

# Plant Species Compliance Statement report

prepared in accordance with the  
*"Protocol for the Specialist Assessment and minimum report content  
requirements for environmental impacts on Terrestrial Plant Species"*

Keurbooms Lifestyle Village on Portion 38 of the Farm 444 in  
Plettenberg Bay in the Western Cape Province



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# Terrestrial Plant Species Compliance Statement Report for Keurbooms Lifestyle Village on Portion 38 of the Farm 444 in Plettenberg Bay in the Western Cape Province

31 January 2024

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# SPECIALIST DETAILS & DECLARATION

This report has been prepared in accordance with the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity", as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020. It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows –

Table 1: Details of Specialist

Specialist	Qualification and accreditation
Dr David Hoare (Pr.Sci.Nat.)	<ul style="list-style-type: none"><li>• PhD Botany</li><li>• SACNASP Reg. no. 400221/05 (Ecology, Botany)</li></ul>

## Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by David Hoare Consulting (Pty) Ltd is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

## Disclosure:

David Hoare Consulting (Pty) Ltd undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to David Hoare Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, David Hoare Consulting (Pty) Ltd present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



Dr David Hoare

31 January 2024  
Date

# TERMS OF REFERENCE

## PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES

This report is prepared in compliance with the PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES

This assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 1150 dated 30 October 2020 for Terrestrial Plant Species and Terrestrial Animal Species. As per these Regulations, the approach for assessing sensitivity with respect to Terrestrial Plant Species and Terrestrial Animal Species is in accordance with guidelines described in the latest version of the "*Species Environmental Assessment Guideline*", available at <https://bgis.sanbi.org/>.

The assessment and minimum reporting requirements of these protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The screening tool can be accessed at:

<https://screening.environment.gov.za/screeningtool>.

# INTRODUCTION

## Site location

The site, which is Erf 38/444, is in Goose Valley in Plettenberg Bay, slightly south-east (on the coastal side) of the N2 National Road between Plettenberg Bay and the crossing of the Bitou River. Refer to Figure 1 below for the general location.

The site is directly adjacent to the Goose Valley Golf Estate, on the northern boundary. There is a road running from the N2 to the lagoon, past the property. More than half of the property is within the salt marsh part of the lagoon (see Figure 2).

The scope of this report is the part of the property that is proposed for development. The entire site is 8.58 ha of which less than half on the western side is proposed for development.



**Figure 2: Aerial image of the site and surrounding areas.**

## Identified Theme Sensitivities

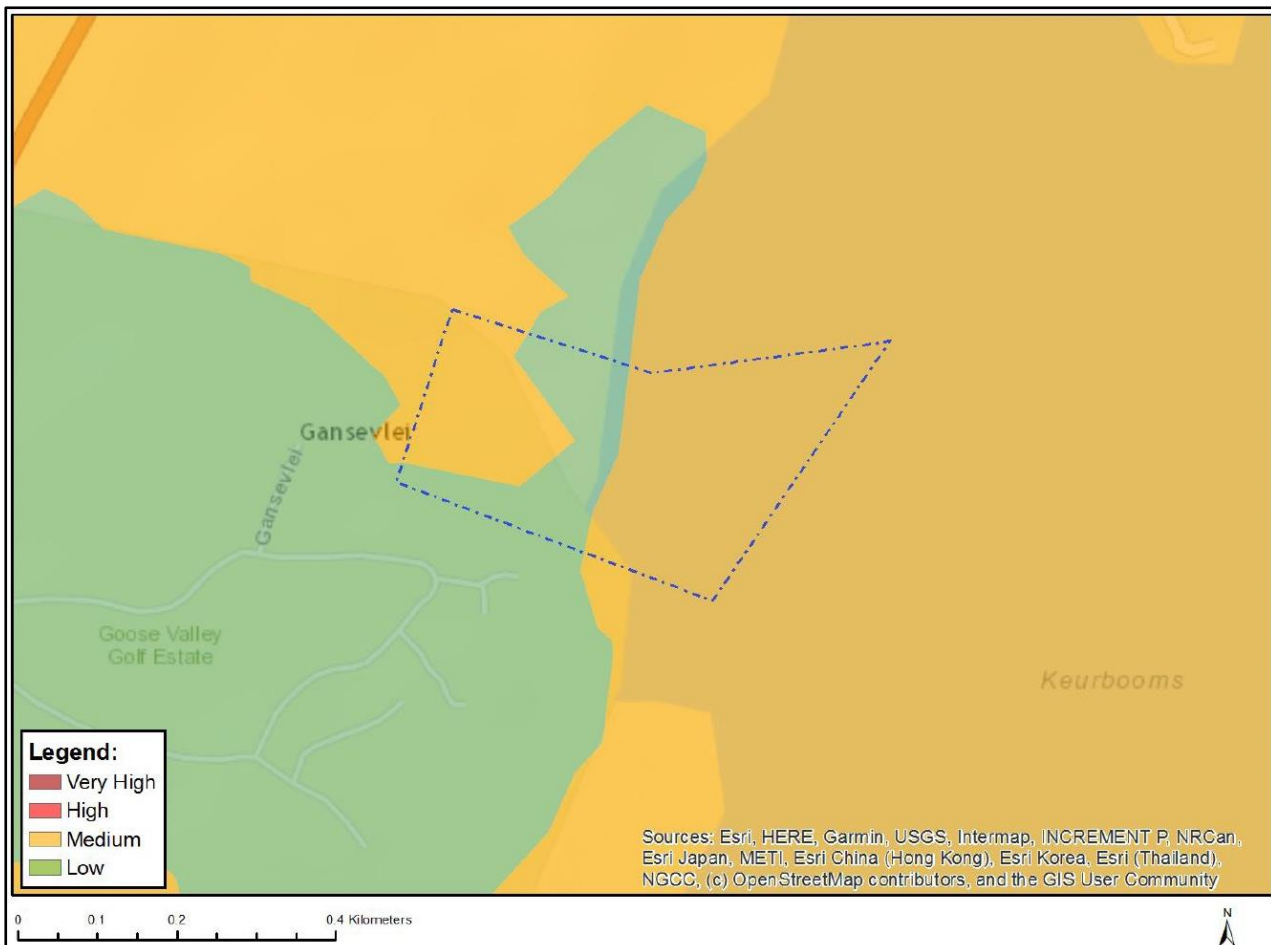
A sensitivity screening report from the DEA Online Screening Tool was requested in the application category: Transformation of land | Indigenous vegetation. The DEA Screening Tool report for the area, dated 23/01/2024, indicates the following sensitivities (see Figure 3):

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Plant Species Theme			X	

### **Plant Species theme**

Sensitivity features are indicated as follows:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Lampranthus pauciflorus
Medium	Ruschia duthiae
Medium	Lebeckia gracilis
Medium	Leucospermum glabrum
Medium	Selago burchellii
Medium	Erica chloroloma
Medium	Erica glandulosa subsp. fourcadei
Medium	Hermannia lavandulifolia
Medium	Sensitive species 657
Medium	Sensitive species 1032
Medium	Cotula myriophylloides
Medium	Acmadenia alternifolia
Medium	Muraltia knysnaensis
Medium	Sensitive species 800
Medium	Erica glumiflora
Medium	Sensitive species 500
Medium	Sensitive species 763
Medium	Zostera capensis



**Figure 3: Map of relative plant species theme sensitivity.**



# ASSESSMENT METHODOLOGY

The detailed methodology followed as well as the sources of data and information used as part of this assessment is described below.

## Project Area of Influence (PAOI)

The proposal is to develop the site for residential purposes. This will include 12 units and associated infrastructure (see Figure 4 for preferred layout). Anticipated impacts will mostly occur during the construction phase. These impacts are not expected to extend significantly beyond the boundaries of the study area, except for possible edge effects. The units on the eastern side are at the summit of a relatively steep slope that overlooks the estuary, for which erosion and downslope impacts are a potentially serious concern. The PAOI is therefore treated here as the development footprint within which direct impacts will occur, as well as the vegetated slope overlooking the estuary (Figure 5).

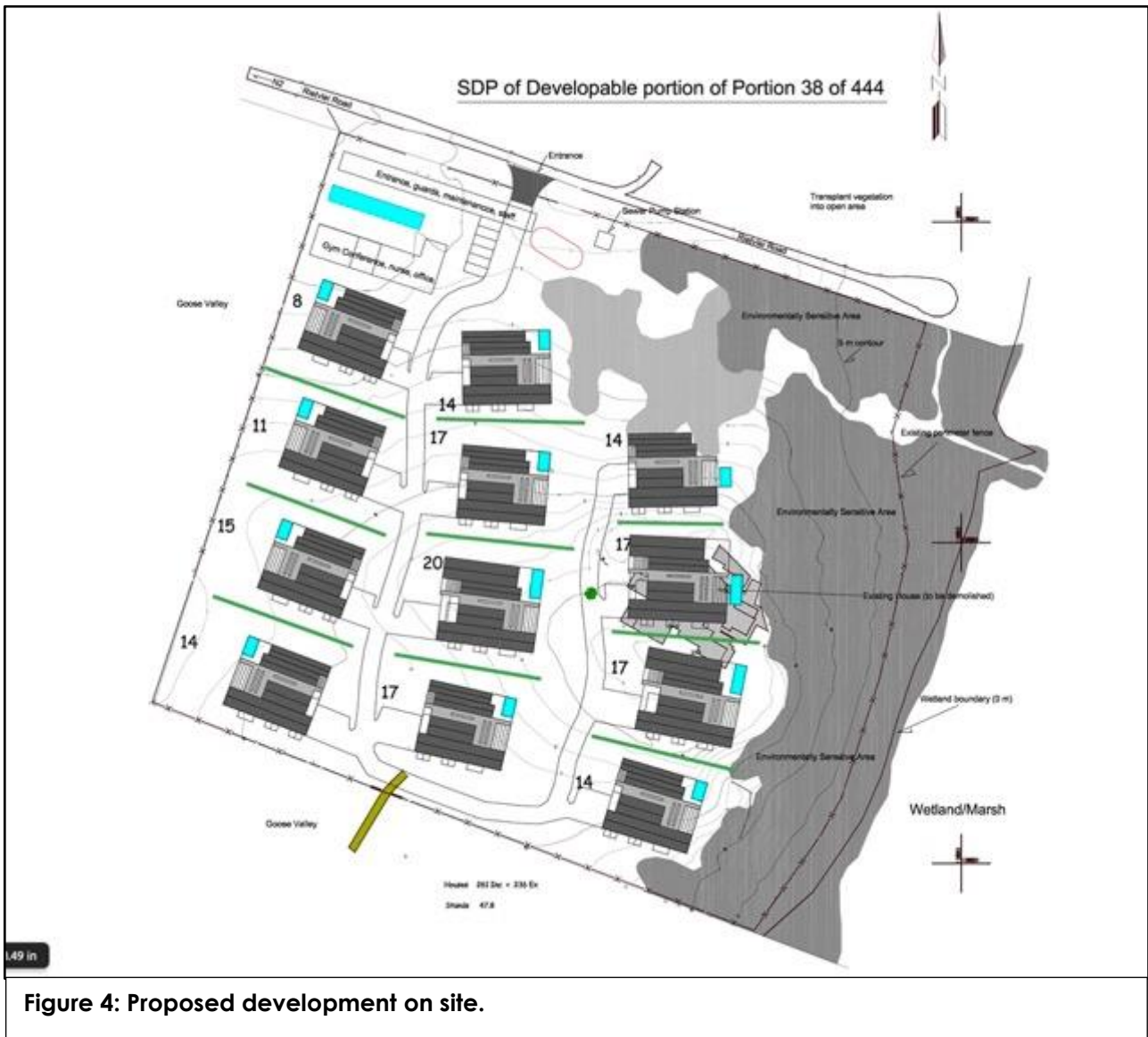


Figure 4: Proposed development on site.

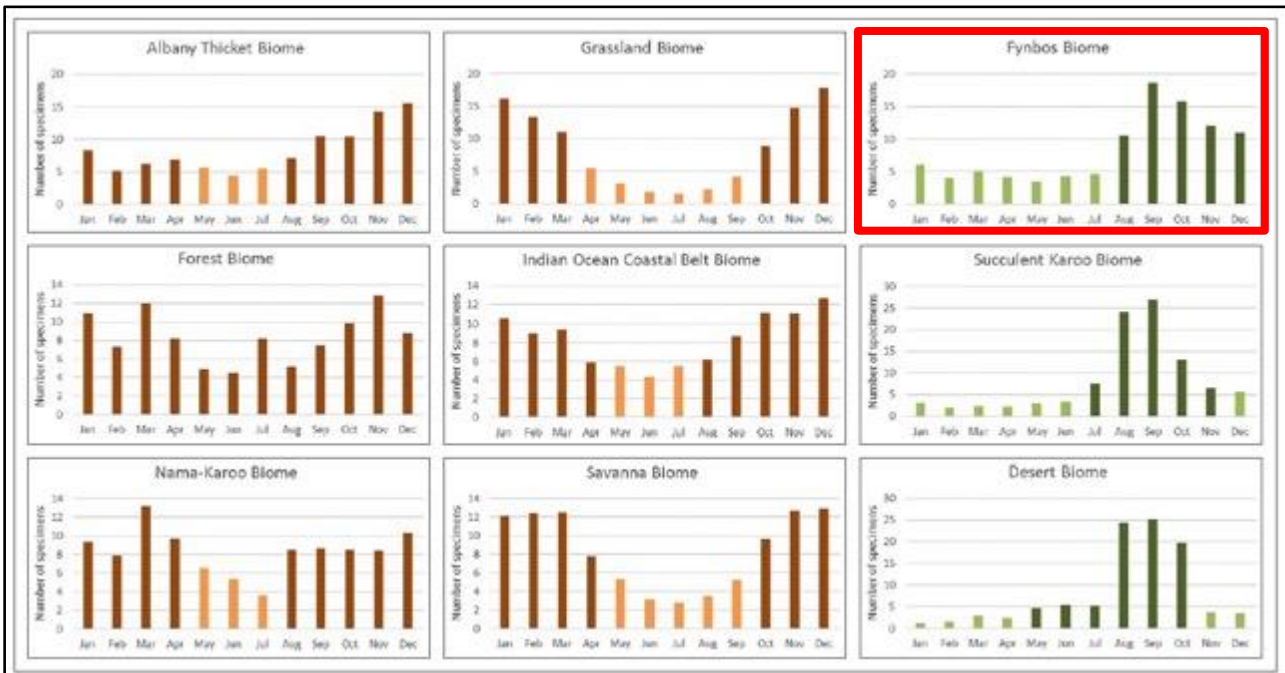


**Figure 5: Project Area of Influence (PAOI) for the current assessment.**

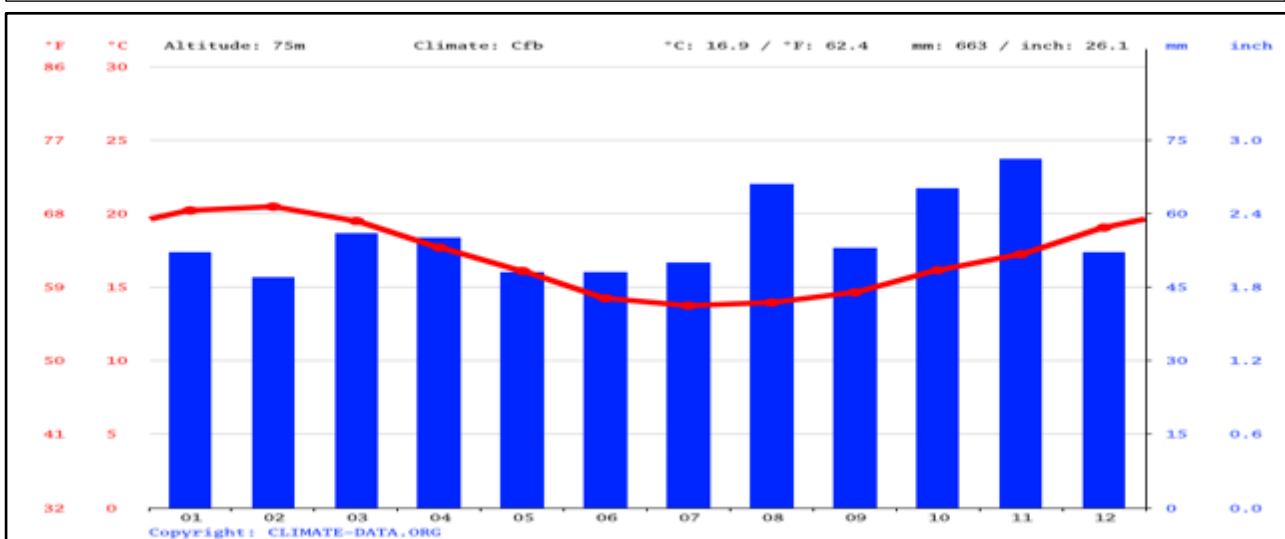
There is an existing pathway along the base of the slope that forms a natural barrier to any downslope impacts that could potentially occur for the proposed project. The existing road along the northern boundary, and the existing Goose Valley Golf Estate along the other two (western and southern) boundaries, also form natural breaks in any potential impacts. The PAOI is therefore bound by these existing barriers.

# Survey timing

The study commenced as a desktop-study followed by site-specific field study on 1 March 2022 and 29 March 2023. The site is within the Fynbos Biome with an all-year rainfall season with a slight dip in early winter (Figure 6). A more accurate indication of rainfall seasonality, which drives most ecological processes, is shown in Figure 7, which shows that Plettenberg Bay has peak rainfall from August to November, with another smaller peak in March to April. The timing of the survey in February is therefore suitable in terms of assessing the flora and vegetation of the site. The overall condition of the vegetation was possible to be determined with a high degree of confidence.



**Figure 7: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Fynbos Biome.**



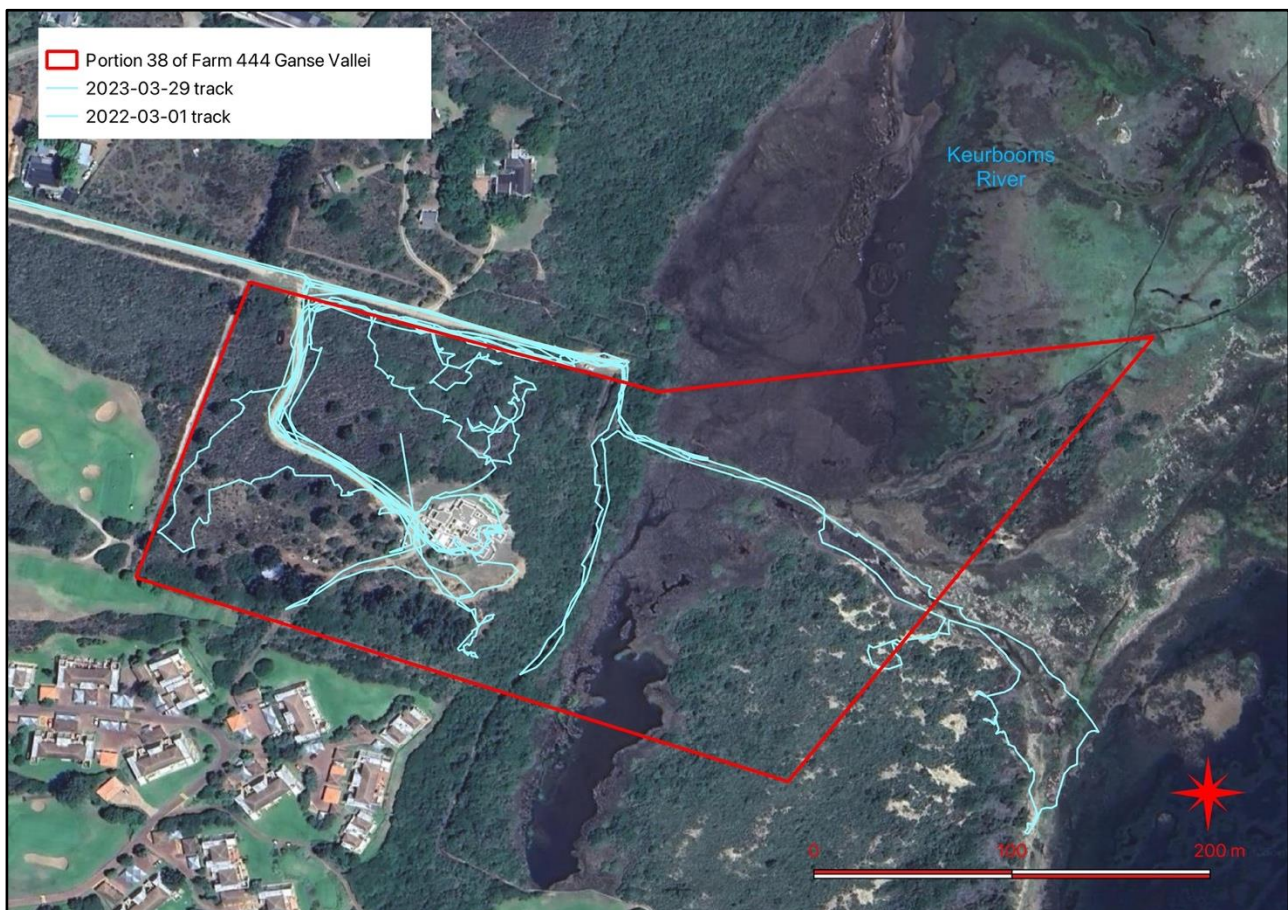
**Figure 6: Climate diagram showing average monthly rainfall and temperature for Plettenberg Bay.**



## Field survey approach

The study commenced as a desktop-study followed by a site-specific field study. During the field survey of habitats on site, the entire property was assessed on foot. Field surveys included both meander searches of general areas, and active searching in habitats that were considered to be suitable for specific groups or species. Meander surveys were undertaken with no time restrictions - the objective was to comprehensively examine all natural areas. A hand-held Garmin GPSMap 64s was used to record a track within which observations were made (Figure 8). Digital photographs were taken of features and habitats on site, as well as of all plant species that were seen. All plant and animal species recorded were uploaded to the iNaturalist website (<https://www.inaturalist.org>) and are accessible by viewing the observations for the site (use the Explore menu, zoom and pan until the desired study area is within the browser window, click the button "Redo search in map", and all observations for that area will be shown and listed).

Aerial imagery from Google Earth was used to identify and assess habitats on site. This included historical imagery that may show information not visible in any single dated image. Patterns identified from satellite imagery were verified on the ground. Digital photographs were taken at locations where features of interest were observed. During the field survey, particular attention was paid to ensuring that all habitat variability was covered physically on the ground.



**Figure 8: GPS track log of areas walked in the course of undertaking this assessment.**

## Sources of information

### **Vegetation and plant species**

- Plant species that could potentially occur on in the general area was extracted from the NewPosa database of the South African National biodiversity Institute (SANBI) for the quarter degree grid/s in which the site is located.
- The IUCN Red List Category for plant species, as well as supplementary information on habitats and distribution, was obtained from the SANBI Threatened Species Programme (Red List of South African Plants, <http://redlist.sanbi.org>).
- Lists were compiled specifically for any species at risk of extinction (Red List species) previously recorded in the area. Historical occurrences of threatened plant species were obtained from the South African National Biodiversity Institute (<http://posa.sanbi.org>) for the quarter degree square/s within which the study area is situated. Habitat information for each species was obtained from various published sources. The probability of finding any of these species was then assessed by comparing the habitat requirements with those habitats that were found, during the field survey of the site, to occur there.
- Regulations published for the National Forests Act (Act 84 of 1998) (NFA) as amended, provide a list of protected tree species for South Africa. The species on this list were assessed in order to determine which protected tree species have a geographical distribution that coincides with the study area and habitat requirements that may be met by available habitat in the study area. The distribution of species on this list were obtained from published sources (e.g. van Wyk & van Wyk 1997) and from the SANBI Biodiversity Information System website (<http://sibis.sanbi.org/>) for quarter degree grids in which species have been previously recorded. Species that have been recorded anywhere in proximity to the site (within 100 km), or where it is considered possible that they could occur there, were listed and were considered as being at risk of occurring there.

## Limitations

The following assumptions, limitations, uncertainties are listed regarding the assessment of the site:

- The assessment is based on two detailed site visits. The current study is based on extensive site visits as well as a desktop study of the available information. The time spent on site was adequate for understanding general patterns across affected areas.
- Compiling the list of species that could potentially occur on site is limited by the paucity of collection records for the area. The list of plant species that could potentially occur on site was therefore taken from a wider area and from literature sources that may include species that do not occur on site and may miss species that do occur on site. In order to compile a comprehensive site-specific list of the biota on site, studies would be required that would include different seasons, be undertaken over a number of years and include extensive sampling. Due to legislated time constraints for environmental authorisation processes, this is not possible.
- Rare and threatened plant species are, by their nature, usually very difficult to locate and can be easily missed.



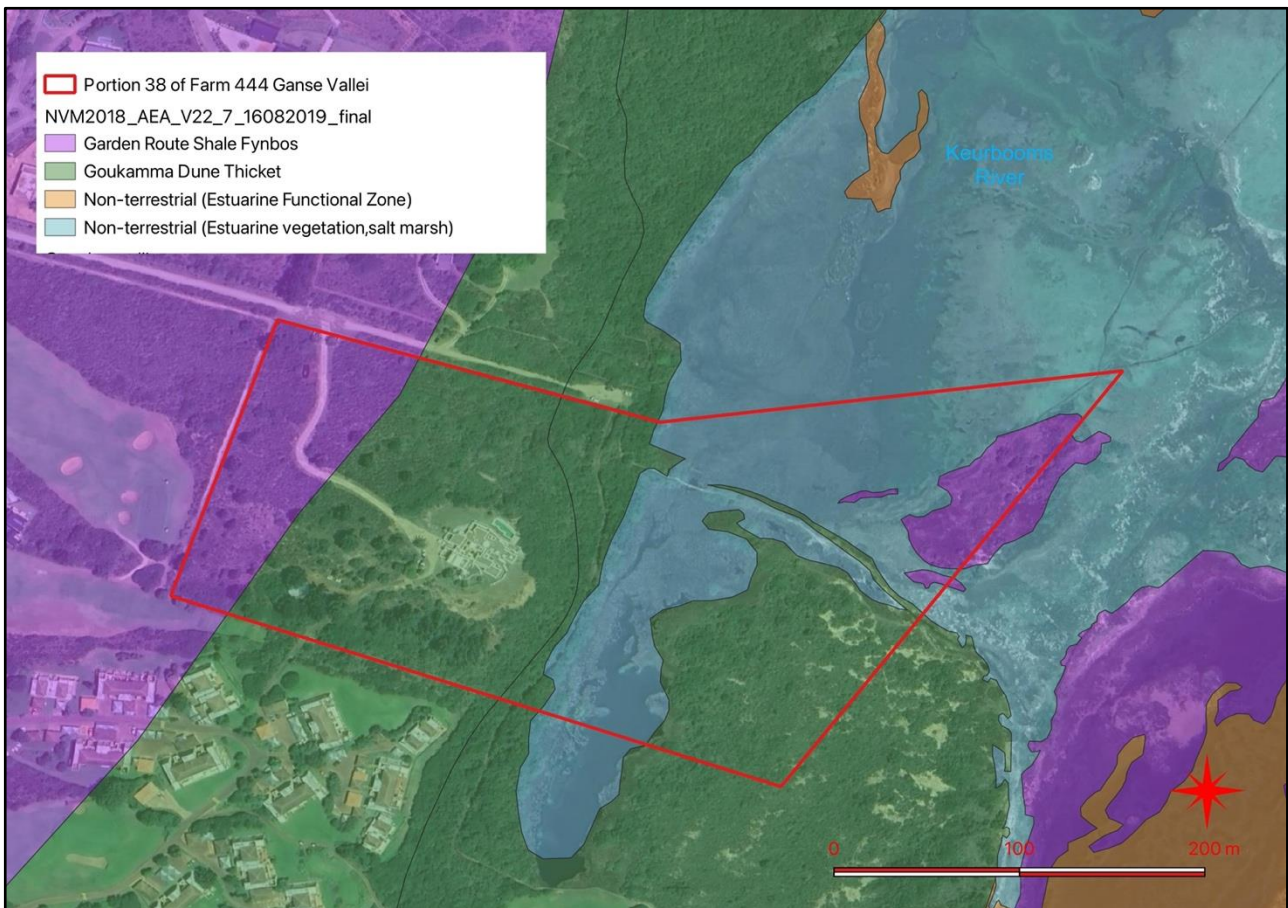
# OUTCOME OF THE ASSESSMENT

## Regional vegetation patterns

There are two regional terrestrial vegetation type mapped for the property within which the development is located, namely Garden Route Shale Fynbos and Goukamma Dune Thicket. There is also estuarine vegetation and other estuarine habitat. Detailed published descriptions of these regional vegetation types are available online and in printed form and it is not described further here.

Garden Route Shale Fynbos is listed as Endangered in the Revised National List of Ecosystems that are Threatened and in need of Protection.

Only Garden Route Shale Fynbos and Goukamma Dune Thicket are affected by the proposed development (Figure 9). The national vegetation map is not mapped at a fine scale and the on-site patterns do not necessarily match this description.



**Figure 9: Regional vegetation types of the site and surrounding areas.**

## Historical disturbance on site

Historical aerial photographs (1936, 1960, 1974) (see Figure 10, for example from 1960), shows that the property has probably always been in a natural state, with no evidence of soil disturbance from ploughing. The existing house is already in place in 1960, as well as a short row of trees along the boundary to the south of the house. These patterns are mostly consistent with the vegetation patterns found on site, as determined from the site visit - the exception is that the fynbos on site appears from its current structure and species composition to be secondary, but no conclusive evidence of ploughing exists from the available imagery.



**Figure 10: Historical aerial image of the property, dated 14 December 1960.**



## Verification of observations on site

According to the "AMENDMENT TO THE PROTOCOLS FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL AND PLANT SPECIES IN TERMS OF SECTIONS 24(5)(a) AND (h) AND 44 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998", a specialist report must include the following:

5.3.4A verifiable evidence from the specialist's site inspection, including as a minimum:

5.3.4A.1 a map showing the specialist's GPS track in relation to the study area; and

5.3.4A.2 at least 4 spatially representative sample site descriptions from across the study area that include as a minimum:

(a) precise geographical coordinates of the sample site;

(b) at least one in situ photograph (taken on site by the specialist during the site inspection) of the sample site; and

(c) a habitat description of the sample site;"

To address these specific requirements, photographs of landscapes on site were taken at various localities to show conditions on site. A map showing the location of these photographs is provided in Figure 12. A GPS track log is provided in Figure 8 in the section of this report titled "Field Survey Approach".



**Figure 11: Location of photographs taken on site during the site inspection.**





**Photo 6019**  
**34° 1' 27.9" S, 23° 23' 12.51" E**

**Secondary fynbos alongside the existing driveway on site.**



**Photo 6018**  
**34° 1' 30.51" S, 23° 23' 10.488" E**

**View of secondary fynbos on site, dominated by *Osteospermum moniliferum*, *Erica peltata*, *Passerina corymbosa*, *Anthospermum aethiopicum*, *Agathosma apiculata*, *Trichocephalus stipularis*, *Seriphium plumosum*, *Eriocephalus africanus*, *Chironia baccifera*, *Helichrysum cymosum* and *Restion triticeus*.**



**Photo 6027**  
**34° 1' 31.04" S, 23° 23' 15.198" E**

**View down the driveway of the existing house southwards towards the Goose Valley Golf Estate, showing gardens.**





**Photo 6042**  
**34° 1' 31.5" S, 23° 23' 24.75" E**

Photo from within the estuarine area looking back towards the existing house on site. Note the band of thicket growing on the slope between the house and the estuarine vegetation. In the foreground is mixed salt marsh vegetation and *Juncus*.



**Photo 6052**  
**34° 1' 29.99" S, 23° 23' 22.152" E**

Photo from within the estuarine area looking back towards the existing house on site. Note the band of thicket growing on the slope between the house and the estuarine vegetation. The foreground is dominated by *Juncus kraussii*, a typical component of the estuarine tidal vegetation.



**Photo 6048**  
**34° 1' 33.77" S, 23° 23' 25.788" E**

Example of dune fynbos / thicket mosaic within vegetated dunes in the estuarine environment.



**Photo 6033**  
**34° 1' 31.63" S, 23° 23' 15.108" E**

**Garden rehabilitation on the south-eastern side of the existing house.**



**Photo 6037**  
**34° 1' 31.83" S, 23° 23' 17.49" E**

**Top of the slope next to the existing house showing the edge of the thicket on the estuarine-facing slope, and a view of the estuary below**



**Photo 6039**  
**34° 1' 32.48" S, 23° 23' 16.332" E**

**Southern edge of existing gardens showing area where exotic pine trees have been cleared where they are invading into the thicket vegetation.**



## Natural habitats on site

Based on two detailed field surveys to verify conditions on site, it was determined that the site consists of a single vegetation community, namely Fynbos, with a small amount of disturbance around the edge. There is some woody encroachment that has taken place in recent years, otherwise this pattern has been stable for nearly 100 years. A general habitat map is shown for the entire property in Figure 12. A series of photographs are provided above that give various views of the vegetation on site (in section of report "Verification of observations on site" with locations shown in Figure 11). The habitat assessment is important for understanding the natural status of the vegetation on site (whether in a natural state or secondary, and whether degraded, disturbed or in good condition), which affects the sensitivity. For the Plant Species assessment, it also provides habitats in which sensitive species could potentially occur.

### **Estuarine salt marsh**

This is the vegetation within the estuarine environment that is subject to occasional to daily flooding from tidal rise and fall of water. An example of the vegetation is shown in Photo 6042. It is a combination of herbaceous and succulent species with taller rushes. The species composition includes the following: *Chenolea diffusa*, *Gazania rigens*, *Juncus kraussii*, *Limonium scabrum*, *Morella cordifolia*, *Salicornia decumbens*, *Samolus porosus*, *Sporobolus virginicus*, *Triglochin bulbosa* and *Triglochin striata*. The rush, *Juncus kraussii*, is dominant in extended areas (Photo 6052). The salt marsh vegetation is functional and in relatively good condition.



**Figure 12: Map of habitats on site.**

### **Dune thicket / strandveld mosaic**

There are areas within the estuarine environment with raised vegetated dunes. The vegetation is a mosaic of strandveld/fynbos and dune thicket. An example of the vegetation is shown in Photo 6048. The species composition includes the following: *Agathosma apiculata*, *Asparagus aethiopicus*, *Crassula atropurpurea*, *Cynanchum natalitium*, *Cyperus brevis*, *Gasteria acinacifolia*, *Gazania rigens*, *Metalsia muricata*, *Morella cordifolia*, *Olea exasperata*, *Passerina rigida*, *Polygala myrtifolia*, *Pterocelastrus tricuspidatus*, *Restio eleocharis*, *Robsonodendron maritimum*, *Searsia crenata*, *Sideroxylon inerme* and *Solanum africanum*. The vegetation is functional and in relatively good condition. There are a few signs of trampling from people traversing the area, but this is relatively minimal.

### **Mesic thicket**

The thicket on site occurs on the relatively steep, sea-facing slope and is relatively typical of the thicket overlooking the coast in the Plettenberg Bay and Keurbooms area. It is mesic thicket, tending towards low forest, sometimes being a single stratum with a tangled structure (typical of thicket), and in areas where the vegetation is taller, having a completely open understorey (more typical of forest). An example of the vegetation (in the background) is shown in Photo 6052. The species composition includes the following: *Apodytes dimidiata*, *Buddleja saligna*, *Carissa bispinosa*, *Euclea racemosa*, *Justicia leptantha*, *Lauridia tetragona*, *Mystroxyloa aethiopicum*, *Scolopia zeyheri* and *Sideroxylon inerme*.

There is some **Degraded Thicket** to the south of the existing house, mostly degraded due to heavy invasion by pine trees, but also more recently invaded by the wattle, *Acacia cyclops*. There has been recent clearing of alien plants within this area. This is shown in Photo 6039.

### **Dune thicket**

There is an area just inland of the thicket slope that has been mapped as Dune Thicket. It is possible that it has developed over an extended period of time (>100 years) within areas of fynbos in the absence of fire. However, the landscape slopes more steeply here than where the fynbos is mapped, and historical aerial photos show some evidence that this area probably persists as thicket over an extended period of time (prior to current historical periods in which fire has been regularly excluded). The species composition includes the following: *Aloe arborescens*, *Apodytes dimidiata*, *Asplenium aethiopicum*, *Chrysocoma ciliata*, *Clausena anisata*, *Cynanchum obtusifolium*, *Diospyros dichrophylla*, *Erica sparsa*, *Grewia occidentalis*, *Gymnosporia nemorosa*, *Hypoestes forskalii*, *Indigofera verrucosa*, *Maytenus procumbens*, *Mystroxyloa aethiopicum*, *Olea europaea*, *Pittosporum viridiflorum*, *Pterocelastrus tricuspidatus*, *Rhoicissus digitata*, *Rhynchosia caribaea*, *Rubia petiolaris*, *Searsia crenata*, *Sideroxylon inerme*, *Tarchonanthus littoralis* and *Viscum rotundifolium*.

### **Fynbos**

The fynbos on site has uniform structure over most of the area where it occurs, but is moribund, invaded by several alien invasive species, and has relatively low species richness. An example of the vegetation is shown in Photo 6018 and 6019. The species composition includes the following: the fynbos shrubs, *Agathosma apiculata*, *Anthospermum aethiopicum*, *Erica peltata*, *Eriocephalus africanus*, *Helichrysum cymosum*, *Passerina corymbosa*, *Seriphium plumosum* and *Trichocephalus stipularis*, the restios, *Restio triticeus*, and *Thamnochortus insignis*, the grasses and sedges, *Cyperus brevis*, *Cyperus uitenhagensis*, *Digitaria eriantha*, *Megathyrsus maximus*, *Pentameris pallida* and *Tristachya leucothrix*, the herbaceous species, *Brunsvigia orientalis*, *Carpobrotus edulis*, *Chironia baccifera*, *Hypochaeris radicata*, *Indigofera polioties*, *Indigofera priorii*, *Pelargonium dipetalum*, *Pollichia campestris* and *Senecio inaequidens*, and the woody shrubs, *Asparagus aethiopicus*, *Carissa bispinosa*, *Diospyros dichrophylla*, *Grewia occidentalis*, *Osteospermum moniliferum*, *Pterocelastrus tricuspidatu*, *Searsia lucida* and *Sideroxylon inerme*.

This is a poor species richness and composition for intact healthy fynbos and suggests that the fynbos is either old secondary, or has been chronically disturbed for an extended period of time. The herbaceous species include some weedy species typical of disturbed areas (*Carpobrotus edulis*, *Hypochaeris radicata*, and *Senecio inaequidens*), there are a proportionally high number of grass

species (typical of old secondary fynbos, or fynbos with a high disturbance regime from factors such as grazing) and there are a high number of woody shrub species (indicating absence of fire). The typical fynbos shrubs are common in secondary fynbos, and there is a low presence of restios, ericas, and proteoids that are typical of fynbos.

Part of the fynbos on site is within the regional vegetation type, Garden Route Shale Fynbos (Endangered) and part is within Goukamma Dune Thicket. However, it is the same habitat - the discrepancy is due to local inaccuracies in the regional mapping. Where the fynbos occurs within the Goukamma Dune Thicket vegetation type, it occurs as a mosaic with thicket.

There is an area within the Fynbos that has been mapped as **Equestrian Paddocks**. Historical aerial photographs indicate that this was previously similar to the areas currently containing fynbos, but the area has been trampled and grazed to such an extent that the original vegetation has been lost, to be replaced by a plant community of more weedy species. The ground is covered mostly by a combination of *Cyperus brevis* and *Digitaria eriantha*, but there are localised areas where the tall restio, *Thamnochortus insignis*, has become dominant, and a few woody species have also established, including *Asparagus aethiopicus*, *Carissa bispinosa*, *Osteospermum moniliferum* and *Pterocelastrus tricuspidatus*.

## Plant species recorded on site

A total of 87 plant species were recorded on site (see Appendix 1), of which four are declared weeds and/or alien invader plants, five are naturalized exotic species, and the remainder are indigenous species.

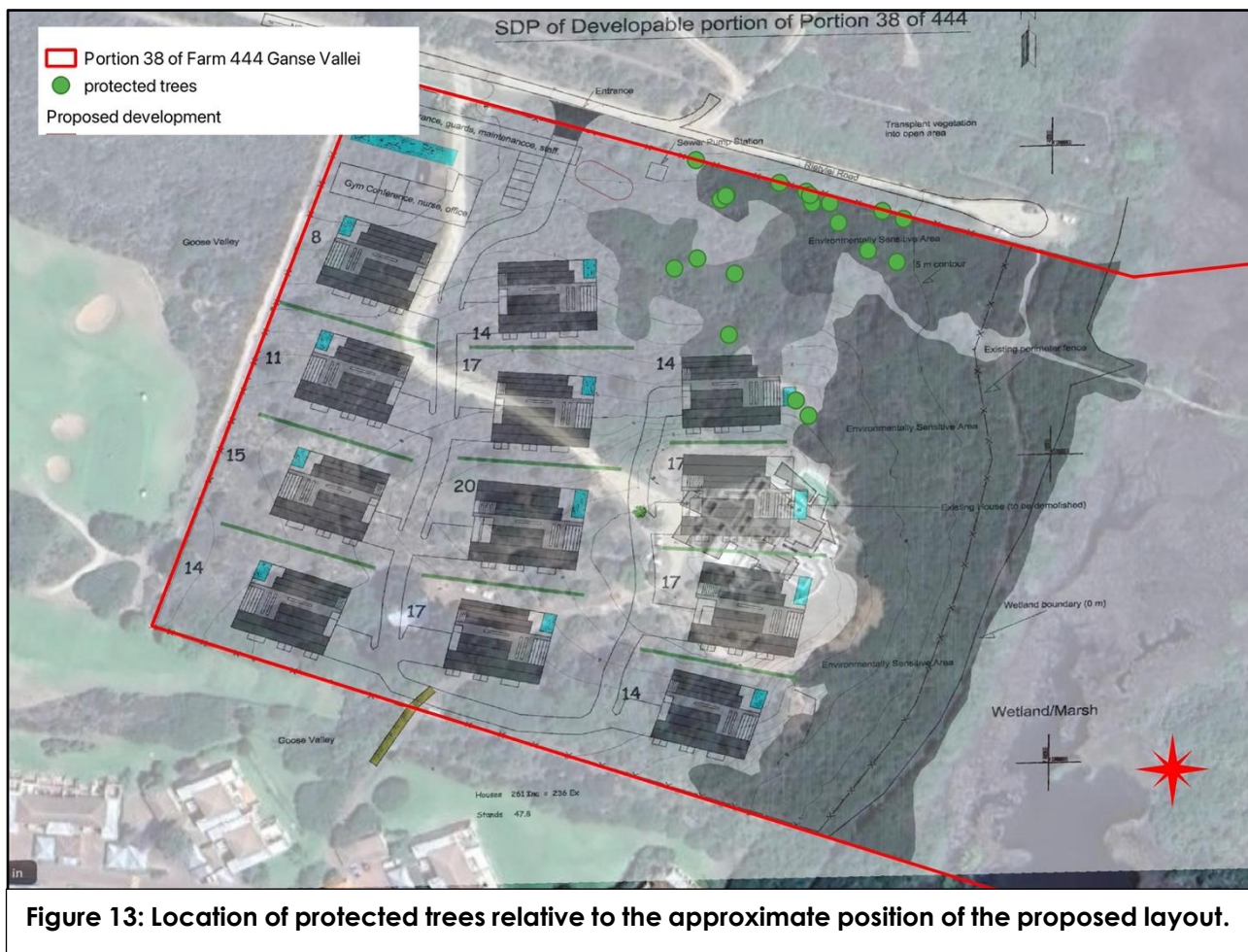
The alien invasive species are as follows:

- *Acacia cyclops*\* (NEMBA Category 1b)
- *Acacia mearnsii*\* (Invader category 1b)
- *Acacia saligna*\* (Invader category 1b)
- *Pinus sp*\* (NEMBA Category 2)

Two tree species protected under Section 15(1) of the National Forests Act, 1998 occur on site, as follows:

- *Pittosporum viridiflorum*.
- *Sideroxylon inerme*.

The location of those that occur within proximity to the proposed development were determined (Figure 13). Note that *Sideroxylon inerme* also occurs within other parts of the site not affected by the proposed development and were not mapped in those areas.



## Plant species flagged for the study area

According to the National Web-Based Environmental Screening Tool, a number of plant species of concern are flagged as of concern for the site (see previous section of this report). These are mostly fynbos species, or forest species.

There are a number of herbaceous species / low shrubs that have a moderate possibility of occurring on site, although none were found during the field survey. This includes the following: *Erica chloroloma* (Vulnerable), *Erica glandulosa* subsp. *fourcadei* (Vulnerable), *Lampranthus pauciflorus* (Endangered), *Lebeckia gracilis* (Endangered), *Muraltia knysnaensis* (Endangered), *Ruschia duthiae* (Vulnerable), *Zostera capensis* (Least Concern) and three Sensitive Species. For most of these, there is a possibility that they could occur on site, even though not seen during the site investigation.

A full list of the flagged species is provided below in Table 3.

**There are therefore ten threatened or sensitive species that could occur in the study area. It is therefore verified that the Plant Species Theme has MEDIUM sensitivity for this site** (*suspected habitat for SCC based either on historical records prior to 2002 or being a natural area included in a habitat suitability model for this species*).

Where SCC are found on site or have been confirmed to be likely present, a Terrestrial Plant Species Specialist Assessment must be submitted in accordance with the requirements specified for “very high” and “high” sensitivity (GN 1150: PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES).

Where no SCC are found on site during the investigation or if the presence is confirmed to be unlikely, a Terrestrial Plant Species Compliance Statement must be submitted.



**Table 2: Plant species of concern flagged for the site.**

Family	Taxon	Common name	IUCN status*	Distribution	Habitat	Probability of occurrence in PAOI
RUTACEAE	<i>Acmadenia alternifolia</i>	None	VU	Plettenberg Bay to Knysna, possibly extending as far as Nature's Valley. A number of observations from inland areas, including the mountain foothills north of Keurbooms, and north of the N2 at Harkerville	Coastal headlands and steep slopes, exposed positions on dry cliffs near the coast from Knysna to Plettenberg Bay.	<b>LOW</b> Distribution records suggest it could occur in the area, but no suitable habitat on site. <b>NOT FOUND</b>
ASTERACEAE	<i>Cotula myriophylloides</i>	None	CR	Cape Peninsula to Plettenberg Bay. Recorded from Piesang's River in salt marsh vegetation with similar characteristics to that found on the property (outside the PAOI).	Submerged in seasonal coastal pools, but also in marshes and on wet sand. Mostly in brackish, but also fresh, still or slowly moving water.	<b>LOW</b> Distribution records suggest it could occur in the area, but no suitable habitat in the PAOI. <b>NOT FOUND</b>
ERICACEAE	<i>Erica chloroloma</i>	None	VU	Wilderness to Fish River Mouth. Most observations are between Cape St Francis and Gqeberha. Nearest population known from Goukamma Nature Reserve (recent) and Buffalo Bay (1921).	Coastal dune fynbos. Distribution data suggests that it can occur in fynbos / thicket mosaic.	<b>MEDIUM</b> Broadly suitable fynbos habitat in PAOI, but in poor condition. <b>NOT FOUND</b>
ERICACEAE	<i>Erica glandulosa</i> subsp. <i>fourcadei</i>	None	VU	Mossel Bay to Cape St. Francis.	Coastal fynbos. Common in Goukamma Nature Reserve and on coastal	<b>MEDIUM</b> Broadly suitable fynbos habitat in PAOI, but in poor condition. <b>NOT FOUND</b>

Family	Taxon	Common name	IUCN status*	Distribution	Habitat	Probability of occurrence in PAOI
					cliffs SW of Plettenberg Bay	
MALVACEAE	Hermannia lavandulifolia	None	VU	Western Cape, from Worcester to the Overberg, and extending along the southern Cape coastal lowlands to Plettenberg Bay. All observations on iNaturalist are west of Knysna. Only single observation near Plett is on coast near Robberg.	Clay slopes in renosterveld and valley thicket. Collected on western part of Robberg Peninsula in 1960 (Acocks Coll. No. 21141).	<b>LOW</b> Known locations are west of the site. <b>NOT FOUND</b>
AIZOACEAE	Lampranthus pauciflorus	None	EN	Found in the Western Cape from Cape Infanta to Plettenberg Bay. Four known locations remain after most of this species' habitat has been transformed for coastal development. Habitat loss continues, especially around Plettenberg Bay, Mossel Bay and Knysna.	On rocky coastal slopes and clay hills. Major vegetation types include Groot Brak Dune Strandveld, Blombos Strandveld, Overberg Dune Strandveld, Potberg Sandstone Fynbos, Garden Route Granite Fynbos, Albertinia Sand Fynbos, Knysna Sand Fynbos, Hartenbos Strandveld, Goukamma Dune Thicket.	<b>MEDIUM</b> Recorded from Keurbooms, but known locations around Plett / Keurbooms are along the coastline in fynbos on rocky headlands, which does not occur on site. <b>NOT FOUND</b>

Family	Taxon	Common name	IUCN status*	Distribution	Habitat	Probability of occurrence in PAOI
FABACEAE	<i>Lebeckia gracilis</i>	None	EN	Port Elizabeth to Bredasdorp. Two main areas of occurrence are in the Lakes District between Knysna and George, and in the Albertinia area.	Coastal fynbos in deep sandy soils below 300 m.	<b>MEDIUM</b> Broadly suitable sandy fynbos habitat in PAOI, but in poor condition. Species not previously recorded around Plett. <b>NOT FOUND</b>
PROTEACEAE	<i>Leucospermum glabrum</i>	Outeniqua Pincushion	EN	Outeniqua and Tsitsikamma mountains. Observed multiple times around George in the mountains, as well as north of Plett. and around Keurbooms.	Wet south slopes in Sandstone Fynbos.	<b>LOW</b> The key habitat appears to be mesic mountain fynbos on the southern flanks of mountains. <b>NOT FOUND</b>
POLYGALACEAE	<i>Muraltia knysnaensis</i>	Knysna butterflybush	EN	Coastal lowlands between Mossel Bay and Keurbooms River.	Coastal fynbos on dry flats and hills.	<b>MEDIUM</b> Possibly suitable habitat on site. Previously recorded nearby but in shale renosterveld/fynbos inland of current site. <b>NOT FOUND</b>
AIZOACEAE	<i>Ruschia duthiae</i>	None	VU	A highly range-restricted but locally common species, known from 10 locations from Sedgefield to Nature's Valley. Quite common in the sandy soils of the	Gentle north-facing sandstone or shale slopes with grassy fynbos.	<b>MEDIUM</b> Possibly suitable habitat on site. Recorded from west of the site. <b>NOT FOUND</b>

Family	Taxon	Common name	IUCN status*	Distribution	Habitat	Probability of occurrence in PAOI
				Lakes District between Wilderness and Knysna.		
SCROPHULARIACEAE	<i>Selago burchellii</i>	None	VU	George to Plettenberg Bay, including Robberg coastal corridor, Knysna western heads, Goukamma, inland parts of the lakes area, and in the Outeniqua Mountains.	Coastal slopes and flats. Unverified observation from Robberg. Distribution data shows that it also occurs in the Outeniqua Mountains, which would be mountain fynbos.	<b>LOW</b> Possibly suitable habitat on site but known observations are west of the site and inland. <b>NOT FOUND</b>
ZOSTERACEAE	<i>Zostera capensis</i>	None	LC	Olifants River Mouth on the Cape West Coast to Kosi Bay, northern KwaZulu-Natal. It also occurs in Kenya, Madagascar, Mozambique and Tanzania.	Intertidal zone of permanently open estuaries. It occasionally persists in temporarily closed estuaries when conditions are saline.	<b>MEDIUM</b> Occurs in the area, and suitable habitat nearby (intertidal), but off-site. <b>NOT FOUND</b>
	Sensitive species 500		EN	Cape Flats to Gqeberha. Previously recorded from near Robberg.	Lowland sandy flats, stabilised dunes and coastal rock promontories. Observations include coastal and mountain habitats.	<b>MEDIUM</b> Distribution records suggest it could occur in the area. <b>NOT FOUND</b>
	Sensitive species 763		VU	Riversdale to Port St Johns. Recorded previously from near	Dry coastal renosterveld and grassy places in coastal forest.	<b>MEDIUM</b> Distribution records suggest it could occur in the area.

Family	Taxon	Common name	IUCN status*	Distribution	Habitat	Probability of occurrence in PAOI
				Keurbooms, as well as Diepwalle.		<b>NOT FOUND</b>
	Sensitive species 657		EN	Great Brak River to Port Elizabeth.	Coastline. Coastal habitats.	<b>LOW</b> , confined to coastal littoral habitat. <b>NOT FOUND</b>
	Sensitive species 1032		VU	George to Port Alfred.	On stabilised (fixed) dunes close to the shoreline. 0-150 m.	<b>MEDIUM</b> Broadly suitable fynbos habitat on property but not in in PAOI. <b>NOT FOUND</b>

# SITE ECOLOGICAL IMPORTANCE

The Species Environmental Assessment Guidelines require that a Site Ecological Importance (SEI) is calculated for each habitat on site, and provides methodology for making this calculation. The SEI is assessed separately for each biodiversity theme and is assessed below specifically for the Terrestrial Biodiversity theme.

As per the Species Environmental Assessment Guidelines, Site Ecological Importance (SEI) is calculated as a function of the Biodiversity Importance (BI) of the receptor and its resilience to impacts ( $SEI = BI + RR$ ). The Biodiversity Importance (BI) in turn is a function of Conservation Importance (CI) and Functional Integrity (FI), i.e.  $BI = CI + FI$ .

An assessment of habitats on site is provided below (Table 3).

Note that Receptor Resilience is calculated relative to the CURRENT status of the site. In other words, if a habitat is highly degraded and contains mostly weeds then the resilience is scored as high, because it would be easy to return it to that particular state. Conversely, where a site is in a pristine state and the vegetation is removed through development, it is almost certain that the original composition is impossible to restore, therefore the resilience is scored as Very Low.

Table 3: Site ecological importance for habitats found on site

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Estuarine habitats	<p><b>Medium</b></p> <p>Confirmed or highly likely occurrence of populations of NT species - in this case = <i>Zostera capensis</i>, listed as LC, but also listed in Screening Tool report</p>	<p><b>Very High</b></p> <p>Very large (&gt; 100 ha) intact area for any conservation status of ecosystem type.</p>	<p><b>Low</b></p> <p>Habitat that is unlikely to be able to recover fully after a relatively long period: &gt; 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.</p>	<p><b>Very High</b></p> <p>(BI = High)</p>

Mesic Thicket	Low No confirmed or highly likely populations of SCC.	Medium Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type. Moderately low habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. Minimal current negative ecological impacts.	Very low Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed. Based on the fact that the habitat is structurally dominated by long-lived tree species.	Medium (BI = Low)
Fynbos / Dune Thicket	Low No confirmed or highly likely populations of SCC.	Medium From plant species perspective: Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches.	Low Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.	Medium (BI = Low)

Guidelines for development activities within different importance levels are given in the Table below (Table 8).

Table 3: Guidelines for interpreting SEI in the context of the proposed development activities

Site ecological importance	Interpretation in relation to proposed development activities
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/ not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/

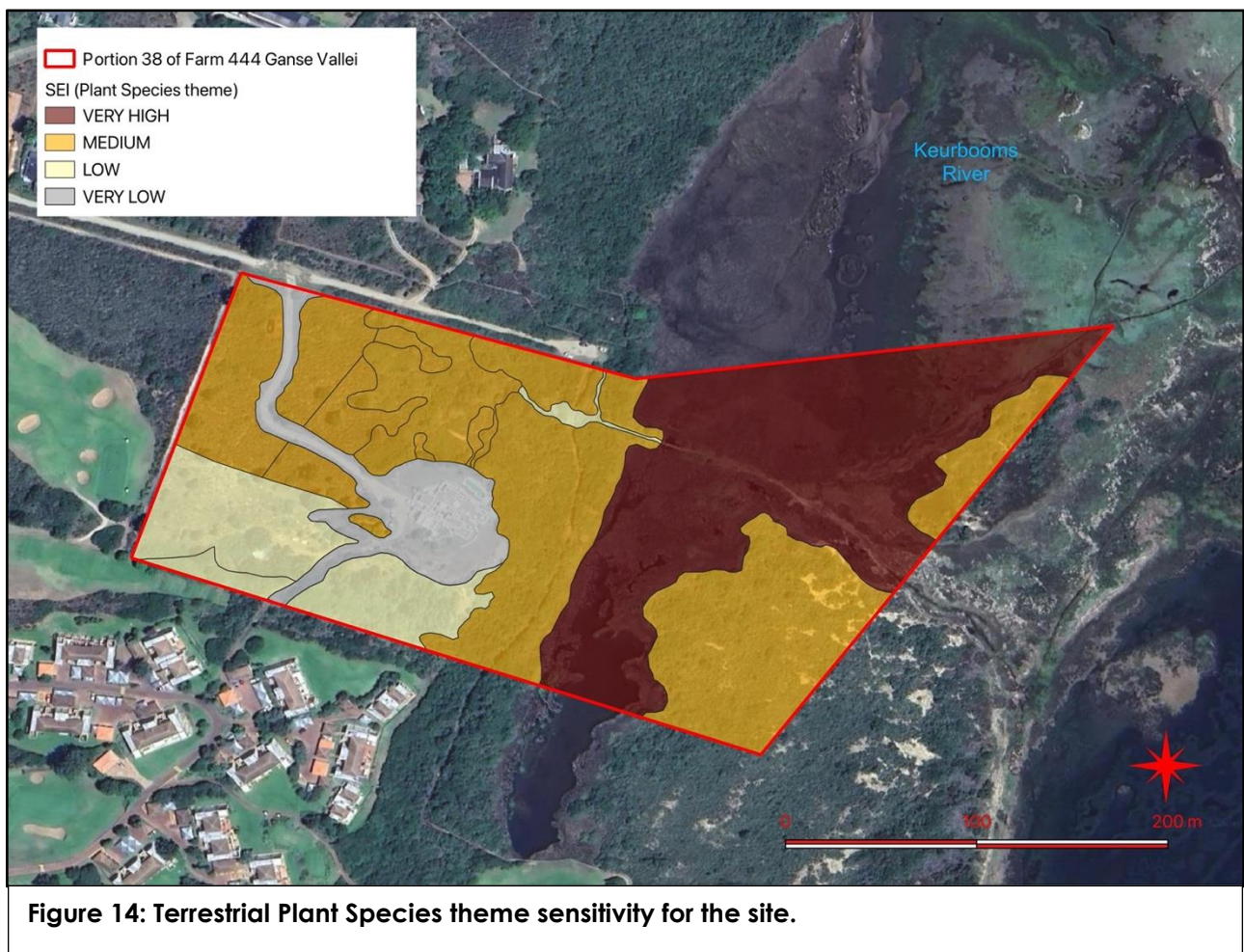
	unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities
Very low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.



## Summary of site sensitivity

There are several plant species listed in the Screening Tool report that have a medium probability of occurring on site (based on distribution and habitat requirements), but were not found there. These habitats have been given a Site Ecological Importance score of Medium (Figure 14).

The estuarine zone is known habitat for *Zostera capensis*, which is listed as Least Concern, but is ecologically important and listed as a sensitive species. These estuarine areas have been given a Site Ecological Importance score of Very High (Figure 14).



# CONCLUSION

Desktop information, field data collection and mapping from aerial imagery provides the following verifications of patterns for the plant species theme:

1. No plant species of concern were recorded on site, although several were evaluated as having the potential to occur there. Natural habitats on site within the PAOI were therefore assigned a Site Ecological Importance score of Medium. Two field surveys were conducted in which none of these species were detected.
2. Two tree species protected under Section 15(1) of the National Forests Act, 1998 occur on site, as follows: *Pittosporum viridiflorum* and *Sideroxylon inerme*. Surveys were conducted to determine the exact location of these and the development layout was adjusted to avoid these. If any are affected by the proposed development then a permit will be required for their destruction.

# RECOMMENDATIONS

- If any protected trees are to be affected by the proposed development, it is a requirement that a permit be obtained, as per the National Forests Act. These were recorded as several individual within the thicket vegetation of the site (Mesic Thicket, Dune Thicket). These individuals should be marked with danger tape during construction.

## REFERENCES

- Germishuizen, G., Meyer, N.L., Steenkamp, Y And Keith, M. (eds.) (2006). A checklist of South African plants. Southern African Botanical Diversity Network Report No. 41, SABONET, Pretoria.
- IUCN (2001). *IUCN Red Data List categories and criteria: Version 3.1*. IUCN Species Survival Commission: Gland, Switzerland.

# APPENDICES:

## Appendix 1: Plant species recorded on site.

Acacia cyclops (NEMBA Category 1b)

Acacia mearnsii (NEMBA Category 2)

Acacia saligna (NEMBA Category 1b)

Agathosma apiculata

Aloe arborescens

Anthospermum aethiopicum

Apodytes dimidiata

Asparagus aethiopicus

Asplenium aethiopicum

Brunsvigia orientalis

Buddleja saligna

Carissa bispinosa

Carpobrotus edulis

Chenolea diffusa

Chironia baccifera

Chrysocoma ciliata

Clausena anisata

Colpoon compressum

Crassula atropurpurea

Cynanchum natalitium

Cynanchum obtusifolium

Cyperus brevis

Cyperus uitenhagensis

Digitaria eriantha

Diospyros dichrophylla

Erica peltata

Erica sparsa

Eriocephalus africanus

Euclea racemosa

Gasteria acinacifolia

Gazania rigens

Pentameris pallida

Pinus sp. (NEMBA Category 1b, 2 or 3)

Thamnochortus insignis

Grewia occidentalis

Gymnosporia nemorosa

Helichrysum cymosum

Hypochoeris radicata

Hypoestes forskoolii

Indigofera poliotis

Indigofera priorii

Indigofera verrucosa

Juncus kraussii

Justicia leptantha

Knowltonia vesicatoria

Lauridia tetragona

Leonotis ocymifolia

Limonium scabrum

Maytenus procumbens

Megathyrsus maximus

Metalsia muricata  
Morella cordifolia  
Mystroxyton aethiopicum  
Olea europaea subsp cuspidata  
Olea exasperata  
Osteospermum moniliferum  
Passerina corymbosa  
Passerina rigida  
Pelargonium dipetalum  
Pittosporum viridiflorum (PROTECTED TREE)  
Pollichia campestris  
Polygala myrtifolia  
Pterocelastrus tricuspidatus  
Restio eleocharis  
Rhoicissus digitata  
Rhynchosia caribaea  
Robsonodendron maritimum  
Rubia petiolaris  
Salicornia decumbens  
Salvia aurea  
Samolus porosus  
Scolopia zeyheri  
Searsia crenata  
Searsia lucida  
Selago corymbosa  
Senecio inaequidens  
Seriphium plumosum  
Sideroxylon inerme (PROTECTED TREE)  
Solanum africanum  
Sporobolus virginicus  
Tarchonanthus littoralis  
Trichocephalus stipularis  
Triglochin bulbosa  
Triglochin striata  
Tristachya leucothrix  
Viscum capense  
Viscum rotundifolium