fynbos/Thicket Mosaic (78%) (Cowling et al. 1999b, Cowling & Hejnis 2001).

**Distribution** Western Cape Province: Extensive coastal flats from St Helena Bay and the southern banks of the Great Berg River near its mouth in the north to Saldanha and Langebaan in the south, with the southernmost extension at the coast near Yzerfontein and Rietduin. Altitude 0–120 m.

**Vegetation & Landscape Features** Sclerophyllous shrublands built of a sparse emergent and moderately tall shrub layer, with an open succulent shrub layer forming the undergrowth. With conspicuous displays of geophytes and annual herbaceous flora in spring.

**Geology & Soils** The main geology is shallow calcareous sand over a fossiliferous Pleistocene limestone hardpan layer along an old marine terrace. The hardpan of the Sandveld Group is exposed in places while farmers often rip the hardpan and accumulate rock piles in cultivated fields. The Sandveld Group overlies the Cape Granites as well as the Malmesbury Group metasediments into which the granites intruded. Dominant land type Hb (almost 50%), followed by Db and Ha.

**Climate** Mainly cyclonic rainfall varying from approximately 250 mm in the north to 380 mm in the south (overall MAP: 300 mm), almost exclusively in winter. Mean daily maximum and minimum temperatures 26.6°C and 7.9°C for February and July, respectively. Mean monthly maximum and minimum temperatures for Langebaanweg 36.5°C and 2.2°C for January/February and July/August, respectively. Advective sea fog and dew contribute to the moisture balance in summer and autumn. Frost infrequent. Strong southeasterly winds typical of the summer period, northerly winds more frequent in the winter months, especially between May and August.

**Important Taxa** Tall Shrubs: *Euclea racemosa* subsp. *racemosa* (d), *Nylandtia spinosa*, *Rhus glauca*. Low Shrubs: *Aspalathus lotoides* subsp. *lagopus*, *Clutia daphnoides*, *Euryops linifolius*, *Exomis microphylla*, *Hermannia pinnata*, *Lebeckia sericea*, *Leysera gnaphalodes*, *Nenax hirta* subsp. *calciphila*, *Pterocelastrus tricuspidatus*, *Pteronia divaricata*, *P. ovalifolia*, *P. uncinata*. Succulent Shrubs: *Euphorbia mauritanica*, *Ruschia macowanii*, *Tetragonia decumbens*, *T. fruticosa*, *Zygophyllum cordifolium*, *Z. morgsana*. Herbs: *Dimorphotheca pluvialis* (d), *Oncosiphon suffruticosum* (d), *Arctotheca calendula*, *Foveolina tenella*, *Hebenstretia repens*, *Helichrysum litorale*, *Nemesia versicolor*, *Senecio arenarius*, *Ursinia anthemoides* subsp. *anthemoides*. Geophytic Herbs: *Trachyandra ciliata*, *T. divaricata*. Succulent Herbs: *Dorotheanthus bellidiformis* (d), *Conicosia pugioniformis* subsp. *pugioniformis*, *Mesembryanthemum guerichianum*, *Senecio littoreus*. Graminoids: *Bromus pectinatus* (d), *Ehrharta calycina*, *E. villosa* var. *villosa*, *Schismus barbatus*, *Tribolium echinatum*.

**Biogeographically Important Taxa** (all West Coast endemics) Low Shrub: *Afrolimon capense* (d). Succulent Shrub: *Prenia pallens* subsp. *pallens*. Herbs: *Amellus asteroides*, *Grielum grandiflorum*. Geophytic Herb: *Ferraria densepunctulata*. Succulent Herb: *Tetragonia chenopodioides*. Graminoids: *Cladoraphis cyperoides*, *Thamnochortus spicigerus*.

**Endemic Taxa** Geophytic Herbs: *Hessea mathewsii*, *Romulea elliptica*.

**Conservation** Endangered. Target 24%. Some 11% statutorily conserved in the West Coast National Park and Yzerfontein Nature Reserve and a very small portion also in private conservation areas such as Jakkalsfontein and West Point. More than a half has already been transformed for cultivation, road building or by urban development. Serious alien infestation is caused by trees such as *Acacia cyclops* and *A. saligna* and herbs including *Bromus diandrus* and *Medicago hispida*. Erosion generally very low.

**References** Boucher (1982, 1983, 1987, 1996c), Boucher & Rode (1996a, b, 1997a, b, c, d, 1999).

### Saldanha Limestone Strandveld (FS 4): Present in adjacent areas.

VT 34 Strandveld of West Coast (92%) (Acocks 1953). *Nenax–Maytenus–Zygophyllum* Limestone Evergreen Shrubland, *Pteronia uncinata* Limestone Evergreen Dwarf Shrubland (Boucher & Jarman 1977). West Coast Strandveld p.p. (Boucher 1983). LR 4 Dune Thicket (100%) (Low & Rebelo 1996). BHU 4 Langebaan Fynbos/Thicket Mosaic (100%) (Cowling et al. 1999b, Cowling & Heijnis 2001).

**Distribution** Western Cape Province: Very limited area with a larger patch on the Kliprug ridge between Saldanha and Paternoster, with several smaller outliers including those between Saldanha and north of Club Mykonos on the Langebaan Lagoon. Unmapped are small outcrops at Yzerfontein and on the tip of Langebaan Peninsula. Altitude 20–120 m.

**Vegetation & Landscape Features** Slightly undulating ridges and steeper coastal slopes supporting low shrublands built of low succulent-stemmed and deciduous, fleshy leaved shrubs in deeper soils. Patches of prostrate, succulent-leaved dwarf shrubs and annual or geophytic herbs occupy cracks or shallow depressions in the exposed limestone.

**Geology & Soils** Shallow sandy soil on hardpan Tertiary limestone of the Sandveld Group. Dominant land types Fc and Hb.

**Climate** Mainly cyclonic rainfall varying from approximately 250 mm in the north to 350 mm in the south, almost exclusively in winter (overall MAP is around 300 mm). Mean daily maximum and minimum temperatures 25.3°C and 8.0°C for February and July/August, respectively.

**Important Taxa** Tall Shrubs: *Euclea racemosa* subsp. *racemosa* (d), *Nylandtia spinosa*, *Rhus glauca*. Low Shrubs: *Chrysanthemoides monilifera* (d), *Exomis microphylla*, *Pteronia divaricata*. Succulent Shrubs: *Aloe perfoliata*, *Cheiridopsis rostrata*, *Euphorbia mauritanica*, *Jordaaniella dubia*, *Lycium tetrandrum*, *Othonna cylindrica*, *O. floribunda*, *Ruschia tumidula*, *Zygophyllum cordifolium*, *Z. morgsana*. Semiparasitic Shrub: *Thesium spinosum*. Herbs: *Dimorphotheca pluvisalis* (d), *Arctotis hirsuta*, *Lyperia tristis*, *Nemesia versicolor*, *Oncosiphon grandiflorum*, *Ursinia anthemoides* subsp. *anthemoides*, *Zaluzianskya villosa*. Geophytic Herbs: *Babiana tubulosa* var. *tubiflora*, *Oxalis compressa*, *O. obtusa*. Succulent Herbs: *Dorotheanthus bellidiformis* (d), *Mesembryanthemum guerichianum*. Graminoids: *Ehrharta calycina*, *E. villosa* var. *villosa*, *Festuca scabra*, *Ficinia lateralis*, *Ischyrolepis eleocharis*.

**Biogeographically Important Taxa** (all West Coast endemics) Low Shrubs: *Afrolimon capense* (d), *Asparagus capensis* var. *litoralis*. Herb: *Zaluzianskya parviflora*. Graminoid: *Thamnochortus spicigerus*.

**Endemic Taxa** Low Shrub: *Muraltia harveyana*. Succulent Shrub: *Cephalophyllum rostellum*. Herbs: *Felicia elongata*, *Limonium acuminatum*, *Manulea augei*. Geophytic Herbs: *Daubenya zeyheri*, *Gladiolus caeruleus*, *Ixia purpureorosea*, *Moraea calcicola*, *Romulea barkerae*.

**Conservation** Endangered. Target 24%. None conserved in statutory conservation areas and only a small fraction protected in the Swartriet Private Nature Reserve. About 40% has been transformed for cultivation or by development of coastal settlements. Some portions are under heavy grazing pressure. Aliens *Acacia cyclops* and *A. saligna* can become a problem in places. Erosion generally very low. This vegetation unit is rich in Red Data plants (at least 20 species, some of them restricted to this unit).

**References** Boucher & Jarman (1977), Boucher (1982, 1983, 1987, 1995, 1996c), Bloemhoff & Craven (1990), Boucher & Rode (1996a, b, 1997a, b, c, d, 1999), Boucher & Schloms (1999), L. Mucina (unpublished data).

### Langebaan Dune Strandveld (FS 5): Present in Broader Surrounding Area

VT 34 Strandveld of West Coast (73%) (Acocks 1953). LR 4 Dune Thicket (73%) (Low & Rebelo 1996). West Coast Strandveld (61%) (Moll & Bossi 1983). BHU 4 Langebaan Fynbos/Thicket Mosaic (95%) (Cowling et al. 1999b, Cowling & Heijnis 2001). Including *Maytenus–Kedrostis* Consolidated-dune Dense Evergreen Shrubland, *Willdenowia striata* Consolidated-dune Dense Evergreen Restioid Shrubland, *Thamnochortus spicigerus* Dune Dense Tall Restioid Hermland (Boucher & Jarman 1977). West Coast Strandveld p.p. (Boucher 1983). *Euclea racemosa–Zygophyllum morgsana* Shrublands (Boucher 1987).

**Distribution** Western Cape Province: This strandveld occurs in three large disconnected patches: one is a narrow coastal strip from Elands Bay to the mouth of the Great Berg River at Velddrif, the second one covers parts from Britannia Bay past Paternoster to Danger Bay near Saldanha Bay, while the last one surrounds Langebaan Lagoon from the north on the Langebaan Peninsula at Donkergat west of the lagoon and Langebaan, east of the lagoon, via Geelbek to Yzerfontein continuing as a very narrow strip along the West Coast seaboard as far south as Silverstroomstrand at Bokbaai (west of Atlantis). Altitude 0–100 m.

**Vegetation & Landscape Features** Flat to slightly undulating old coastal dune systems and stabilised inland Duneveld supporting closed, evergreen, up to 2 m tall, sclerophyllous shrubland with prominent annual herbaceous flora occurring in gaps (and forming spectacular displays, especially after good rain in late winter).

**Geology & Soils** Deep Tertiary to Recent sands and calcrete of marine origin. Dominant land types Hb (slightly prevailing), Fc and Ha.

**Climate** Mainly cyclonic rainfall varying from approximately 230 mm in the north to 355 mm in the south, almost exclusively in winter and accompanied by frequent and strong northwesterly winds and cooler temperatures. Mean daily maximum and minimum temperatures 26.1°C and 7.8°C for February and July, respectively. Mean monthly maximum and minimum temperatures for Cape Columbine 29.8°C and 6.1°C for March and July, respectively. Southeasterly winds prevail in summer. Fog and dew contribute to the moisture in summer and autumn (especially in the northern part of the unit). Frost an infrequent phenomenon.

**Important Taxa** Tall Shrubs: *Euclea racemosa* subsp. *racemosa* (d), *Metalasia muricata*, *Morella cordifolia*, *Olea exasperata*, *Rhus glauca*, *R. laevigata*. Low Shrubs: *Chrysanthemoides monilifera* (d), *Pteronia divaricata* (d), *Salvia africana-lutea* (d), *Ballota africana*, *Chironia baccifera*, *Chrysanthemoides incana*, *Clusia daphnoides*, *Eriocephalus africanus* var. *africanus*, *E. racemosus*, *Helichrysum niveum*, *Lebeckia multiflora*, *Maytenus lucida*, *Pterocelastrus tricuspidatus*, *Putterlickia pyracantha*. Succulent Shrubs: *Zygophyllum morgsana* (d), *Cotyledon orbiculata* var. *dactyloopsis*, *C. orbiculata* var. *spuria*, *Crassula dichotoma*, *Didelta carnosa*, *Euphorbia burmannii*, *E. mauritanica*, *Jordaniella dubia*, *Othonna carnosa*, *O. floribunda*, *Pelargonium fulgidum*, *Ruschia caroli*, *R. cymosa*, *Tetragonia fruticosa*, *Tylecodon paniculatus*. Woody Climber: *Cissampelos capensis*. Semiparasitic Shrubs: *Osyris compressa*, *Thesium spinosum*. Herbs: *Oncosiphon suffruticosum* (d), *Helichrysum litorale*. Geophytic Herbs: *Babiana tubulosa* var. *tubiflora*, *Trachyandra divaricata*. Succulent Herbs: *Carpobrotus acinaciformis* (d), *Dorotheanthus bellidiformis* (d), *Carpobrotus edulis*, *Conicosia pugioniformis* subsp. *pugioniformis*, *Crassula ammophila*, *Mesembryanthemum guerichianum*. Herbaceous Climbers: *Didymodoxa capensis*, *Kedrostis nana*. Graminoids: *Ehrharta villosa* var. *villosa* (d), *Willdenowia incurvata* (d), *Chaetobromus involucreatus* subsp. *dregeanus*, *C. involucreatus* subsp. *involucreatus*, *Festuca scabra*, *Ficinia secunda*, *Ischyrolepis eleocharis*, *Stipa dregeana*, *Thamnochortus erectus*.

**Biogeographically Important Taxa** (all West Coast endemics) Low Shrubs: *Afrolimon peregrinum* (d), *Asparagus capensis* var. *litoralis*. Succulent Shrubs: *Euphorbia caput-medusae*, *Pelargonium gibbosum*, *Ruschia geminiflora*. Woody Succulent Climber: *Zygophyllum fulvum*. Herbs: *Grielum grandiflorum*, *Zaluzianskya parviflora*. Geophytic Herbs: *Babiana tubulosa* var. *tubulosa*, *Gladiolus griseus*. Graminoid: *Cladoraphis cyperoides*.

**Endemic Taxon** Semiparasitic Shrub: *Thesium litoreum*.

**Conservation** Vulnerable. Target 24%. Almost 30% statutorily conserved in the West Coast National Park and in Rocherpan, SAS Saldanha, Columbine and Yzerfontein Nature Reserves. An additional 1% is protected in private reserves such as Groot Paternoster, Jakkalsfontein, Swartriet and Grotto Bay. Some 35% already transformed for cultivation and by urban sprawl. Alien *Acacia cyclops* and *A. saligna* have infested broad stretches of this vegetation unit. Erosion generally very low.

**Remarks** This is an intermediate strandveld type containing elements from the north and from the south. Sporadic local patches of FS 1 Lambert's Bay Strandveld (not mapped due to small extent) intrude into the Langebaan Dune Strandveld as far south as St Helena Bay. Species such as *Maytenus lucida*, *Rhus pterota* and *Osyris compressum*, conspicuous in this vegetation unit, are absent in the strandveld communities further north along the West Coast.

**References** Boucher & Jarman (1977), Van Rooyen (1981), Boucher (1982, 1983, 1986, 1987, 1989a, b, 1992, 1993, 1998e, 1999e, f), Bloemhoff & Craven (1990), Heydenrych (1995), Gray (1997), Boucher & Rode (1999), Boucher & Schloms (1999).

### 5.1.2 Western Cape Biodiversity Spatial Plan (WC BSP, 2023)

The Western Cape is endowed with world-renowned biodiversity and natural resources. Together with this unparalleled endowment comes international responsibilities as well as significant opportunities for our people and the biodiversity economy. The Western Cape Biodiversity Spatial Plan (WC BSP, 2017) represents the “state of the art” provincial systematic biodiversity planning product. It represents the priority biodiversity areas and ecological infrastructure that need to be secured in the long-term in order that we, together with CapeNature, fulfil our core provincial mandate for biodiversity management.

The development and implementation of the Western Cape Biodiversity Spatial Plan (WC BSP, 2017) is a core output for the Provincial Biodiversity Strategy and Action Plan (2016) which is aligned to the Aichi Targets for the United Nations Convention on Biological Diversity as well as the National Biodiversity Strategy and Action Plan (2015). This *Western Cape Biodiversity Spatial Plan Handbook* thus provides all stakeholders with the strategic and practical guidance on how to ensure that planning and decision-making build resilience of our ecological infrastructure. Critically, the WC BSP must be used to inform how we invest in ecological infrastructure to ensure that our natural resources are managed to improve resilience and water security into the future. This will be crucial in enabling “future proof” development as part of our response to climate change, including adaptation and disaster risk reduction.

The CBA map in the report indicates areas of land as well as aquatic features which must to be safeguarded in their natural state if biodiversity is to persist and ecosystems are to continue functioning. Land in this category is referred to as a Critical Biodiversity Area. CBAs incorporate:

- I. areas that need to be safeguarded in order to meet national biodiversity thresholds.
- II. areas required to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services; and/or
- III. important locations for biodiversity features or rare species.

Ecological Support Areas (ESAs) are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. An ESA may be an ecological process area that connects and therefore sustains Critical Biodiversity Areas or a terrestrial feature. None are present within the site or immediate vicinity.

Table 8: Criteria defining Critical Biodiversity Areas (Source: WC BSP, 2017)

CBA MAP CATEGORY:	DEFINING CRITERIA
Protected Areas	Areas that are proclaimed as protected areas under national or provincial legislation. Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.
Critical Biodiversity Areas 1 (CBA)	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. 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 Areas 1 (CBA 2)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. Maintain in a functional, natural, or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated.
Ecological Support Areas 1 (ESA 1)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PA's or CBA's and are often vital for delivering ecosystem services. Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

CBA MAP CATEGORY:	DEFINING CRITERIA
Ecological Support Areas 2 (ESA 2)	<p>Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PA's or CBA's and are often vital for delivering ecosystem services.</p> <p>Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services.</p>
Other Natural Areas (ONA)	<p>Areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem.</p> <p>Minimise 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.</p>
No Natural Area Remaining (NNAR)	<p>Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritised for conservation action.</p> <p>Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Offers the most flexibility regarding potential land uses, but some authorisation may still be required for high impact land uses.</p>

### 5.1.3 Western Cape Biodiversity Spatial Plan (WC BSP, 2017)

The Western Cape BSP (2017) is superseded by the more recent WC BSP (2023). The criteria and objectives of the plan are effectively the same as the more recent plant, but the more recent plan is refined based on more recent datasets including landcover.

## 5.2 Appendix B: Abbreviations & Glossary

### 5.2.1 Abbreviations

CARA	Conservation of Agricultural Resources Act, Act 43 of 1983
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs ( <i>now DFFE, see below</i> )
DEA&DP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DFFE	The <u>Department of Forestry, Fisheries &amp; the Environment</u> (DFFE), renamed in April 2021 from the Department of Environmental Affairs, incorporating the forestry and fisheries functions from the previous Department of Agriculture, Forestry and Fisheries.
DEMC	Desired Ecological Management Class
DWS	Department of Water Affairs and Sanitation
DWAF	Department of Water Affairs and Forestry (former department name)
EA	Environmental Authorisation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMC	Ecological Management Class
EMP	Environmental Management Plan
EMPr	Environmental Management Programme report
ER	Environmental Representative
ESS	Ecosystem Services
IAP's	Interested and Affected Parties
IEM	Integrated Environmental Management
LM	Local Municipality
masl	meters above sea level
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act, Act 107 of 1998
NFA	National Forests Act
NEM:BA	National Environmental Management: Biodiversity Act 10 of 2004
NFA	National Forest Act, Act 84 of 1998
PEMC	Present Ecological Management Class
PES	Present Ecological State
PNCO	Provincial Nature and Environment Conservation Ordinance (No. 19 of 1974).
RDL	Red Data List
RHS	Right Hand Side
RoD	Record of Decision
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SoER	State of the Environment Report
SSC	Species of Special Concern
ToPS	Threatened of Protected Species
ToR	Terms of Reference
+ve	Positive
-ve	Negative

## 5.2.2 Glossary

Alien Invasive Species (AIS)	An alien species whose introduction and/or spread threaten biological diversity ( <a href="#">Convention on Biological Diversity</a> ). Note: “Alien invasive species” is considered to be equivalent to “invasive alien species”. An alien species which becomes established in natural or semi-natural ecosystems or habitat, is an agent of change, and threatens native biological diversity ( <a href="#">IUCN</a> ).
Best Environmental Practice	The application of the most appropriate combination of environmental control measures and strategies ( <a href="#">Stockholm Convention</a> ).
Best Management Practice	Established techniques or methodologies that, through experience and research, have proven to lead to a desired result ( <a href="#">BBOP</a> ).
Biodiversity	Biological diversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.
Biodiversity Offset	Measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function and people’s use and cultural values associated with biodiversity ( <a href="#">BBOP</a> ).
Bioremediation	The use of organisms such as plants or microorganisms to aid in removing hazardous substances from an area. Any process that uses microorganisms, fungi, green plants, or their enzymes to return the natural environment altered by contaminants to its original condition.
Boundary	Landscape patches have a boundary between them which can be defined or fuzzy ( <a href="#">Sanderson and Harris, 2000</a> ). The zone composed of the edges of adjacent ecosystems is the boundary.
Catchment	In relation to a watercourse or watercourses or part of a watercourse, means the area from which any rainfall will drain into the watercourse or watercourses or part of a watercourse, through surface flow to a common point or common points.
Connectivity	The measure of how connected or spatially continuous a corridor, network, or matrix is. For example, a forested landscape (the matrix) with fewer gaps in forest cover (open patches) will have higher connectivity.
Corridors	Have important functions as strips of a landscape differing from adjacent land on both sides. Habitat, ecosystems or undeveloped areas that physically connect habitat patches. Smaller, intervening patches of surviving habitat can also serve as “steppingstones” that link fragmented ecosystems by ensuring that certain ecological processes are maintained within and between groups of habitat fragments.
Critically Endangered (CR)	A category on the IUCN Red List of Threatened Species which indicates a taxon is considered to be facing an <b>extremely high risk of extinction in the wild</b> ( <a href="#">IUCN</a> ).
Cultural Ecosystem Services	The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience, including, e.g. knowledge systems, social relations, and aesthetic values ( <a href="#">Millennium Ecosystem Assessment</a> ).
Cumulative Impacts	The total impact arising from the project (under the control of the developer), other activities (that may be under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated. The project’s impact is therefore one part

	of the total cumulative impact on the environment. The analysis of a project's incremental impacts combined with the effects of other projects can often give a more accurate understanding of the likely results of the project's presence than just considering its impacts in isolation ( <a href="#">BBOP</a> ).
Data Deficient (DD)	A <a href="#">taxon is Data Deficient</a> when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat( <a href="#">IUCN</a> ).
Degraded Habitat/Land	Land that has been impacted upon by human activities (including introduction of invasive alien plants, light to moderate overgrazing, accelerated soil erosion, dumping of waste), but still retains a degree of its original structure and species composition (although some species loss would have occurred) and where ecological processes still occur (albeit in an altered way). Degraded land is capable of being restored to a near-natural state with appropriate ecological management.
Disturbance	An event that significantly alters the pattern of variation in the structure or function of a system, while fragmentation is the breaking up of a habitat, ecosystem, or land-use type into smaller parcels. Disturbance is generally considered a natural process.
Ecological Function	How each of the elements in the landscape interacts based on its life cycle events [Producers, Consumers, Decomposers Transformers]. Includes the capacity of natural processes and components to provide goods and services that satisfy human needs, either directly or indirectly.
Ecological Pattern	The contents and internal order of the landscape, or its spatial (and temporal) components. May be homogenous or heterogenous. Result from the ecological processes that produce them.
Ecological Process	Includes <i>Physical processes</i> [Climate (precipitation, insolation), hydrology, geomorphology]; <i>Biological processes</i> [Photosynthesis, respiration, reproduction]; <i>Ecological processes</i> [Competition, predator-prey interactions, environmental gradients, life histories]
Ecological Processes	Ecological processes typically only function well where natural vegetation remains, and where the remaining vegetation is well-connected with other nearby patches of natural vegetation. Loss and fragmentation of natural habitat severely threatens the integrity of ecological processes. Where basic processes are intact, ecosystems are likely to recover more easily from disturbances or inappropriate actions if the actions themselves are not permanent. Conversely, the more interference there has been with basic processes, the greater the severity (and longevity) of effects. Natural processes are complex and interdependent, and it is not possible to predict all the consequences of loss of biodiversity or ecosystem integrity. When a region's natural or historic level of diversity and integrity is maintained, higher levels of system productivity are supported in the long run and the overall effects of disturbances may be dampened.
Ecological Structure	The composition, or configuration, and the proportion of different patches across the landscape. Relates to species diversity, the greater the diversity, the more complex the structure. A description of the organisms and physical features of environment including nutrients and climatic conditions.
Ecosystem	All the organisms of a habitat, such as a lake or forest, together with the physical environment in which they live. A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Ecosystem Services	A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. Supporting Ecosystem services are those that are necessary for the maintenance of all other ecosystem services. Some examples include biomass production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of habitat.
Ecosystem Status	Ecosystem status of terrestrial ecosystems is based on the degree of habitat loss that has occurred in each ecosystem, relative to two thresholds: one for maintaining healthy ecosystem functioning, and one for conserving the majority of species associated with the ecosystem. As natural habitat is lost in an ecosystem, its functioning is increasingly compromised, leading eventually to the collapse of the ecosystem and to loss of species associated with that ecosystem ( <a href="#">Millennium Ecosystem Assessment</a> ).
Ecotone	The transitional zone between two communities. Ecotones can arise naturally, such as a lakeshore, or can be human created, such as a cleared agricultural field from a forest. The ecotonal community retains characteristics of each bordering community and often contains species not found in the adjacent communities. Classic examples of ecotones include fencerows; forest to marshlands transitions; forest to grassland transitions; or land-water interfaces such as riparian zones in forests. Characteristics of ecotones include vegetational sharpness, physiognomic change, and occurrence of a spatial community mosaic, many exotic species, ecotonal species, spatial mass effect, and species richness higher or lower than either side of the ecotone.
Edge	The portion of an ecosystem near its perimeter, where influences of the adjacent patches can cause an environmental difference between the interior of the patch and its edge. This edge effect includes a distinctive species composition or abundance in the outer part of the landscape patch. For example, when a landscape is a mosaic of perceptibly different types, such as a forest adjacent to a grassland, the edge is the location where the two types adjoin. In a continuous landscape, such as a forest giving way to open woodland, the exact edge location is fuzzy and is sometimes determined by a local gradient exceeding a threshold, as an example, the point where the tree cover falls below thirty-five percent.
Emergent Tree	Trees that grow above the top of the canopy
Endangered (En)	<u>Endangered terrestrial ecosystems</u> have lost significant amounts (more than 60 % lost) of their original natural habitat, so their functioning is compromised. <u>A taxon (species)</u> is Endangered when the best available evidence indicates that it meets any of the criteria for Endangered, and it is therefore considered to be facing a <u>very high risk</u> of extinction in the wild ( <a href="#">IUCN</a> ).
Endemic	A plant or animal species, or a vegetation type, which is naturally restricted to a defined region or limited geographical area. Many endemic species have widespread distributions and are common and thus are not considered to be under any threat. They are however noted to be unique to a region, which can include South Africa, a specific province or a bioregion, vegetation type, or a localised area. In cases where it is highly localised or known only from a few or a few localities, and is under threat, it may be red listed either in terms of the South Africa Threatened Species Programme, NEMBA Threatened or Protected Species (ToPS) or the IUCN Red List of Threatened Species.
Environment	The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Estuary	a partially or fully enclosed body of water - (a) which is open to the sea permanently or periodically; and

	(b) within which the sea water can be diluted, to an extent that is measurable, with fresh water drained from land.
Evolutionary Processes	<p>The process by which genetic changes have taken place and continue to take place in populations of plants and animals over successive generations in response to environmental changes. Evolutionary Processes includes the mechanisms that produce the biodiversity of life and include Mutation and Migration (Gene Flow), Genetic Drift, Natural Selection, Common Descent, Speciation, Sexual Selection, and Biogeography. Disruptions to evolutionary processes can prevent ecosystems and species from adapting to environmental change over time. Significant fragmentation is considered to be an important disrupter of evolutionary processes.</p> <p>Series of actions which enable new species to evolve in response to changing Biodiversity is maintained by ecological processes at the micro-scale (such as in pollination and nutrient cycling via microbial action) through to the mega-scale (natural events e.g. fire, flood; migration of species along river valleys or coastal areas, quality and quantity of water feeding rivers and estuaries; marine sand movement and the seasonal mountain-to-coast migration of birds that pollinate plants).</p>
Exotic	Non-indigenous; introduced from elsewhere, may also be a weed or alien invasive species. Exotic species may be invasive or non-invasive.
Fragmentation (Habitat Fragmentation)	The 'breaking apart' of continuous habitat into distinct pieces. Causes land transformation, an important current process in landscapes as more and more development occurs.
Habitat	The home of a plant or animal species. Generally, those features of an area inhabited by animal or plant which are essential to its survival.
Habitat Banking	A market where credits from actions with beneficial biodiversity outcomes can be purchased to offset the debit from environmental damage. Credits can be produced in advance of, and without ex-ante links to, the debits they compensate for, and stored over time ( <a href="#">IEEP</a> ).
IFC PS6	<a href="#">International Finance Corporation Performance Standard 6</a> – A standard guiding biodiversity conservation and sustainable management of living natural resources for projects financed by the International Finance Corporation (IFC)
Indicator	Information based on measured data used to represent an attribute, characteristic, or property of a system.
Indicator species	A species whose status provides information on the overall condition of the ecosystem and of other species in that ecosystem. They reflect the quality and changes in environmental conditions as well as aspects of community composition.
Indigenous	Native; occurring naturally in a defined area.
Indigenous Species (Native species)	<p>A species that has been observed in the form of a naturally occurring and self-sustaining population in historical times (<i>Bern Convention 1979</i>).</p> <p>A species or lower taxon living within its natural range (past or present) including the area which it can reach and occupy <u>using its natural dispersal systems</u> (<i>modified after the Convention on Biological Diversity</i>)</p>
Indirect Impact	Impacts triggered in response to the presence of a project, rather than being directly caused by the project's own operations ( <a href="#">BBOP</a> )
Instream habitat	Includes the physical structure of a watercourse and the associated vegetation in relation to the bed of the watercourse;
Intact Habitat / Vegetation	Land that has not been significantly impacted upon by man's activities. These are ecosystems that are in a near-pristine condition in terms of structure, species composition and functioning of ecological processes.
Intrinsic Value	The inherent worth of something, independent of its value to anyone or anything else.

Keystone Species	Species whose influence on ecosystem function and diversity are disproportionate to their numerical abundance. Although all species interact, the interactions of some species are more profound and far-reaching than others, such that their elimination from an ecosystem often triggers cascades of direct and indirect changes on more than a single trophic level, leading eventually to losses of habitats and extirpation of other species in the food web.
Landscape	An area of land that contains a mosaic of ecosystems, including human-dominated ecosystems ( <a href="#">Millennium Ecosystem Assessment</a> ).
Landscape Approach	Dealing with large-scale processes in an integrated and multidisciplinary manner, combining natural resources management with environmental and livelihood considerations ( <a href="#">FAO</a> ).
Landscape connectivity	The degree to which the landscape facilitates or impedes movement among resource patches.
Least threatened / Least Concern (LC)	<p>These <u>ecosystems</u> have lost only a small proportion (more than 80 % remains) of their original natural habitat and are largely intact (although they may be degraded to varying degrees, for example by invasive alien species, overgrazing, or overharvesting from the wild).</p> <p>A <u>taxon (species)</u> is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category (<a href="#">IUCN</a>).</p>
Matrix	The “background ecological system” of a landscape with a high degree of connectivity.
Natural Forest (Indigenous Forest)	<p>The definition of “natural forest” in the National Forests Act of 1998 (NFA) Section 2(1)(xx) is as follows: ‘A natural forest means a group of indigenous trees.</p> <ul style="list-style-type: none"> <li>• whose crowns are largely contiguous.</li> <li>• or which have been declared by the Minister to be a natural forest under section 7(2)?</li> </ul> <p>This definition should be read in conjunction with Section 2(1)(x) which states that ‘Forest’ includes:</p> <ul style="list-style-type: none"> <li>• A natural forest, a woodland, and a plantation</li> <li>• The forest-produce in it; and</li> <li>• The ecosystems which it makes up.</li> </ul> <p>The legal definition must be supported by a technical definition, as demonstrated by a court case in the Umzimkulu magisterial district, relating to the illegal felling of Yellowwood (<i>Podocarpus latifolius</i>) and other species in the Gonqogonqo forest. From scientific definitions (also see Appendix B) we can define natural forest as:</p> <ul style="list-style-type: none"> <li>• A generally multi-layered vegetation unit</li> <li>• Dominated by trees that are largely evergreen or semi-deciduous.</li> <li>• The combined tree strata have overlapping crowns, and crown cover is &gt;75%</li> <li>• Grasses in the herbaceous stratum (if present) are generally rare.</li> <li>• Fire does not normally play a major role in forest function and dynamics except at the fringes.</li> <li>• The species of all plant growth forms must be typical of natural forest (check for indicator species)</li> <li>• The forest must be one of the national forest types</li> </ul>
Near Threatened (NT)	A <u>taxon (species)</u> is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future ( <a href="#">IUCN</a> ).
Patch	A term fundamental to landscape ecology, is defined as a relatively homogeneous area that differs from its surroundings. Patches are the basic unit of the

	landscape that change and fluctuate, a process called patch dynamics. Patches have a definite shape and spatial configuration and can be described compositionally by internal variables such as number of trees, number of tree species, height of trees, or other similar measurements.
Protected Area	A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.
Range restricted species	Species with a geographically restricted area of distribution. Note: Within the IFC PS6, restricted range refers to a limited <u>extent of occurrence</u> (EEO): <ul style="list-style-type: none"> <li>For terrestrial vertebrates and plants, restricted-range species are defined as those species that have an EEO less than 50,000 square kilometres (km<sup>2</sup>).</li> </ul>
Refugia	A location which supports an isolated or relict population of a once more widespread species. This isolation can be due to climatic changes, geography, or human activities such as deforestation and overhunting.
Rehabilitation	Measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised. Rehabilitation emphasizes the reparation of ecosystem processes, productivity and services, whereas the goals of restoration also include the re-establishment of the pre-existing biotic integrity in terms of species composition and community structure ( <u>BBOP</u> ).
Resilience	The capacity of a natural system to recover from disturbance ( <u>OECD</u> ).
Restoration	The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. An ecosystem has recovered when it contains sufficient biotic and abiotic resources to continue its development without further assistance or subsidy. It would sustain itself structurally and functionally, demonstrate resilience to normal ranges of environmental stress and disturbance, and interact with contiguous ecosystems in terms of biotic and abiotic flows and cultural interactions ( <u>IFC</u> ).
Riparian	Pertaining to, situated on or associated with the banks of a watercourse, usually a river or stream.
Riparian Habitat	Includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.
River Corridors	River corridors perform several ecological functions such as modulating stream flow, storing water, removing harmful materials from water, and providing habitat for aquatic and terrestrial plants and animals. These corridors also have vegetation and soil characteristics distinctly different from surrounding uplands and support higher levels of species diversity, species densities, and rates of biological productivity than most other landscape elements. Rivers provide for migration and exchange between inland and coastal biotas.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs ( <u>WCED</u> ).
Terrestrial	Occurring on, or inhabiting, land.
Threatened Species	Umbrella term for any species categorised as Critically Endangered, Endangered or Vulnerable by the IUCN Red List of Threatened Species ( <u>IUCN</u> ). Any species that is likely to become extinct within the foreseeable future throughout all or part of its range and whose survival is unlikely if the factors causing numerical decline or habitat degradation continue to operate ( <u>EU</u> ).

Traditional Ecological Knowledge	Knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds. Traditional knowledge is mainly of a practical nature, particularly in such fields as agriculture, fisheries, health, horticulture, and forestry (CBD).
Transformation	In ecology, transformation refers to adverse changes to biodiversity, typically habitats or ecosystems, through processes such as cultivation, forestry, drainage of wetlands, urban development or invasion by alien plants or animals. Transformation results in habitat fragmentation – the breaking up of a continuous habitat, ecosystem, or land-use type into smaller fragments.
Transformed Habitat/Land	Land that has been significantly impacted upon as a result of human interferences/disturbances (such as cultivation, urban development, mining, landscaping, severe overgrazing), and where the original structure, species composition and functioning of ecological processes have been irreversibly altered. Transformed habitats are not capable of being restored to their original states.
Tributary	A small stream or river flowing into a larger one.
Untransformed Habitat/Land	Land that has not been significantly impacted upon by man's activities. These are ecosystems that are in a near-pristine condition in terms of structure, species composition and functioning of ecological processes.
Vulnerable (Vu)	<u>Vulnerable terrestrial ecosystems</u> have lost some (more than 60 % remains) of their original natural habitat and their functioning will be compromised if they continue to lose natural habitat. A <u>taxon (species)</u> is Vulnerable when the best available evidence indicates that it meets any of the criteria for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild (IUCN).
Watercourse	Natural or man-made channel through or along which water may flow. A river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows. and a reference to a watercourse includes, where relevant, its bed and banks;
Weed	An indigenous or non-indigenous plant that grows and reproduces aggressively, usually a ruderal pioneer of disturbed areas. Weeds may be unwanted because they are unsightly, or they limit the growth of other plants by blocking light or using up nutrients from the soil. They can also harbour and spread plant pathogens. Weeds are generally known to proliferate through the production of large quantities of seed.
Wetlands	A collective term used to describe lands that are sometimes or always covered by shallow water or have saturated soils, and where plants adapted for life in wet conditions usually grow.

### 5.3 Appendix C: Declaration, Specialist Profile and Registration

**DECLARATION OF THE SPECIALIST**

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

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

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

  
 \_\_\_\_\_  
 Signature of the EAP:

22 October 2025  
 \_\_\_\_\_  
 Date:







N/A  
 \_\_\_\_\_  
 Name of company (if applicable):



## Jamie Pote

SENIOR ECOLOGIST AND ENVIRONMENTAL  
SCIENTIST

### CONTACT

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-  [jamiepote@live.co.za](mailto:jamiepote@live.co.za)
-  Port Elizabeth, South Africa
-  [Linkedin.com](https://www.linkedin.com)
-  JamiePote
-  [Bluesky-SA](https://bluesky.com)

### EDUCATION

- Bachelor of Science  
*Rhodes University*  
2001 (Botany & Environmental Science)
- Bachelor of Science (Honours)  
*Rhodes University*  
2002 (Botany)
- Professional Natural Scientist  
*SACNASP*  
2016

### SERVICES

- Terrestrial Biodiversity/Ecological Assessments*
- Environmental & Ecological Risk-Assessments*
- Bioremediation, Restoration & Rehabilitation Plans*
- Environmental Management Plans & Programmes*
- GIS Mapping & Analysis & Web maps*
- Alien Invasive Management (Terrestrial)*
- Environmental Auditing & Monitoring (ECO)*
- Flora Search & Rescue & Relocation*
- Independent Environmental & Ecological review*
- Permit and License applications*
- Environmental & Mining Applications*

### ABOUT ME

*16 years broad professional experience in Biodiversity, Ecological and Vegetation Assessments on over 220 projects in southern, western and central Africa. Senior Environmental Consultant and EAP on over 50 projects in the mining, infrastructure, housing and agricultural sectors. Environmental monitoring and auditing on over 50 civil infrastructure and construction projects. Have managed all aspects of projects from inception through to implementation. GIS mapping and analytics.*

### EXPERIENCE AND CLIENTS

#### Key Sectors

- *Wind, Solar Energy Facilities*
- *Infrastructure and Housing*
- *Agriculture and Forestry*
- *Mining and Industrial*

#### Key Projects

- *Over 220 independent Biodiversity/Ecological Assessments throughout southern, western and central Africa.*
- *Mining applications and construction auditing on over 40 projects and more than 300 gravel borrow pits for the Eastern Cape Department of Roads and Public Works, Department of Transport and the South African National Roads Agency (SANRAL) throughout the Eastern Cape.*
- *South-End Precinct Mixed Use Development for Mandela Bay Development Agency - Environmental application, Ecological assessments and Construction monitoring.*
- *Coega Development Corporation IDZ projects – Ecological assessments, Flora search & rescue and Construction monitoring.*
- *Environmental applications, construction monitoring and auditing for a wide range of projects, including infrastructure and housing for various clients including the Department of Transport and SANRAL.*
- *Various agricultural expansion and infrastructure projects.*
- *Various wind and solar energy and associated infrastructure projects.*
- *Numerous infrastructure projects including electrical, water and roads.*
- *Various Environmental Management and Rehabilitation Plans.*



**herewith certifies that**  
**Jamie Robert Claude Pote**  
Registration Number: 115233  
**is a registered scientist**

in terms of section 20(3) of the Natural Scientific Professions Act, 2003  
(Act 27 of 2003)  
in the following field(s) of practice (Schedule 1 of the Act)  
Ecological Science (Professional Natural Scientist)

Effective **20 July 2016**

Expires **31 March 2026**



Chairperson

Chief Executive Officer



To verify this certificate scan this code

Mr Jamie Pote (BSc (Hons) PR. Sci. Nat.)

**PROJECT EXPERIENCE**PERFORMANCE STANDARD BIODIVERSITY AND CRITICAL HABITAT ASSESSMENTS (IFC PS6)

- DBSA Environmental & Social Safeguards Standards 9: Biodiversity Conservation and Sustainable Management Assessment: The Ilitha Fibre Project, Ethekewini 2021
- Critical Habitat & Biodiversity Assessment - Roggeveld Wind Energy Project 2020
- Biodiversity Assessment for Kalukundi Copper/Cobalt Mine, Democratic Republic of Congo 2008

TERRESTRIAL BIODIVERSITY ASSESSMENTS AND COMPLIANCE STATEMENTS

- Terrestrial Biodiversity Assessment (Addo BSD Offices) 2021
- Terrestrial Biodiversity Assessment (Blaauwater Farms) 2021
- Terrestrial Biodiversity Assessment (Buffelshoek Farm, Loerie) 2021
- Terrestrial Biodiversity & Aquatic Assessment & Review (Falcon Ridge Dam) 2021
- Terrestrial Biodiversity Assessment (Gubenxa Valley Deciduous Fruit) 2021
- Terrestrial Biodiversity Assessment (Little Chelsea Mixed-use) 2021
- Terrestrial Biodiversity Compliance Statement (Maidenhead Farm) 2021
- Terrestrial Biodiversity Review, Mulilo Total Hydra Storage Project Grid Interconnection 2021
- Terrestrial Biodiversity Compliance Statement (Lahlangubo River Bridge) 2021
- Terrestrial Biodiversity Assessment (Mbashe access roads - 3 sites) 2021
- Terrestrial Biodiversity Assessment (Burlington Farm Citrus Development, Cookhouse) 2020
- Terrestrial Biodiversity Compliance Statement: CHDM Cluster 9 Phase 3D Pipeline 2020
- Terrestrial Biodiversity Review, Mulilo Total Hydra Storage Project BESS 2020
- Terrestrial Biodiversity Assessment (Mbashe housing projects, Dutywa & Willowvale) 2020
- Terrestrial Biodiversity Assessment (Helpmekeer Dam, Tarkastad) 2020
- Terrestrial Biodiversity Assessment (Herbertsdale pipeline, Mossel Bay) 2020
- Terrestrial Biodiversity Assessment (Keurbooms Erf 155, Keurboomstrand) 2020
- Terrestrial Biodiversity Assessment (Lowmar Hydroelectric Project, Cradock) 2020
- Terrestrial Biodiversity Assessment (Mossel Bay Gas Power Plant) 2020
- Terrestrial Biodiversity Assessment (Erf 1820, Mthatha) 2020
- Terrestrial Biodiversity Assessment (Newlyn Manganese Terminal, Coega SEZ) 2020
- Terrestrial Biodiversity Assessment Thornhill Phase 2 Sanitation Link 2020

ENERGY PROJECTS (WIND FARM AND PHOTOVOLTAIC INFRASTRUCTURE)

- Preliminary Biodiversity Screening for Chrisdelina Ranch Agricultural Project, Kizenga District 2020
- Preliminary Biodiversity Screening and GIS mapping for Balekani Photovoltaic Solar Project 2020
- Preliminary Biodiversity Screening and GIS mapping for Sihhoye Photovoltaic Solar Project 2020
- Preliminary Biodiversity Screening and GIS mapping Mpaka Photovoltaic Solar Project 2020
- Preliminary Biodiversity Screening and GIS mapping for Chiwelwa Hydroelectric project 2020
- Ecological Assessment for Vermaak Boerdery Hydro Turbine (Cookhouse), Eastern Cape 2020
- Ecological Assessment for Windcurrent Wind Farm, Eastern Cape 2012
- Ecological Assessment for Universal Windfarm, NMB 2011
- Ecological Assessment for Inca Energy Windfarm, Northern Cape 2011
- Ecological Assessment for Broadlands Photovoltaic Farm, Eastern Cape 2011
- Botanical Assessment for Electrawinds Windfarm Coega, NMB 2010
- Botanical Assessment and Open Space Management Plan for Mainstream WEF Phase 2, Eastern Cape 2010

SPECIALISED ECOLOGICAL REPORTS AND REVIEWS

- Rebels Vlei Riparian delineation 2021

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• Buck Kraal Dam Rehabilitation Plan Review	2020
• Rehabilitation Plan for Hitgeheim Farm (Farm 960), Sunland, Eastern Cape	2017
• Green Star Rating Ecological Assessment for SANRAL office, Bay West City, NMBM	2015
• Section 24G Assessment and Rehabilitation Plan for Bingo Farm, Eastern Cape	2014
• Mapping and Ecological services for Congo Agriculture, Republic of Congo	2013
• Rehabilitation Plan for Nieu Bethesda, Eastern Cape	2011
• Mapping of pipeline for Kenton Water Board, Eastern Cape	2010
• Rehabilitation Plan for N2 Upgrade - Coega to Colchester, NMB	2010
• Representative for landowner group for Seaview burial Park, NMB	2010
• Botanical Sensitivity Analysis for LSDF, Greenbushes-Hunters Retreat, NMB	2008
• Forestry Rehabilitation Assessment Report for Amahlathi Forest Rehabilitation, Eastern Cape	2007
• Botanical & Riparian Assessment for Orange River Weirs-Boegoeberg, Douglas Dam and Sendelingsdrif, Northern Cape	2006
• Botanical Assessment for State of the Environment Report for Chris Hani District Municipality SoER, Eastern Cape	2003

#### ROAD AND RAILWAY INFRASTRUCTURE PROJECTS

• Ecological Assessment for CDC IDZ Mn Terminal, conveyor and railway line, NMB	2013
• Ecological Assessment Review for Penhoek Road widening, Eastern Cape	2012
• Ecological Assessment for R61 road widening, Eastern Cape	2012
• Botanical Assessment for Chelsea RD - Walker Drive Ext., NMB	2010
• Botanical Assessment for Motherwell - Blue Water Bay Road, NMB	2010
• Ecological Assessment for Port St John Road, Eastern Cape	2010
• Botanical Basic Assessment for Bholani Village Rd, Port St Johns, Eastern Cape	2009
• Botanical Report, EMP and Rehab Plan for Coega-Colchester N2 Upgrade, NMB	2009
• Botanical Assessment for Manganese Conveyor Screening Report, NMB	2008
• Ecological Assessment for Road Layout for Whiskey Creek- Kenton, Eastern Cape	2006

#### MINING PROJECTS

• Ecological Assessment for Bochum Borrow Pits, Limpopo	2013
• Ecological Assessment and Mining and Rehabilitation Plan for Greater Soutpansberg Mining Project, Limpopo (3 proposed Mines)	2013
• Ecological Assessment for Thulwe Road Borrow Pits, Limpopo	2013
• Ecological Assessment and Mining and Rehabilitation Plan for Baghana Mining, Ghana	2010
• Botanical Assessment for Zwartbosch Quarry, Eastern Cape	2008
• Botanical description & map production for Quarry - Rudman Quarry, Eastern Cape	2008
• Botanical Basic Assessment, Rehab Plan & Maps for Borrow Pit - Rocklands/Patensie, Eastern Cape	2008
• Botanical Assessment & Maps for Sandman Sand Gravel Mine, Eastern Cape	2008
• Botanical Assessment & GIS maps for Shamwari Borrow Pit, Eastern Cape	2008
• Detailed Botanical Assessment, EMP and Rehab Plan for Kalukundi Copper/Cobalt Mine, Democratic Republic of Congo	2008
• Botanical Assessment, Rehab Plan & Maps for Borrow Pit Humansdorp/Oyster Bay, Eastern Cape	2008
• Botanical Assessment, Rehab Plan & Maps for AWRM - Cala, Eastern Cape	2008
• Botanical Assessment, Rehab Plan & Maps for AWRM - Camdeboo, Eastern Cape	2008
• Botanical Assessment, Rehab Plan & Maps for AWRM - Somerset East, Eastern Cape	2008
• Botanical Assessment, Rehab Plan & Maps for AWRM - Nkonkobe, Eastern Cape	2008
• Botanical Assessment, Rehab Plan & Maps for AWRM - Ndlambe, Eastern Cape	2008
• Botanical Assessment, Rehab Plan & Maps for AWRM - Blue Crane Route, Eastern Cape	2008

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• Botanical Assessment, EMP and Rehabilitation Plan for AWRM - Cathcart, Eastern Cape	2008
• Botanical Assessment, GIS maps and Rehab Plan for Mthatha Prospecting, Eastern Cape	2008
• Regional Botanical Map for mining prospecting permit, Welkom	2008
• Botanical Assessment for Scoping Report and Detailed Botanical Assessment and Rehab Plan for Elitheni Coal Mine, Eastern Cape	2007
• Botanical Assessment, Rehab Plan & Maps for Borrow Pit - Oyster Bay, Eastern Cape	2007
• Botanical Assessment, Rehab Plan & Maps for Borrow Pit - Bathurst/GHT, Eastern Cape	2007
• Botanical Assessment, Rehab Plan & Maps for Borrow Pit – Jeffreys Bay, Eastern Cape	2007
• Botanical Assessment, Rehab Plan & Maps for Borrow Pit - Storms River/Kareedouw, Eastern Cape	2007
• Biophysical Assessment for Humansdorp Quarry, Eastern Cape	2006
• Botanical Assessment, Rehab Plan & Maps for Quarry-Cathcart & Somerset East, Eastern Cape	2006
• Botanical Assessment, Rehab Plan & Maps for Quarry - Despatch Quarry, NMB	2006
• GIS Mapping & Botanical Assessment and Rehab Plan for Quarry - JBay Crushers, Eastern Cape	2006
• Botanical Assessment, EMP and Rehabilitation Plan for Polokwane Silicon Smelter, Limpopo	2006
• Application for Mining Permit for Bruce Howarth Quarry, Eastern Cape	2006

#### POWERLINE INFRASTRUCTURE PROJECTS

• Ecological Assessment: Dieprivier-Karreedouw 132kV Powerline realignment, Kouga LM	2016
• Eskom Ecological Walkdown: Dieprivier-Karreedouw 132 kV Powerline, Kouga LM	2016
• Eskom Solar one Ecological Walkdown: Nieuwehoop 400 kV powerline	2015
• Rehabilitation Plan and Auditing for Grassridge-Poseidon Powerline Rehab, Eastern Cape	2013
• Ecological Assessment for Dieprivier Karreedouw 132kV Powerline, Eastern Cape	2012
• Flora and Fauna search and Rescue plan for Van Stadens Windfarm Powerline, NMB	2012
• Botanical Assessment for Dedisa-Grassridge Powerline, Eastern Cape	2010
• Ecological Assessment for Grahamstown-Kowie Powerline, Eastern Cape	2010
• Species of Special Concern Mapping Transmission Line for San Souci to Nivens Drift 132kV powerline, NMB	2009
• Botanical Assessment for Eskom Powerline - Albany-Kowie, Eastern Cape	2009
• Botanical Assessment for Eskom 132 kV Dedisa Grassridge Power line-Coega, NMB	2006
• Botanical Assessment for Eskom Power line – Tyalara-Wilo, Eastern Cape	2006
• Botanical Assessment for Steynsburg - Teebus 132 kV powerline, Eastern Cape	2004

#### PIPELINE INFRASTRUCTURE PROJECTS

• Terrestrial Biodiversity Assessment for Thornhill Phase 2 Sanitation Link, Ndlambe, Eastern Cape	2020
• Botanical Assessment for Ngqamakhwe Regional Water Supply Scheme (Phase 3)	2018
• Ecological Assessment for Butterworth Emergency Bulk Water Supply Scheme	2017
• Ecological Assessment for Karringmelspruit Emergency Bulk Water Supply (Lady Grey)	2017
• Ecological Assessment for Wanhoop-Willowmore Bulk Water Supply, Eastern Cape	2016
• Ecological Assessment for Steytlerville Bulk Water Supply, Eastern Cape (Phase 4)	2013
• Ecological Assessment for Steytlerville Bulk Water Supply, Eastern Cape (Phase 5)	2013
• Detailed Ecological Assessment for Suikerbos Pipeline, Gauteng	2012
• Basic Botanical Assessment for Wanhoop farm pipeline, Eastern Cape	2010
• Basic Botanical Assessment for Chatty Sewer, NMB	2010
• Species of Special Concern Mapping for Seaview Pipeline, NMB	2009
• Species of Special Concern Mapping for Chelsea Bulk Water Pipeline, NMB	2009
• Map Production for Russell Rd Stormwater, NMB	2008
• Basic Botanical Assessment for Albany Pipeline, Eastern Cape	2008
• Environmental Risk Assessment for Elands River pipeline, Eastern Cape	2007

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- Detailed Botanical Assessment for Motherwell Pipeline, NMB 2007
- Detailed Botanical Assessment, GIS maps for Erasmuskloof Pipeline, Eastern Cape 2007
- Botanical & Floristic Report for Hankey pipeline, Eastern Cape 2006
- Detailed Botanical Assessment for Port Alfred water pipeline, Eastern Cape 2004

GENERAL INFRASTRUCTURE DEVELOPMENT PROJECTS

- Ecological Assessment for Amalinda crossing, BCM, Eastern Cape 2019
- Ecological Assessment for Cookhouse Bridge rehabilitation and temporary deviation, Eastern Cape 2019
- Ecological Assessment for Nelson Mandela University Access Road, NMB 2019
- Botanical Assessment for Zachtevlei Dam (Lady Grey), Eastern Cape 2017
- Botanical Assessment for Gcebula River bridge (Peddie), Eastern Cape 2017
- Botanical Assessment for Kouga Dam wall upgrade, Eastern Cape 2012
- Botanical Assessment for Jansenville Cemetery, Eastern Cape 2009
- Botanical Assessment for Radar Mast construction for South African Weather Service – BCM & NMB 2008
- Botanical Assessment and GIS mapping for golf course realignment for East London Golf Course, BCM, Eastern Cape 2007
- Botanical Assessment for PE Airport Extention, NMB 2006
- Botanical Assessment for Kidd's Beach Desalination Plant, BCM, Eastern Cape 2006

HOUSING DEVELOPMENT PROJECTS

- Terrestrial Biodiversity Assessment for Erf 1820 Mthatha, KSDM, Eastern Cape 2020
- Ecological Assessment for Erf 599 Walmer Mixed Use Development, Nelson Mandela Bay 2019
- Ecological Assessment Portion 21-23 and 41 of Farm 807, Gonubie, Buffalo City 2019
- Ecological Assessment for Emerald Sky Housing Project, BCMM 2019
- Ecological Assessment for Erf 14, Kabega, Port Elizabeth 2017
- Ecological Assessment for Fairwest Rental Housing, Port Elizabeth 2017
- Ecological Assessment for Hankey Housing, Kouga District Municipality 2015
- Ecological Assessment for Lebowakgoma Housing, Limpopo 2013
- Ecological Assessment for Giyani Development, Limpopo 2013
- Ecological Assessment for Palmietfontein Development, Limpopo 2013
- Ecological Assessment for Seshego Development, Limpopo 2013
- Botanical Assessment for Sheerness Road, BCM, Eastern Cape 2013
- Ecological Assessment for Ethembeni Housing, NMB 2012
- Ecological Assessment for Pelana Housing, Limpopo 2012
- Flora Search and Rescue Plan for Kwanobuhle Housing, Western Cape 2011
- Botanical Assessment for The Crags 288/03, Western Cape 2010
- Ecological Assessment Revision Report for Fairview Housing, NMB 2010
- Botanical Assessment, EMP and Open Space Management Plan for Hornlee Housing Development, Western Cape 2010
- Botanical Assessment for Little Ladywood, Western Cape 2010
- Botanical Assessment and Open Space Management Plan for Motherwell NU31, NMB 2010
- Botanical Assessment and Open Space Management Plan for Plett 443/07, Western Cape 2010
- Botanical Assessment for Willow Tree Farm, NMB 2010
- Botanical Assessment for Kouga RDP Housing, Eastern Cape 2009
- Botanical Assessment for Fairview Erf 1226 (Wonderwonings), NMB 2009
- Species List Compilation for Zeekoerivier Humansdorp, Eastern Cape 2009
- Botanical Assessment for Woodlands Golf Estate (Farm 858), BCM, Eastern Cape 2009

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• Botanical Assessment for Plettenberg Bay - 438/4, Western Cape	2009
• Vegetation Assessment for Kwanokuthula RDP housing project, Western Cape	2008
• Site screening assessment for Greenbushes Site screening, NMB	2008
• Botanical Assessment for Fairfax development, Eastern Cape	2008
• Botanical Assessment for Plettenberg Bay Brakkloof 50&51, Western Cape	2008
• Botanical Assessment, GIS mapping for Theescombe Erf 325, NMB	2008
• Site Screening for Mount Road, NMB	2008
• Botanical Assessment for Greenbushes Farm 40 Swinburne 404, NMB	2008
• Botanical Assessment for Greenbushes 130, NMB	2008
• Botanical Assessment for Greenbushes Kuyga no. 10, NMB	2008
• Botanical Assessment for Plettenberg Bay - 438/24, Western Cape	2007
• Botanical Assessment for Plettenberg Bay - Olive Hills 438/7, Western Cape	2007
• Botanical Assessment for Gonubie Portion 809/9, BCM, Eastern Cape	2006
• Botanical Assessment for Glengariff Farm 723, BCM, Eastern Cape	2006
• Botanical Assessment for Gonubie Portion 809/10, BCM, Eastern Cape	2006
• Botanical Assessment for Gonubie Portion 809/4 & 5, BCM, Eastern Cape	2006
• Botanical Assessment for Plettenberg bay - Ladywood 438/1&3, Western Cape	2006
• Botanical Assessment and Rehab Plan for Winterstrand Desalination Plant, BCM	2006
• Botanical Assessment for Bosch Hoogte, NMB	2006
• Botanical Assessment for Plettenberg bay Farm 444/38, Western Cape	2006
• Botanical Assessment for Plettenberg Bay - 444/27, Western Cape	2006
• Botanical Assessment for Leisure Homes, BCM, Eastern Cape	2006
• Botanical Basic Assessment for Trailees Wetland Assessment, Eastern Cape	2005
• Botanical Assessment and Rehab Plan for Arlington Racecourse - PE, NMB	2005
• Botanical Assessment for Smart Stone, NMB	2005
• Botanical Assessment for Peninsular Farm (Port Alfred), Eastern Cape	2005
• Botanical Assessment for Mount Pleasant - Bathurst, Eastern Cape	2005
• Botanical Assessment and RoD amendments for Colchester Erven 1617 & 1618 (Riverside), NMB	2005
• Basic Botanical Assessment for Parsonsvei 3/4, Eastern Cape	2005
• Botanical Assessment for Bridgemead – Malabar PE, NMB	2004

AGRICULTURAL PROJECTS

• Ecological Assessment for Vermaak Boerdery Hydro Turbine (Cookhouse)2020	2020
• Thornhill Eggland Specialist Ecological Assessment	2020
• Ecological Assessment for Citrus expansion on Hitgeheim Farm, Sunland, Eastern Cape	2015
• Ecological Assessment for Citrus expansion on farm 960, Patensie (AIN du Preez Boerdery)	2014
• Ecological Assessment for Doornkraal Pivot (Hankey), Eastern Cape	2014
• Ecological Assessment for Tzaneen Chicken Farm, Limpopo	2013
• Botanical Assessment and Open Space Management Plan for Kudukloof, NMB	2010
• Botanical Assessment and Open Space Management Plan for Landros Veeplaats, NMB	2010
• Botanical Assessment and Flora Relocation Plan for Wildemans Plaas, NMB	2006

GOLF ESTATE AND RESORT DEVELOPMENT PROJECTS

• Species List& Comments Report for Kidds Beach Golf Course, BCM, Eastern Cape	2009
• Botanical Assessment for Plettenberg Bay -Farm 288/03, Western Cape	2009
• Botanical Assessment for Rockcliff Golf Course, BCM, Eastern Cape	2008
• Botanical Assessment for Rockcliff Resort Development, BCM, Eastern Cape	2007
• Botanical Assessment, EMP and Rehabilitation Plan for Tiffendel Ski Resort, Eastern Cape	2006

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MIXED USE DEVELOPMENT PROJECTS

- Ecological Assessment for South-End Precinct Mixed Use Development, Nelson Mandela Bay 2018
- Botanical Assessment, EMP and Open Space Management Plan for Bay West City, NMB 2010
- Botanical Assessment, GIS maps, Open Space and Rehab Plans for Fairview Erf 1082, NMB 2009
- Botanical Assessment and GIS maps for Utopia Estate PE, NMB 2008
- Botanical Assessment and GIS mapping for Madiba Bay Leisure Park, NMB 2007
- Botanical Assessment and GIS mapping for Madiba Bay Leisure Park, NMB 2007
- Botanical Basic Assessment for Cuyler Manor (Farm 320), Uitenhage, NMB 2007

BUSINESS AND INDUSTRIAL DEVELOPMENT PROJECTS

- Ecological Assessment for Parsonsvei Erf 984 & 1134 Parsonsvei, NMB 2020
- Mthatha Retails and Service Center 2020
- Ecological Assessment for Walmer Erf 11667 - Bidfood Warehousing Development, NMB 2020
- Ecological Assessment for Portion 87 of the Farm Little Chelsea No 10, NMB 2020
- Ecological Assessment for Bay West City ENGEN Service Station, NMB 2015
- Ecological Assessment for Green Star grading for SANRAL, NMB 2014
- Ecological Assessment for OTGC Tank Farm, NMB 2012
- Botanical Assessment and Open Space Management Plan for Petro SA Refinery, Coega IDZ, NMB 2010
- Botanical Assessment for Bluewater Bay Erf 805, NMB 2009
- Ecological Assessment for Bay West City, NMB 2007
- Botanical Assessment for Kenton Petrol Station, Eastern Cape 2005
- Botanical Assessment and RoD amendments for Colchester Petrol Station, NMB 2005

ECO-ESTATE DEVELOPMENT PROJECTS

- Botanical Re-Assessment of Swanlake Eco Estate, Aston Bay, Eastern Cape 2018
- Detailed Botanical Assessment and Open Space Management Plan for Olive Hills, Western Cape 2010
- Botanical Assessment and EMP for Zwartbosch Road, Eastern Cape 2010
- Botanical Assessment - Poultry Farm for Coega Kammaskloof Farm 191, NMB 2008
- Botanical Assessment - Housing development for Coega Ridge, NMB 2008
- Botanical Assessment, Rehabilitation Plan, EMP and GIS maps for Amanzi Estate, NMB, 2008
- Botanical Assessment for Roydon Game farm, Queenstown, Eastern Cape 2007
- Botanical Assessment for Winterstrand Estate (Farm 1008), BCM, Eastern Cape 2007
- Botanical Assessment for Homeleigh Farm 820, BCM, Eastern Cape 2007
- Botanical Basic Assessment, Rehab Plan & Maps for Candlewood, Tsitsikamma, Western Cape 2007
- Botanical Assessment, EMP and Rehab Plan for Carpe Diem Eco development, Eastern Cape 2007
- Botanical Assessment, EMP and Rehabilitation Plan for Seaview Eco-estate, NMB 2006
- Botanical Assessment for Kidd's Beach portion 1076, BCM, Eastern Cape 2006
- Botanical Assessment for Palm Springs, Kidds Beach East London, BCM, Eastern Cape 2006
- Botanical Assessment for Nahoon Farm 29082, BCM, Eastern Cape 2006
- Botanical Assessment for Rosehill Farm, Eastern Cape 2005
- Botanical Assessment for Resolution Game Farm, Eastern Cape 2005
- Botanical Assessment for Gonubie Portion 809/11, BCM, Eastern Cape 2005
- Botanical Assessment for Kidd's Beach portion 1075, BCM, Eastern Cape 2005

FLORA AND FAUNA RELOCATION PLANS, PERMITS AND IMPLEMENTATION

- Flora Search and Rescue for Nelson Mandela University Phase 2 & 3 Residences, Eastern Cape 2020

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• Flora Search and Rescue for Fairwest Housing Estate, Nelson Mandela Bay, Eastern Cape	2019
• Flora Search and Rescue for Utopia Estate, Nelson Mandela Bay, Eastern Cape	2019
• Flora Search and Rescue for Citrus expansion on Boschkraal Citrus Farm, Sunland, Eastern Cape	2018
• Flora Search and Rescue for Wanhoop pipeline, Willowmore, Eastern Cape	2018
• Flora Search and Rescue for Wilgekloof pipeline, Willowmore, Eastern Cape	2018
• Flora Search and Rescue for Citrus expansion on Hitgeheim Farm (Farm 960), Sunland, Eastern Cape	2017
• Flora Search and Rescue for Steytlerville Bulk Water Supply, Eastern Cape (Phase 5)	2016
• Flora Search and Rescue for Citrus expansion on Farm 960, Patensie (AIN du Preez Boerdery)	2016
• Flora Search and Rescue for Steytlerville Bulk Water Supply & WTW, Eastern Cape (Phase 4)	2015
• Flora and Fauna Search and Rescue for Riversbend Citrus Farm, NMB	2014
• Flora and Fauna Search and Rescue for Mainstream Windfarm, Eastern Cape	2013
• Flora Search and Rescue for Steytlerville Bulk Water Supply, Eastern Cape (Phase 1, 2 & 3)	2013
• Flora and Fauna Search and Rescue for OTGC Tank Farm, Coega IDZ, NMB	2013
• Flora and Fauna Search and Rescue for Jeffreys Bay School, Eastern Cape	2013
• Flora Search and Rescue Plan for Red Cap Wind Farm, Eastern Cape	2012
• Flora Relocation for Disco Poultry Farm, NMB	2010
• Flora Relocation for Mainstream Windfarm, Eastern Cape	2010

ENVIRONMENTAL MANAGEMENT PLANS

• Final Environmental Management Programme (EMPr) and Maintenance Management Plan for South End Precinct Mixed Use Zone, Nelson Mandela Bay Municipality	2020
• Final Environmental Management Programme (EMPr) for Coega Land-Based Aquaculture Development Zone (ADZ), Coega Industrial Development Zone (IDZ), Nelson Mandela Bay Municipality	2019
• Basic Botanical Assessment for Kromensee EMP (Jeffreys Bay), Eastern Cape	2010
• Wetland Management Plan for NMB Portnet, NMB	2010
• Baseline Botanical Study, Vegetation mapping and EMP for Local Nature Reserve for Plettenberg Bay Lookout LNA, Western Cape	2009
• Biodiversity & Ecological Processes for Bathurst-Commonage, Eastern Cape	2006
• EMP for Kromensee EMP (Jeffreys Bay), Eastern Cape	2006
• Floral Survey for Mbotyi Conservation Assessment, Eastern Cape	2005
• Identifying and Assessment on Aquatic Weeds for Pumba Private Game Reserve, Eastern Cape	2005

BASIC ASSESSMENT APPLICATION PROJECTS (DEDEAT)

• Basic Assessment Application for Parsonsvei Erf 984 & 1134 Parsonsvei	2020
• Construction of Deviation and Rehabilitation of Bridge along DR02481 road	2020
• Basic Assessment Application for Vermaak Boerdery Hydro Turbine (Cookhouse)	2020
• Basic Assessment Application for Walmer Erf 11667 Bidfood Warehousing Development	2020
• Basic Assessment Application for Portion 87 of the Farm Little Chelsea No 10	2020
• Basic Assessment Application for Nelson Mandela University Access Road, NMB	2019
• Basic Assessment, WULA and Borrow Pit/Quarry Mining Application, Clarkebury Rd, Idutywa	2019
• Basic Assessment Application for Erf 599 Walmer Mixed Use Development, Nelson Mandela Bay	2019
• Basic Assessment Application for Cookhouse Bridge rehabilitation and temporary deviation	2019
• Basic Assessment Application for Erf 14 Kabega, NMBM	2017
• Basic Assessment Application for Hankey Housing, Kouga District Municipality	2017
• Basic Assessment Application for Fairwest Rental Housing, Nelson Mandela Bay	2017
• Basic Assessment Application for Citrus expansion on Hitgeheim Farm, Sunland, Eastern Cape	2015

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- Basic Assessment Application for Hankey Housing, Kouga District Municipality 2015
- Basic Assessment Application for Citrus expansion on farm 960, Patensie (AIN du Preez Boerdery) 2014
- Basic Assessment Application for South-End Precinct Mixed Use Development, Nelson Mandela Bay 2018

#### MINING PERMIT/ENVIRONMENTAL MANAGEMENT PROGRAMME APPLICATIONS (DMR)

- Mining BAR/EMP's for Blue Crane Route & Camdeboo LM 12 Borrow Pits – (DoT) 2019
- Mining BAR/EMP's for Elundini LM 6 Borrow Pits (DoT)
- Mining BAR/EMP's for Baviaans LM 6 Borrow Pits (DoT)
- Mining BAR/EMP's for Kouga & Koukamma LM 12 Borrow Pits (DoT)
- Mining BAR/EMP's for Sakhisizwe & Engcobo LM 12 Borrow Pits (DoT)
- Mining BAR/EMP's for Senqu LM 12 Borrow Pits (DoT)
- Mining BAR/EMP's for 24 Borrow Pits in 6 districts within the Eastern Cape– (SANRAL) 2018
- Mining BAR/EMP's for Ingquza Hill LM Borrow Pits – (SANRAL) 2017
- Mining BAR/EMP's for Baviaans LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Senqu LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Kouga/Koukamma LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Inkwanca (Enoch Mgijima) LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Kouga/Koukamma LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Sakhisizwe/Engcobo LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Raymond Mahlaba LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Camdeboo LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Elundini LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Emalahleni/Intsika Yethu LM Borrow Pits – (DRPW) 2017
- Mining BAR/EMP's for Nkonkobe LM Borrow Pits – (SANRAL) 2016
- Mining BAR/EMP's for Mbhashe LM Borrow Pits – (SANRAL) 2016
- Mining BAR/EMP's for Mbizana LM Borrow Pits – (SANRAL) 2016
- Mining BAR/EMP's for Senqu LM Borrow Pits – (SANRAL) 2016
- Mining BAR/EMP's for Elundini LM Borrow Pits – (SANRAL) 2016
- Mining BAR/EMP's for Emalahleni LM Borrow Pits – (SANRAL) 2016
- Mining BAR/EMP's for Emalahleni LM Borrow Pits – (DRPW) 2016
- Mining BAR/EMP's for Ikwezi/Baviaans LM Borrow Pits – (DRPW) 2016
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - MR00716 (Tarkastad) (DRPW) 2015
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - Intsika Yethu and Emalahleni (DRPW) 2015
- Mining BAR/EMP's for Joe Gqabi DM Borrow Pits - Senqu (DRPW) 2015
- Mining BAR/EMP's for Makana/Ndlambe LM Borrow Pits - Sarah Baartman (DRPW) 2015
- Mining BAR/EMP's for Amahlathi LM Borrow Pits - Amatole (DRPW) 2015
- Mining BAR/EMP's for Mbashe/Mqume LM Borrow Pits - Amatole (DRPW) 2015
- Mining BAR/EMP's for Sundays River Valley LM Borrow Pits - Sarah Baartman (DRPW) 2015
- Mining BAR/EMP's for Kouga LM Borrow Pits - Sarah Baartman (DRPW) 2015
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - MR00716 (DRPW) 2014
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - DR02581 (DRPW) 2014
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - DR08041, DR08247, DR08248 & DR08504 (DRPW) 2014
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - DR08599, DR08601 & DR08570 (DRPW) 2014
- Mining BAR/EMP's for Chris Hani DM Borrow Pits - DR08235, DR08551 & DR08038 (DRPW) 2014
- Mining BAR/EMP's for Alfred Nzo DM Borrow Pits - DR08092, DR08093 & DR08649 (DRPW) 2014
- Mining BAR/EMP's for Alfred Nzo DM Borrow Pits - DR08090, DR08412, DR08425, DR08129, DR08109, DR08106, DR08104 & DR08099 - Matatiele (DRPW) 2014

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ENVIRONMENTAL COMPLIANCE AUDITING

- Environmental Compliance Audit (Habata Boerdery) 2021
- Environmental Compliance Audit (Sontule Farm) 2021

ENVIRONMENTAL MANAGEMENT, AUDITING, COMPLIANCE AND MONITORING PROJECTS

- Environmental Auditing Services Pre-construction and Construction (Rocky Coast Farm) 2021
- Environmental Auditing Services (Middledrift Breeder Facility) 2021
- Coega Aquaculture Development Zone Environmental Compliance and Monitoring for Construction (24 Months) 2020
- Construction of NMU West End Student Residences Phases 1 & 3 Environmental Control Office (30 Months) 2020
- Environmental Auditing and construction monitoring for construction of Phase 1 River Park (South End Precinct) 2020
- Waste Management License audit for Bedford Recycling project 2020
- Auditing for Construction of Fairwest Village Housing Project 2019
- Auditing for Construction of Utopia Estate monthly auditing 2019
- ECO for DRPW IRM Road Maintenance projects, Baviaans LM 2019
- ECO for DRPW IRM Road Maintenance projects, Senqu LM 2019
- ECO for DRPW IRM Road Maintenance projects, Kouga/Koukamma LM 2019
- ECO for DRPW IRM Road Maintenance projects, Sakhisizwe/Engcobo LM 2019
- ECO for DRPW IRM Road Maintenance projects, Elundini LM 2019
- ECO for DRPW IRM Road Maintenance projects, Emalahleni/Intsika Yethu LM 2019
- ECO for Construction of Fairwest Village Housing Project 2019
- ECO for Construction of Utopia Estate Mixed Use Project 2019
- ECO for Construction of NMU West End Student Residences Phases 1 & 3 2019
- ECO for Construction of Eco-Pullets pullet rearing facility, Paterson 2018
- ECO for DRPW IRM Road Maintenance projects, Raymond Mahlaba LM 2018
- ECO for DRPW IRM Road Maintenance projects, Inkwanca (Enoch Mgijima) LM 2018
- ECO for Citrus expansion on Farm 960, Patensie (AIN du Preez Boerdery) 2017
- ECO for Citrus expansion on Hitgeheim Farm (Farm 960), Sunland, Eastern Cape 2017
- DEO for improvement of national route R67 section 5 from Whittlesea (km 0.00) to Swart Kei river (km 15.40) – Murray & Roberts 2017
- ECO for SANRAL RRP Road Maintenance projects, Mbizana LM 2017
- ECO and Botanical Specialist for the special maintenance of national route R61 Section 2 from Elinus Farm (km 42.2) to N10 (km 85.0) (SANRAL) 2016
- Environmental Control Officer (ECO): Construction of NSRI Slipway - Port Elizabeth Harbour 2016
- ECO for SANRAL RRP Road Maintenance projects, Mbashe LM 2016
- ECO for SANRAL RRP Road Maintenance projects, Nkonkobe LM 2016
- ECO for SANRAL RRP Road Maintenance projects, Mbizana LM 2016
- ECO for SANRAL RRP Road Maintenance projects, Senqu LM 2016
- ECO for SANRAL RRP Road Maintenance projects, Elundini LM 2016
- ECO and Environmental Management for closure of Bushmans River Landfill site 2016
- ECO for DRPW IRM Road Maintenance projects, Amahlathi Municipality 2015
- ECO for DRPW IRM Road Maintenance projects, Makana/Ndlambe Municipality 2015
- ECO for DRPW IRM Road Maintenance projects, Mbashe/Mqume Municipality 2015
- ECO for DRPW IRM Road Maintenance projects, Port St Johns, Mbizana, Ingquza Hill LM's 2015
- ECO for Riversbend Citrus Farm, NMB 2014
- ECO for Alfred Nzo DM Road resurfacing - DR08071, DR08649, DR08092, DR08418, DR08452, DR08015, DR08085, DR08639 & DR08073, Eastern Cape - MSBA 2014

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• ECO Audits for Koukamma Flood Damage Road Repairs – Hatch Goba	2014
• EMP and ECO for Utopia Estate, NMB	2013
• Final EMP submission for Seaview Garden Estate, NMB	2012
• ECO audits for NMB Road surfacing, NMB (multiple contacts)	2011
• EMP submission and ECO for Seaview Garden Estate, NMB	2010
• ECO for Mainstream Windfarm wind monitoring mast installation, Eastern Cape	2010
• EMP and ECO for Sinati Golf Estate EMP, BCM, Eastern Cape	2009
• Flora Relocation Plan and Permit application for Wildemans Plaas, NMB	2006

#### ENVIRONMENTAL SCREENING PROJECTS

• Somerset East Stormwater Environmental Screening Report	2021
• Woodlands Diary Road Upgrade Environmental Screening Report, Kouga LM	2021
• Risk Assessment and Screening for proposed Heatherbank access road, NMB	2020
• Environmental Screening Report for Proposed Life Hospital parking expansion, NMB	2019
• Environmental Screening Report for Erf 984 & 1134 development, Parsonsvelei, NMB	2019
• Environmental Screening Report for proposed Khayaletu School, Buffalo City	2018
• Environmental Screening Report for Proposed Housing Development of Erf 8700, Kabega Park, NMB	2017
• Environmental Screening Report for Proposed Housing Development of Erf 14, Kabega Park, NMB	2017
• Environmental Screening Report for Proposed Fairwest Social Housing project, Fairview, NMB	2016
• Environmental Screening Report for Development of Little Chelsea No 25, NMB	2016
• Terrestrial Vegetation Risk Assessment for proposed Skietnek Citrus Farm development (Kirkwood)	2015
• Preliminary Environmental Risk Assessment: NSRI Slipway Port Elizabeth	2015
• Environmental Screening Report for Proposed Development of a Dwelling on Erf 899, Theescombe	2015
• Environmental Screening Report for Proposed Development on Erf 559, Walmer, Port Elizabeth	2015
• Environmental Screening Report for Proposed Housing Scheme Development of Erf 8709, Wells Estate	2015
• Environmental Screening Report for Development of Portion 10 of Little Chelsea No 87, NMB	2015

#### SECTION 24G APPLICATIONS

• 12 000 ML Dam constructed on farm 960, Patensie (MGM Trust)	2015
• Illegal clearing of 20 Ha of lands on Hitgeheim Farm, Sunland, Eastern Cape	2015

#### CONFERENCES AND PUBLICATIONS

- Pote, J., Shackleton, C.M., Cocks, M. & Lubke, R. 2006. *Fuelwood harvesting and selection in Valley Thicket, South Africa*. *Journal of Arid Environments*, 67: 270-287.
- Pote, J., Cocks, M., Dold, T., Lubke, R.A. and Shackleton, C. 2004. *The homegarden cultivation of indigenous medicinal plants in the Eastern Cape*. *Indigenous Plant Use Forum*, 5 - 8 July 2004, Augsburg Agricultural School, Clanwilliam, Western Cape.
- Pote, J. & Lubke, R.A. 2003. *The selection of indigenous species suitable for use as fuelwood and building materials as a replacement of invasive species that are currently used by the under-privileged in the Grahamstown commonage*. *Working for Water Inaugural Research Symposium* 19 - 21 August 2003, Kirstenbosch. Poster presentation.
- Pote, J. & Lubke, R.A. 2003. *The screening of indigenous pioneer species for use as a substitute cover crop for rehabilitation after removal of woody alien species by WfW in the grassy fynbos biome in the Eastern Cape*. *Working for Water Inaugural Research Symposium* 19 - 21 August 2003, Kirstenbosch, South Africa.

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#### OTHER RESEARCH EXPERIENCE

- Resource assessment of bark stripped trees in indigenous forests in Weza/Kokstad area (June 2000; Dr C. Geldenhuis & Mr. M. Kaplin).
- Working for Water research project for indigenous trees for woodlots (December 2000/January 2001; Prof R.A. Lubke, Rhodes University).
- Project coordinator and leader of the REFYN project – A BP conservation gold award: Conservation and Restoration of Grassy-Fynbos. A multidisciplinary project focusing on management, restoration and public awareness/education (2001 – 2002).
- Conservation Project Management Training Workshops: Royal Geographical Society, London 2001 – Fieldwork Techniques, Habitat Assessment, Biological Surveys, Project Planning, Public Relations and Communications, Risk Assessment, Conservation Education
- Selection and availability of wood in Crossroads village, Eastern Cape, South Africa. Honours Research Project 2002. Supervisors: Prof. R.A. Lubke & Prof. C. Shackleton.
- Floral Morphology, Pollination and Reproduction in *Cyphia* (LOBELIACEAE). Honours Research Project 2002. Supervisor: Mr. P. Phillipson.
- Forestry resource assessment of bark-stripped species in Amatola District (December 2002; Prof R.A. Lubke).
- Homegarden Cultivation of Medicinal Plants in the Amathole area. Postgraduate Research Project (2003-2005; Prof R.A. Lubke, Prof C.M. Shackleton and Ms C.M., Cocks).

## 5.4 Appendix D: Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity

### **SCOPE**

The protocol (*Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation (GN 320, 20 March 2020)*) provides the criteria for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation.

The protocol (*Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24(5)(a) and (h) and 44 of NEMA, gazetted on 30 October 2020*), provides the criteria for the assessment and reporting of impacts on plant and animal species for activities requiring environmental authorisation.

These protocols replace the requirements of Appendix 6 of the Environmental Impact Assessment Regulation<sup>9</sup>.

The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (<https://screening.environment.gov.za/screeningtool>). The requirements for terrestrial biodiversity are for landscapes or sites which support various levels of biodiversity. The relevant terrestrial biodiversity data in the screening tool has been provided by the South African National Biodiversity Institute<sup>10</sup>.

### **SITE SENSITIVITY VERIFICATION AND MINIMUM REPORT CONTENT REQUIREMENTS**

Prior to commencing with a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration as identified by the screening tool must be confirmed by undertaking a site sensitivity verification.

2.1. The site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist.

2.2. The site sensitivity verification must be undertaken through the use of:

- (a) a desk top analysis, using satellite imagery,
- (b) a preliminary on-site inspection; and
- (c) any other available and relevant information.

2.3. The outcome of the site sensitivity verification must be recorded in the form of a report that:

- (a) confirms or disputes the current use of the land and environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;
- (b) contains a motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and
- (c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

<sup>9</sup> The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act 107 of 1998).

<sup>10</sup> The biodiversity dataset has been provided by the South African National Biodiversity Institute (for details of the dataset, click on the options button to the right of the various biodiversity layers on the screening tool).

## TERRESTRIAL BIODIVERSITY SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
1	General Information	
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being "very high sensitivity" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment.	✓
1.2	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being 'low sensitivity' for terrestrial biodiversity, must submit a Terrestrial Biodiversity Compliance Statement.	✓
1.3	However, where the information gathered from the site sensitivity verification differs from the designation of 'very high' terrestrial biodiversity sensitivity on the screening tool and it is found to be of a 'low' sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.	✓
1.4	Similarly, where the information gathered from the site sensitivity verification differs from that identified as having a 'low' terrestrial biodiversity sensitivity on the screening tool, a Terrestrial Biodiversity Specialist Assessment must be conducted.	✓
1.5	If any part of the proposed development footprint falls within an area of 'very high' sensitivity, the assessment and reporting requirements prescribed for the 'very high' sensitivity apply to the entire footprint, excluding linear activities for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. Development footprint in the context of this protocol means the area on which the proposed development will take place and includes any area that will be disturbed.	✓
VERY HIGH SENSITIVITY RATING for terrestrial biodiversity features		
2	Terrestrial Biodiversity Specialist Assessment	
2.1	The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with expertise in the field of terrestrial biodiversity.	
2.2	The assessment must be undertaken on the preferred site and within the proposed development footprint.	
2.3	The assessment must provide a baseline description of the site which includes, as a minimum, the following aspects:	
2.3.1	a description of the ecological drivers or processes of the system and how the proposed development will impact these;	
2.3.2	ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the preferred site;	
2.3.3	the ecological corridors that the proposed development would impede including migration and movement of flora and fauna;	
2.3.4	the description of any significant terrestrial landscape features (including rare or important flora-faunal associations, presence of strategic water source areas (SWSAs) or freshwater ecosystem priority area (FEPA) sub catchments);	
2.3.5	a description of terrestrial biodiversity and ecosystems on the preferred site, including:	
(a)	main vegetation types;	
(b)	threatened ecosystems, including listed ecosystems as well as locally important habitat types identified;	

<b>ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY</b>	
(c)	ecological connectivity, habitat fragmentation, ecological processes and fine- scale habitats; and
(d)	species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified;
2.3.6	the assessment must identify any alternative development footprints within the preferred site which would be of 'low' sensitivity as identified by the screening tool and verified through the site sensitivity verification; and
2.3.7	the assessment must be based on the results of a site inspection undertaken on the preferred site and must identify:
2.3.7.1	terrestrial critical biodiversity areas (CBAs), including:
(a)	the reasons why an area has been identified as a CBA;
(b)	an indication of whether or not the proposed development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation;
(c)	the impact on species composition and structure of vegetation with an indication of the extent of clearing activities in proportion to remaining extent of the ecosystem type(s);
(d)	the impact on ecosystem threat status;
(e)	the impact on explicit subtypes in the vegetation;
(f)	the impact on overall species and ecosystem diversity of the site; and
(g)	the impact on any changes to threat status of populations of species of conservation concern in the CBA;
2.3.7.2	terrestrial ecological support areas (ESAs), including:
(a)	the impact on the ecological processes that operate within or across the site;
(b)	the extent the proposed development will impact on the functionality of the ESA; and
(c)	loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration   and movement of flora and fauna;
2.3.7.3	protected areas as defined by the National Environmental Management: Protected Areas Act, 2004 including
(a)	an opinion on whether the proposed development aligns with the objectives or purpose of the protected area and the zoning as per the protected area management plan;
2.3.7.4	priority areas for protected area expansion, including-
(a)	the way in which in which the proposed development will compromise or contribute to the expansion of the protected area   network;
2.3.7.5	SWSAs (strategic water source areas) including:
(a)	the impact(s) on the terrestrial habitat of SWSA; and
(b)	the impacts of the proposed development on the SWSA water quality and quantity (e.g. describing potential increased runoff leading to increased sediment load in water courses),
2.3.7.6	FEPA sub catchments, including-
(a)	the impacts of the proposed development on habitat condition and species in the FEPA sub catchment;
2.3.7.7	indigenous forests, including:
(a)	impact on the ecological integrity of the forest and

<b>ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY</b>		
(b)	percentage of natural or near natural indigenous forest area lost and a statement on the implications in relation to the remaining areas.	
2.4	The findings of the assessment must be written up in a Terrestrial Biodiversity Specialist Assessment Report	
3.	Terrestrial Biodiversity Specialist Assessment Report	
3.1	The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:	
3.1.1	contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	
3.1.2	a signed statement of independence by the specialist;	
3.1.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment,	
3.1.4	description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modeling used, where relevant;	
3.1.5	a description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	
3.1.6	a location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	
3.1.7	additional environmental impacts expected from the proposed development;	
3.1.8	any direct, indirect and cumulative impacts of the proposed development;	
3.1.9	the degree to which impacts and risks can be mitigated;	
3.1.10	the degree to which the impacts and risks can be reversed;	
3.1.11	the degree to which the impacts and risks can cause loss of irreplaceable resources;	
3.1.12	proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr),	
3.1.13	A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a 'low' terrestrial biodiversity sensitivity and that were not considered appropriate,	
3.1.14	a substantiated statement based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval a not; and	
1.1.15	any conditions to which this statement is subjected.	
3.2	The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.	
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	
<b>LOW SENSITIVITY RATING – for terrestrial biodiversity features</b>		
4	Terrestrial Biodiversity Compliance Statement	✓
4.1	The compliance statement must be prepared by a specialist registered with the SACNASP and having expertise in the field of ecological sciences.	✓
4.2	The compliance statement must:	✓
4.2.1	be applicable to the preferred site and proposed development footprint;	✓
4.2.2	confirm that the site is of 'low' sensitivity for terrestrial biodiversity; and	✓

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
4.2.3	indicate whether or not the proposed development will have any impact on the biodiversity feature.	✓
4.3	The compliance statement must contain, as a minimum, the following information:	✓
4.3.1	the contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	✓
4.3.2	a signed statement of independence by the specialist;	✓
4.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	✓
4.3.4	a baseline profile description of biodiversity and ecosystems of the site;	✓
4.3.5	the methodology used to verify the sensitivities of the terrestrial biodiversity features on the site, including equipment and modeling used, where relevant;	✓
4.3.6	in the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures propped, the land can be returned to the current state within two years of completion of the construction phase;	✓
4.3.7	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMP;R;	✓
4.3.8	a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	✓
4.3.9	any conditions to which this statement is subjected.	EAP
4.4	A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	EAP

#### **ANIMAL SPECIES SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS**

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
1	General Information	
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “very high” or “high” sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Specialist Assessment Report.	✓
1.2	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “medium sensitivity” for terrestrial animal species must submit either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.	✓
1.3	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “low” sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Compliance Statement.	✓
1.4	Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” or “high”, for terrestrial animal species sensitivity and it is found to be of a “low” sensitivity, then a Terrestrial Animal Species Compliance Statement must be submitted.	✓
1.5	Where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” terrestrial animal species sensitivity and it is found to be of a “very high” or “high” terrestrial animal species sensitivity, a Terrestrial Animal Species Specialist Assessment must be conducted.	✓
1.6	If any part of the development falls within an area of confirmed “very high” or “high” sensitivity, the assessment and reporting requirements prescribed for the “very high”	✓

<b>ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY</b>		
	or “high” sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol means, the area on which the proposed development will take place and includes the area that will be disturbed or impacted.	
1.7	The Terrestrial Animal Species Specialist Assessment and the Terrestrial Animal Species Compliance Statement must be undertaken within the study area.	✓
1.8	Where the nature of the activity is not expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.	✓
1.9	Where the nature of the activity is expected to have an impact on SCC beyond the boundary of the preferred site, the project areas of influence (PAOI) must be determined by the specialist in accordance with Species Environmental Assessment Guideline <sup>11</sup> , and the study area must include the PAOI, as determined.	✓
<b>VERY HIGH AND HIGH SENSITIVITY RATING for terrestrial animal species</b>		
2	Terrestrial Animal Species Specialist Assessment	
	<p><b>VERY HIGH SENSITIVITY RATING</b></p> <p>Critical habitat for range-restricted species<sup>12</sup> of conservation concern, that have a global range of less than 10 km<sup>2</sup>.</p> <p>SCC listed on the IUCN Red List of Threatened Species<sup>13</sup> or on South Africa’s National Red List website<sup>14</sup> as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare.</p> <p>Species aggregations that represent ≥1% of the global population size of a species, over a season, and during one or more key stages of its life cycle.</p> <p>The number of mature individuals that ranks the site among the largest 10 aggregations known for the species.</p> <p>These areas are irreplaceable for SCC.</p>	✓
4.6	Where SCC are found on site or have been confirmed to be likely present, a Terrestrial Animal Species Specialist Assessment must be submitted in accordance with the requirements specified for “very high” and “high” sensitivity in this protocol.	✓
4.7	Similarly, where no SCC are found on site during the site inspection or the presence is confirmed to be unlikely, a Terrestrial Animal Species Compliance Statement must be submitted.	✓
<b>5 LOW SENSITIVITY RATING – for terrestrial animal species</b>		
	Terrestrial Animal Species Compliance Statement	
	Areas where no natural habitat remains.	
	Natural areas where there is no suspected occurrence of SCC.	
5.1	The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Zoological Science or Ecological Science).	✓
5.2	The compliance statement must:	✓
5.2.1	be applicable to the study area;	✓
5.2.2	confirm that the study area, is of “low” sensitivity for terrestrial animal species; and	✓
5.2.3	indicate whether or not the proposed development will have any impact on SCC.	✓

<sup>11</sup> Available at <https://bgis.sanbi.org/>

<sup>12</sup> Species with a geographically restricted area of distribution.

<sup>13</sup> <https://www.iucnredlist.org/>

<sup>14</sup> This category includes the categories Extremely Rare, Critically Rare and Rare

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
5.3	The compliance statement <sup>15</sup> must contain, as a minimum, the following information:	✓
5.3.1	contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;	✓
5.3.2	a signed statement of independence by the specialist;	✓
5.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	✓
5.3.4	a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;	✓
5.3.5	the mean density of observations/ number of samples sites per unit area <sup>15</sup> .	✓
5.3.6	where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	✓
5.3.7	a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	✓
5.3.8	any conditions to which the compliance statement is subjected.	✓
6.	A signed copy of the Terrestrial Animal Species Compliance Statement must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.	✓

#### PLANT SPECIES SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
<b>1</b>	<b>General Information</b>	
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of “very high” or “high” sensitivity for <u>terrestrial plant species</u> must submit a <b>Terrestrial Plant Species Specialist Assessment Report</b> .	✓
1.2	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “medium sensitivity” for <u>terrestrial plant species</u> must submit <b>either a Terrestrial Plant Species Specialist Assessment Report or a Terrestrial Plant Species Compliance Statement</b> , depending on the outcome of a site inspection undertaken in accordance with paragraph 4.	✓
1.3	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of “low” sensitivity for <u>terrestrial plant species</u> must submit a <b>Terrestrial Plant Species Compliance Statement</b> .	✓
1.4	Where the information gathered from the site sensitivity verification differs from the screening tool designation of “very high” or “high”, for terrestrial plant species sensitivity and it is found to be of a “low” sensitivity, then a <b>Terrestrial Plant Species Compliance Statement</b> must be submitted.	✓
1.5	Where the information gathered from the site sensitivity verification differs from the screening tool designation of “low” terrestrial plant species sensitivity and it is found to be of a “very high” or “high” terrestrial plant species sensitivity, a <b>Terrestrial Plant Species Specialist Assessment</b> must be conducted.	✓
1.6	If any part of the development falls within an area of confirmed “very high” or “high” sensitivity, the assessment and reporting requirements prescribed for the “very high” or “high” sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol means, the area on which the proposed development will take place and includes the area that will be disturbed or impacted.	✓
1.7	The <b>Terrestrial Plant Species Specialist Assessment</b> and the <b>Terrestrial Plant Species Compliance Statement</b> must be undertaken within the <i>study area</i> .	✓

<sup>15</sup> An example of a what is contained in a Compliance Statement for Animal Species Impact Assessment can be found in the Species Environmental Impact Assessment Guideline

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
1.8	Where the nature of the activity <b>is not</b> expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.	✓
1.9	Where the nature of the activity <b>is</b> expected to have an impact on SCC beyond the boundary of the preferred site, the <i>project areas of influence</i> (PAOI) must be determined by the specialist in accordance with <i>Species Environmental Assessment Guideline</i> <sup>16</sup> , and the study area must include the PAOI, as determined.	✓
<b>VERY HIGH AND HIGH SENSITIVITY RATING for terrestrial plant species</b>		
<b>2</b>	<b>Terrestrial Plant Species Specialist Assessment</b>	
	<b>VERY HIGH SENSITIVITY RATING</b> <ol style="list-style-type: none"> <li>Critical habitat for range-restricted species<sup>17</sup> of conservation concern, that have a global range of less than 10 km<sup>2</sup>.</li> <li>SCC listed on the IUCN Red List of Threatened Species<sup>18</sup> or on South Africa's National Red List website<sup>19</sup> as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare.</li> <li>Species aggregations that represent ≥1% of the global population size of a species, over a season, and during one or more key stages of its life cycle.</li> <li>The number of mature individuals that ranks the site among the largest 10 aggregations known for the species.</li> </ol> These areas are irreplaceable for SCC.  <b>HIGH SENSITIVITY RATING</b> <ol style="list-style-type: none"> <li>Confirmed habitat for SCC.</li> <li>SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.</li> </ol> These areas are unsuitable for development due to a very likely impact on SCC.	✓
2.3.12	identify any <u>alternative development footprints</u> within the preferred site which would be of "low" or "medium" sensitivity as identified by the screening tool and verified through the site sensitivity verification.	✓
2.4	The findings of the assessment must be written up in a <b>Terrestrial Plant Species Specialist Assessment Report</b> .	✓
<b>3</b>	<b>Terrestrial Plant Species Specialist Assessment Report</b>	✓
3.1.13	a <u>motivation must be provided</u> if there were any development footprints identified as per paragraph 2.3.12 above that were identified as having "low" or "medium" terrestrial plant species sensitivity and were not considered appropriate.	✓
<b>4</b>	<b>MEDIUM SENSITIVITY SPECIES OF CONSERVATION CONCERN CONFIRMATION</b>	
	<b>MEDIUM SENSITIVITY RATING – for terrestrial plant species:</b> <ol style="list-style-type: none"> <li><u>Suspected habitat for SCC</u> based either on there being records for this species collected in the past, prior to 2002, or <u>being a natural area included in a habitat suitability model</u><sup>20</sup>.</li> <li><u>SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website</u> as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.</li> </ol>	✓
4.6	Where SCC <u>are found on site or have been confirmed</u> to be likely present, a <b>Terrestrial Plant Species Specialist Assessment</b> must be submitted in accordance with the requirements specified for "very high" and "high" sensitivity in this protocol.	✓
4.7	Similarly, where <u>no SCC are found on site during the site inspection</u> or the presence is confirmed to be unlikely, a <b>Terrestrial Plant Species Compliance Statement</b> must be submitted.	✓

<sup>16</sup> Available at <https://bgis.sanbi.org/>

<sup>17</sup> Species with a geographically restricted area of distribution.

<sup>18</sup> <https://www.iucnredlist.org/>

<sup>19</sup> This category includes the categories Extremely Rare, Critically Rare and Rare

<sup>20</sup> The methodology by which habitat suitability models have been developed are explained within the Species Environmental Assessment Guideline.

ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY		
<b>5</b>	<b>LOW SENSITIVITY RATING – for terrestrial plant species</b>	
	<b>Terrestrial Plant Species Compliance Statement</b>	✓
	1. Areas where no natural habitat remains.	
	2. Natural areas where there is no suspected occurrence of SCC.	
5.1	The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Botanical Science or Ecological Science).	✓
5.2	The compliance statement must:	✓
5.2.1	be applicable to the study area;	✓
5.2.2	confirm that the study area, is of “low” sensitivity for terrestrial plant species; and	✓
5.2.3	indicate whether or not the proposed development will have any impact on SCC.	✓
5.3	The compliance statement <sup>21</sup> must contain, as a minimum, the following information:	✓
5.3.1	contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;	✓
5.3.2	a signed statement of independence by the specialist;	✓
5.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	✓
5.3.4	a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;	✓
5.3.5	where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	✓
5.3.6	a description of the assumptions made and any uncertainties or gaps in knowledge or data;	✓
5.3.7	the mean density of observations/ number of samples sites per unit area <sup>22</sup> ; and	✓
5.3.8	any conditions to which the compliance statement is subjected.	✓
6	A signed copy of the <b>Terrestrial Plant Species Compliance Statement</b> must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.	✓

<sup>21</sup> An example of a what is contained in a Compliance Statement for Plant Species Impact Assessment can be found in the Species Environmental Impact Assessment Guideline

<sup>22</sup> Refer to the Species Environmental Assessment Guideline

## 5.5 Appendix E: Preliminary Site Sensitivity Verification Report

### 5.5.1 Background & Locality

Newlyn Group (Newlyn) is proposing to operate a bulk manganese and iron ore terminal on Farm RE/1139 located in Saldanha Bay, Western Cape (Figure 26). The storage and handling facility will have a capacity of 5 million tons per annum (mtpa) for manganese and 10 mtpa for iron ore. The site is situated on Farm 1139 is approximately 180.17 ha in extent and located to the east of Saldanha Bay and to the north of the Port of Saldanha. The proposed storage and handling site is situated on approximately 61 ha of the northernmost section of Farm RE/ 1139.

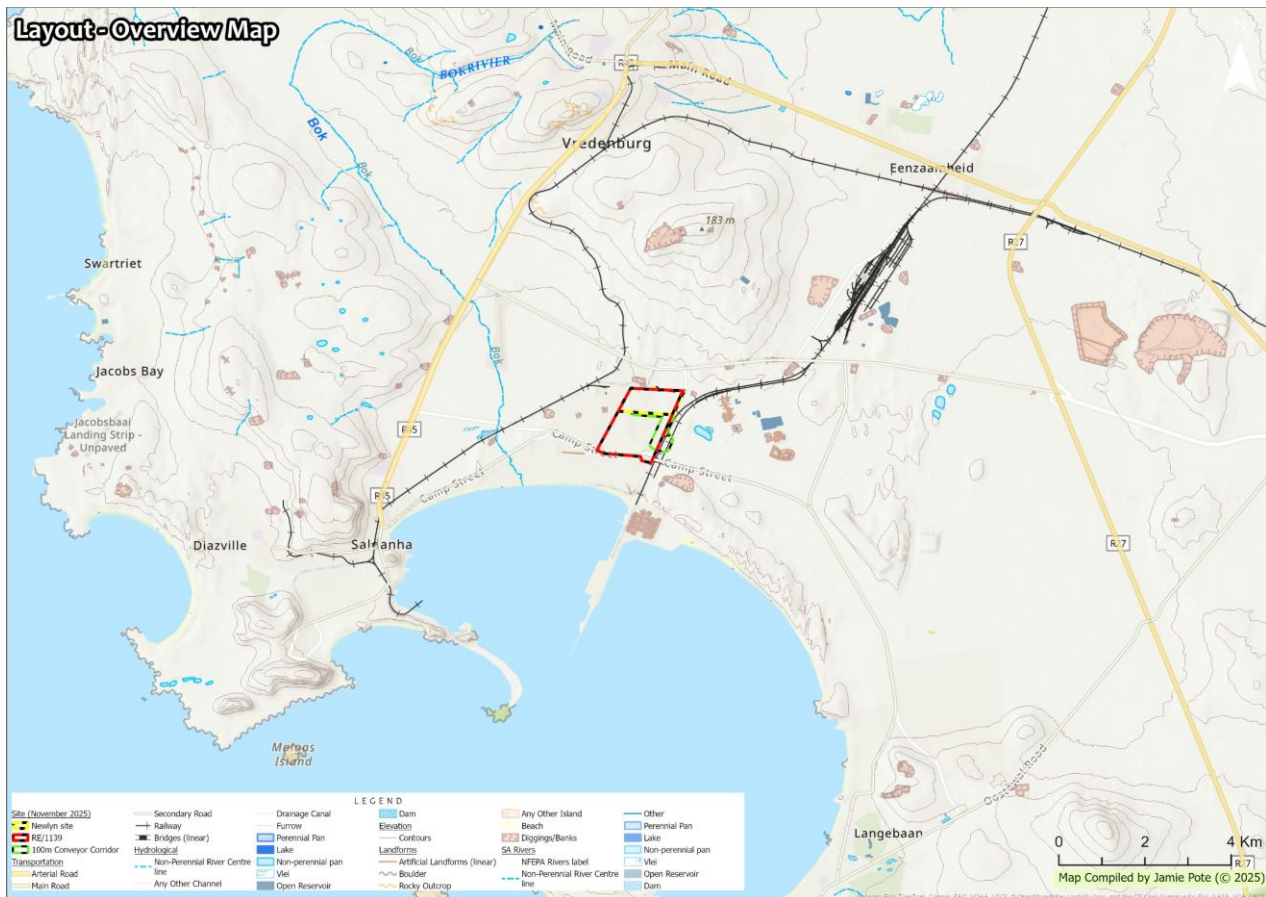


Figure 26: Site Locality.

### 5.5.2 Purpose of Report

The “Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24 (5) (a) and (h) and 44 of the Act, when applying for Environmental Authorisation”, as published on 20 March, 2020 in National Gazette, No. 43110 in terms of NEMA (Act 107 of 1998) sections 24(5)(a), (h) and 44, lists protocols and minimum report requirements for environmental impacts on terrestrial biodiversity and provides the criteria for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation. The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the National web based Environmental Screening Tool. Prior to commencing with a specialist assessment, the current use of the land and the environmental sensitivity of the site under consideration, identified by the screening tool, must be confirmed by undertaking a **site sensitivity verification**, which must include the following.

1. The site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist.

2. The site sensitivity verification must be undertaken through the use of:
  - a. a desk top analysis, using satellite imagery.
  - b. a preliminary on-site inspection; and
  - c. any other available and relevant information.
3. The outcome of the site sensitivity verification must be recorded in the form of a report that:
  - a. confirms or disputes the current use of the land and environmental sensitivity as identified by the screening tool.
  - b. contains a motivation and evidence of either the verified or different use of the land and environmental sensitivity; and
  - c. is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

The National Web Based Screening Tool was used to generate the potential environmental sensitivity of the site which has then been compared to various online and other databases and information sources in order to verify and confirm the validity of the screening tool findings. This was further supported with on-site observations and analysis of most recent aerial photography.

This terrestrial biodiversity site verification has been undertaken as per the requirements of the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation (GN 320, 20 March 2020).

### 5.5.3 Data sources and references

Data sources that were utilised for this report include the following:

- National (DFFE) Web Based Screening Tool – to generate the sites potential environmental sensitivity.
- National Vegetation Map 2025 (NVM, 2025), Mucina & Rutherford (2006) and National Biodiversity Assessment or Red Listed Ecosystems (NBA/RLE, 2022) – description of vegetation types, species (including endemic) and most recent vegetation unit conservation status.
- National and Regional Legislation including Provincial Nature Conservation Ordinance (P.N.C.O). NEM:BA Threatened or Protected Species (ToPS).
- Botanical Database of Southern Africa (BODATSA) and New Plants of Southern Africa (POSA) – lists of plant species and potential species of concern found in the general area (SANBI.)
- International Union for Conservation of Nature (IUCN) - Red List of Threatened Species.
- Animal Demography Unit Virtual Museum (VM) – potential faunal species.
- Global Biodiversity Information Facility (GBIF) – potential flora & faunal species.
- National Red Books and Lists - mammals, reptiles, frogs, dragonflies & butterflies.
- National Freshwater Ecosystem Priority Areas assessment (NFEPA, 2011) - important catchments.
- National Protected Areas Expansion Strategy (NPAES, 2018) and South Africa Protected Area database (2020) – protected area information.
- SANBI BGIS – All other biodiversity GIS datasets.
- Western Cape Biodiversity Spatial Plan (2017 & 2023).
- Aerial Imagery – Google Earth, ESRI, Chief Surveyor General (<http://csg.dla.gov.za>).
- Cadastral and other topographical country data - Chief Surveyor General (<http://csg.dla.gov.za>).
- Other sources may include peer-reviewed journals, regional and local assessments, and studies in the general location of the project and its area of influence, landscape prioritization schemes (Key Biodiversity Areas), systematic conservation planning assessments and plans (as above), and any pertinent masters and doctoral theses, among others.

This terrestrial biodiversity assessment has been undertaken as per the requirements of the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation (GN 320, 20 March 2020).

#### 5.5.4 Site visit

A site inspection was conducted on **08 August 20205**, during late summer/early spring. The site falls within a temperate climate with rainfall occurring throughout the year but is often higher in winter, hence for the purposes of this report, a single site visit is deemed to be adequate, specifically due to the disturbed nature of the site.

#### 5.5.5 Assumptions, Uncertainties and Gaps in Knowledge

The findings and recommendations of this report may be susceptible to the following uncertainties and limitation:

- No assessment has been made of aquatic aspects relating to any wetlands, pans, and/or rivers/seep ecosystems outside of the scope of a terrestrial biodiversity report. Refer to separate reporting.
- Any botanical surveys based upon a limited sampling time-period, may not reflect the actual species composition of the site due to seasonal variations in flowering times. Additionally, the composition of fire adapted vegetation may vary depending on level of maturity or time since last burn. As far as possible, site collected data has been supplemented with desktop and database-centred distribution data.
- As far as possible, site collected data has been supplemented with desktop and database-centred distribution data as well as previous studies undertaken in the area.

#### 5.5.6 National Environmental Screening Tool

The DEA National Environmental Screening Tool (*referred to hereafter as 'NEST'*) identifies Very High Terrestrial Biodiversity (CBA1 & 2, ESA 1 & 2, Critically Endangered & Endangered Ecosystem); Medium/High Animal Species (several species), Medium Plant Species (numerous species), mostly Low Aquatic sensitivities in proximity to or within the site (Figure 26).

The content of the report will address the findings of the screening tool as well as any site-specific sensitivities that may not have been identified the screening tool. The site screening has verified the likely presence of flagged species and other potential species not identified in the screening tool, based on available distribution data sourced from GBIF, which includes iNaturalist records as well as those contained in fauna collections and flora herbarium records. Not all features are necessarily directly affected by the activity but being in proximity, the associated risks will be investigated further and addressed in the report where appropriate. The National Environmental Screening Tool identifies the following terrestrial related risks:

- Terrestrial Biodiversity is Very High across the site (Figure 27).
- Plant species sensitivity is Medium (Figure 28).

Table 9: Summary of Screening Tool flagged sensitivities.

SENSITIVITY	FEATURE(S) IN PROXIMITY
<b>Terrestrial (Ecological)</b>	
Very High	CBA 1: Terrestrial, CBA 2: Terrestrial, CR Saldanha Limestone Strandveld, EN Saldanha Flats Strandveld
High	None
Medium	None
Low	Present
<b>Plants (Flora)</b>	

SENSITIVITY	FEATURE(S) IN PROXIMITY
Very High	None
High	None.
Medium	<i>Antimima limbata</i> , <i>Ruschia cupulata</i> , <i>Ruschia langebaanensis</i> , <i>Ruschia tecta</i> , <i>Drosanthemum hispifolium</i> , <i>Cephalophyllum rostellum</i> , <i>Indigofera platypoda</i> , <i>Otholobium venustum</i> , <i>Wiborgia fusca</i> subsp. <i>macrocarpa</i> , <i>Podalyria sericea</i> , <i>Leucadendron cinereum</i> , <i>Leucospermum hypophyllocarpodendron</i> subsp. <i>canaliculatum</i> , <i>Manulea augei</i> , <i>Manulea corymbosa</i> , <i>Echiostachys spicatus</i> , <i>Geissorhiza lewisiae</i> , <i>Sparaxis calcicola</i> , <i>Ixia purpureorosea</i> , <i>Romulea barkerae</i> , <i>Romulea saldanhensis</i> , <i>Ferraria densepunctulata</i> , <i>Ferraria parva</i> , <i>Pauridia longituba</i> , <i>Pauridia linearis</i> , <i>Empodium veratrifolium</i> , <i>Oxalis burtoniae</i> , <i>Oxalis subsessilis</i> , <i>Erica trichostigma</i> , <i>Hermannia procumbens</i> subsp. <i>myrrhifolia</i> , <i>Galenia crystallina</i> var. <i>maritima</i> , <i>Hessea mathewsii</i> , <i>Annesorhiza calcicola</i> , <i>Cynanchum zeyheri</i> , <i>Felicia elongata</i> , <i>Steirodiscus tagetes</i> , <i>Cineraria angulosa</i> , <i>Cotula duckittiae</i> , <i>Cotula eckloniana</i> , <i>Osteospermum calcicola</i> , <i>Helichrysum bachmannii</i> , <i>Agathosma thymifolia</i> , <i>Limonium acuminatum</i> , <i>Limonium purpuratum</i> , <i>Muraltia harveyana</i> , <i>Silene ornata</i> , <i>Silene saldanhensis</i> , <i>Phyllica greyii</i> , <i>Wiborgiella dahlgrenii</i> , <i>Argyrolobium velutinum</i> , <i>Xiphotheca reflexa</i> , <i>Leucospermum rodolentum</i> , <i>Cotula pusilla</i> , <i>Helichrysum dunense</i> , <i>Muraltia obovata</i> , Sensitive species 1225, 244, 878, 222, 93, 840, 333, 156, 599, 881, 816, 127, 272, 1243,
Low	Present



Figure 27: Terrestrial Biodiversity Sensitivity.



Figure 28: Plant Species Sensitivity.

The terrestrial biodiversity assessment will also physically screen for the presence of the listed, and other possible species and/or sensitivities that are not identified in the screening tool in addition to those that are flagged. Not all features are directly affected, but being in proximity, the risks associated with the activity will be investigated further and addressed in the report.

The following is deduced from the DFFE National Environmental Screening Tool:

- The terrestrial biodiversity theme is Very High due to the site overlapping with designated CBA 1 & 2 areas as well as Endangered & Critically Endangered vegetation units (Saldanha Limestone Strandveld & Saldanha Flats Strandveld). While the Very High sensitivity designation for the specific footprints is confirmed due the conservation status of the represented units, it is disputed pertaining to the CBA 1 designations, as the site assessment and analysis of historical imagery indicate that the site is secondary vegetation where historical natural vegetation was likely removed for agricultural purposes. The specialist is thus required to assign a very high terrestrial biodiversity sensitivity as per reporting protocol requirements.
- Several flora (plant) species regarded as being of concern are flagged as potentially being present (Medium sensitivity) and are assessed further in the report, however none were found to be present during the site visit and are furthermore due to the transformed nature of the site, it is not deemed to be suitable habitat for any functional species population. The Medium sensitivity designation is thus disputed for the specific footprints and the specialist thus assigns a low plant (flora) species sensitivity. The absence of flora (plant) species of conservation concern and presence of species indicative as pioneers of strandveld are further indicators of significant historical transformation and/or degradation, likely when used for agriculture.

- Fauna (animal) species regarded as being of concern are flagged as potentially being present (High sensitivity) but are assessed under a separate faunal specialist assessment and will not be considered in detail in this report.
- The aquatic sensitivity is assessed under a separate aquatic specialist assessment and will not be considered in detail in this report.
- The impacts pertaining to terrestrial biodiversity and flora (plant) species are assessed further in the relevant report sections in the assessment report.

### 5.5.7 Findings, Outcomes and Recommendations

#### Terrestrial Biodiversity

Site verification of the Terrestrial Biodiversity sensitivities is summarised in Table 10 and depicted in Figure 29, where CBA is green and ESA is light blue/yellow. The CBA and ESA designation are primarily associated with feature adjacent to the site and/or outside of the proposed development/activity footprint.



Figure 29: Western Cape Biodiversity Spatial Plan (WCBSP, 2017) –The site does overlap with CBA 1 & CBA 2 areas.

Table 10: Terrestrial Biodiversity Features flagged in the National Environmental Screening Tool.

FEATURE		COMMENT
Critical Biodiversity Area 1	CBA 1	<b>Dispute</b> – Based on evidence on site as well as historical photos, the vegetation on site appears to be secondary in nature and thus a CBA 1 designation would be incorrect.
Critical Biodiversity Area 2	CBA 2	<b>Agree</b> – the designation of CBA 2 is likely to be correct as vegetation appears to be degraded and/or

FEATURE	COMMENT
	secondary in nature and thus the CBA 2 designation would be appropriate.
Endangered Vegetation	<b>Partially Agree</b> – The vegetation unit represented is likely to have been the endangered unit, however, based on site evidence and historical photos the vegetation appears to be secondary in nature and is comprised primarily of pioneer species and expected species indicative of a pristine or natural unit are largely absent.

The SSVR thus partially agrees overall with the flagged terrestrial biodiversity VERY HIGH designation, however site verification and historical aerial photos suggest that the vegetation is in fact secondary and not natural (pristine) or near natural and the specialist thus assigns a MODERATE TO HIGH terrestrial biodiversity sensitivity.

### **Plant Species (Flora)**

National Environmental Screening Tool flagged several flora species. Almost the entire site is situated within a significantly altered and degraded landscape, where no natural vegetation remains. No significant pockets of natural vegetation were found that might provide suitable habitat for these species and it is confirmed that no species of conservation concern having an elevated status and/or limited distribution range as flagged in the screening tool are present.

The SSVR thus disputes the flagged flora ('plant') Species of Conservation Concern and MEDIUM plant species designations, and the specialist thus assigns a LOW plant species sensitivity.

### **Animal Species (Fauna)**

Refer to separate faunal assessment report.

### **Aquatic**

Refer to separate aquatic assessment report.

## 5.5.8 Conclusions

The site verification thus confirms that the site does not fall within a terrestrial biodiversity screening tool designated CBA area, as there is no evidence of any ecologically significant remaining natural vegetation that will be affected by the specific activity, as the footprint is within degraded, transformed or densely invaded areas, which will have limited and significantly modified ecological function.

It further disputes that any of the screening tool flagged flora species of conservation concern are likely to be affected by the proposed activity within a degraded, modified and transformed landscape where no suitable habitat for such species is present.

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