

Appendix B:

Aquatic Biodiversity Screening Assessment

Aquatic Biodiversity Screening Report

Proposed St Helena Bay Mixed-use Development Portion 4 of Farm 6, Western Cape

For: SRK Consulting

April 2025



Report Information

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Executive Summary

The feasibility of developing a mixed-use development on Farm Duyker Eiland No. 4/6, St Helena Bay, is being investigated. The proposed mixed-use development includes a retirement estate, eco estate, medical facility, fuel station and commercial retail areas, along with associated infrastructure. The proposed development has a footprint of 163.5 ha and will be located in the northern portion of the site (referred to as the study area in this report). The study area is located southwest of Stompneus Bay, within the West Coast District Municipality, and is surrounded by natural vegetation to the south, fallow agricultural fields to the west, with residential housing along its eastern to northwestern border.

According to the Department of Forestry, Fisheries, and the Environment (DFFE) national web-based environmental screening tool report generated for the study area, the Combined Aquatic Biodiversity Theme Sensitivity is classified as “Very High” (DFFE, 2025). The classification trigger is the location of mapped Western Cape Biodiversity Spatial Plan (WCBSP, 2017) aquatic Ecological Support Areas 1 (ESAs) within the study area.

This report sets out the results from a desktop analysis, as well as a field assessment, to clarify aquatic biodiversity constraints associated with the proposed study area.

During the desktop assessment, it was determined that there were no mapped rivers, or natural wetlands within the study area according to the National Wetland Map Version 5 (NWM5) (SANBI, 2018), the National Freshwater Ecosystem Priority Area (NFEPA) spatial data (CSIR, 2011), and the watercourse information from the Department of Rural Development and Land Reform (DRDLR). Additionally, according to the updated WCBSP (2023), the study area no longer coincides with aquatic ESAs. However, desktop resources (DRDLR and NFEPA) do indicate that the proposed study area overlaps with the 100 m and 500 m regulated area of two non-perennial drainage lines and one artificial wetland respectively.

During a field assessment on the 6th and 7th of March 2025, two watercourses were delineated within the proposed study area including a small ephemeral drainage line flowing through the proposed Commercial Retail area P9, and an ephemeral drainage line (now a stone channel) which flows through the proposed commercial retail area P8 and P9 (**Figure i**). As the two drainage lines occur within the proposed development’s footprint area, they are considered to be “At-Risk” of the proposed activities. The two drainage lines within the study area have been transformed by historical agricultural activities and currently have limited to no riparian vegetation present. These features are currently functioning as surface drains.

The proposed study area occurs within the regulated area of two additional non-perennial drainage lines (**Figure i**). These two drainage lines are located more than 20 m upstream and were both therefore deemed not to be “At Risk” of activities associated with the proposed development. Additionally, the mapped artificial NFEPA wetland was confirmed to be a disused dam associated with the Oceana fishing company and was therefore excluded from the sensitivity analysis.



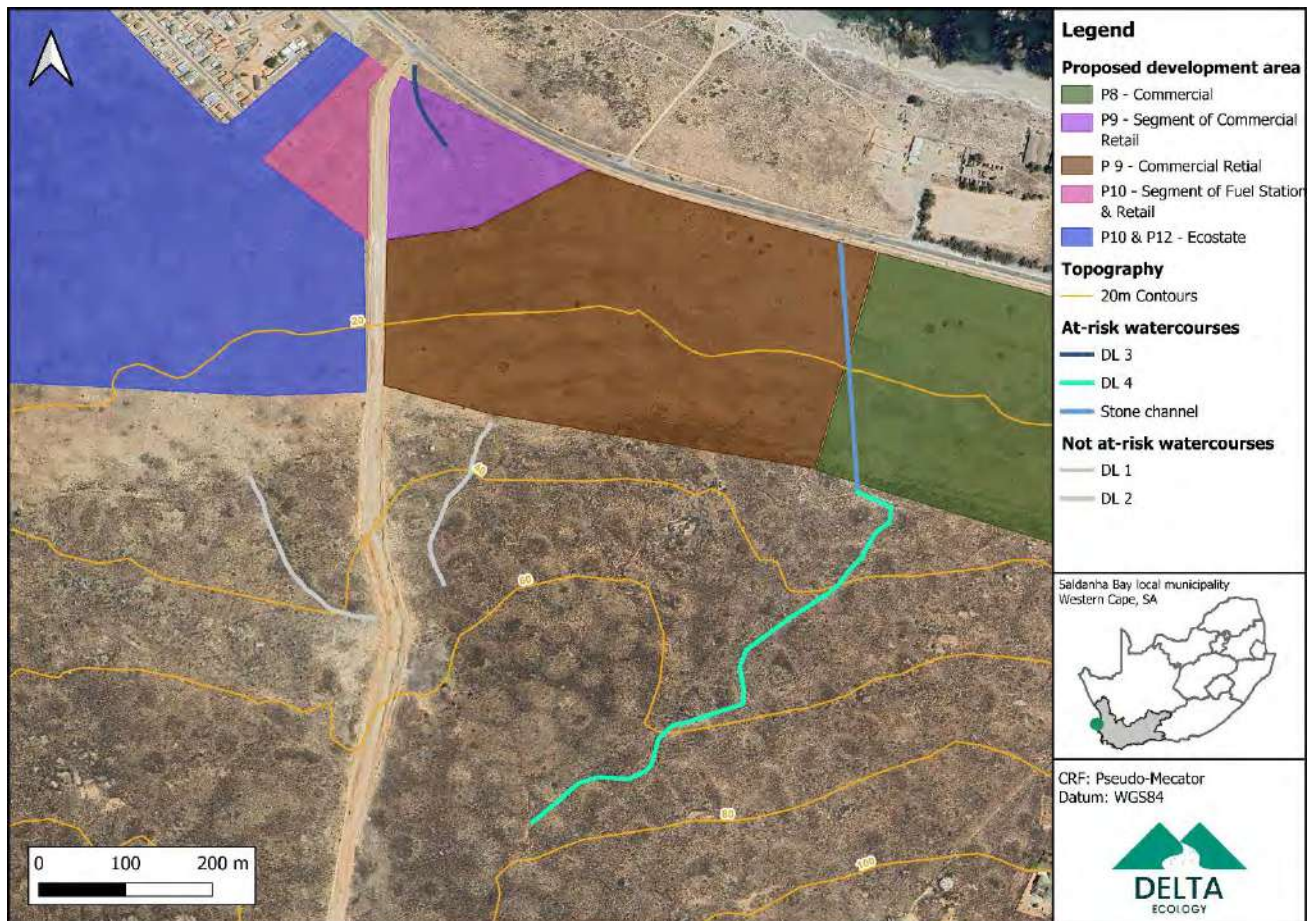


Figure i: Watercourses deemed to be “At-Risk” of the proposed development.

The potential aquatic impacts resulting from the construction and operational phase of the proposed development can be minimized by demarcating both onsite watercourses, as well as an adequate buffer area surrounding onsite watercourses, as no-go areas (**Figure ii**).

In terms of the National Environmental Management Act (NEMA), Act No. 107 of 1998, a Basic Assessment (BA) will be required if there is construction of 100 m² or more of infrastructure within a watercourse (i.e. wetland, river, or drainage line) or within 32 m thereof, or removal, deposition, or movement of 10 m³ or more of sediment or any other substance within a watercourse (i.e. wetland, river, or drainage line). Considering the current layout plan it is considered likely that these two Listed Activities will be triggered by the proposed development.

Should the avoidance of the drainage lines and their associated buffer areas be possible, then it is the opinion of the specialist that an Aquatic Biodiversity Compliance Statement will be required during the Environmental Authorisation (EA) process. However, should this not be possible then a full Aquatic Biodiversity Impact Assessment will be required.

Furthermore, a Water Use Authorisation (WUA), either in the form of a General Authorisation (GA) in terms of GN 4167 of 2023 promulgated in terms of the National Water Act ([NWA] 36 of 1998) or in the form of a Water Use Licence (WULA) will also be required for the proposed development. Should the drainage lines as well as an adequate buffer area surrounding the drainage lines be designated as no-go areas, the risk to the watercourses is likely to be negligible and the proposed development may fall under the ambit of a GA. However, should development within the drainage lines be unavoidable, a full WULA will likely be required. This will have to be confirmed with the application of the Risk Assessment Matrix (RAM) prescribed by GN 4167 of 2023.

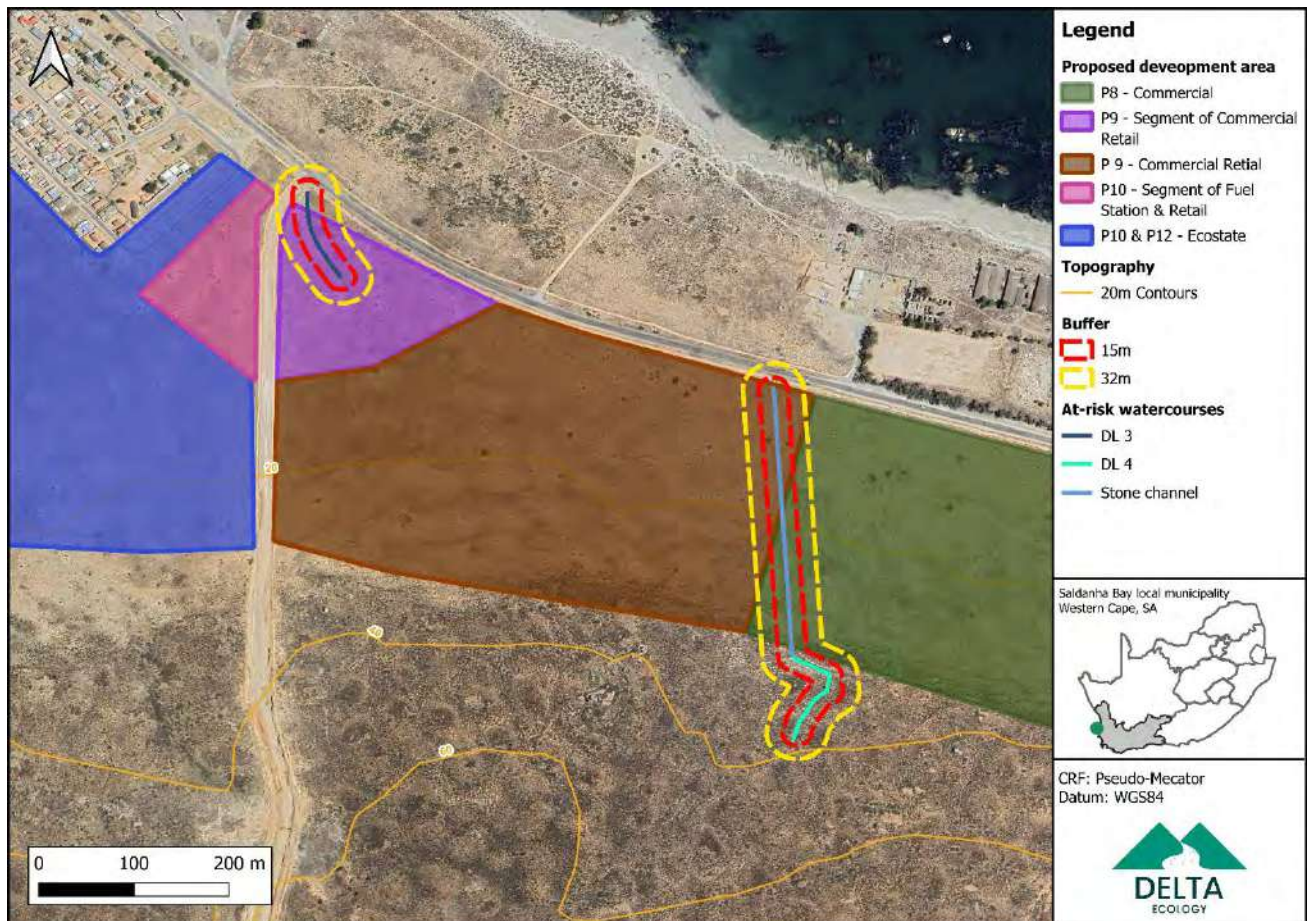


Figure ii: Opportunities and constraints map indicating the 32 m regulated area according to NEMA, and the 15 m buffer area stipulated by the buffer tool.

Table of Contents

Executive Summary.....	3
Table of Contents	6
List of Figures.....	7
List of Tables	7
Specialist Details	8
1. Introduction.....	9
1.1. Terms of Reference.....	10
1.2. Limitations and Assumptions.....	11
1.3. Use of this report	11
2. Site Sensitivity Verification	11
3. Methodology	12
3.1. Desktop Assessment	12
3.2. Wetland Identification & Delineation.....	13
3.3. Riparian Area Delineation.....	14
3.4. Watercourse Classification	14
4. Desktop Assessment.....	16
4.1. Biophysical Context	16
4.2. Biodiversity Planning Context	18
5. Site Description.....	20
6. Opportunities and Constraints Mapping.....	28
7. References	30



List of Figures

Figure 1-1: Regional location of the proposed site.....	9
Figure 1-2: Location of proposed development area, hereafter referred to as the study area, within the site.....	10
Figure 3-1: Wetland Hydrogeomorphic Types as defined in the Classification System for Wetlands and Other Aquatic Ecosystems in South Africa (Ollis <i>et al.</i> , 2013).	15
Figure 4-1: Natural wetland vegetation would have consisted of the Western Strandveld.....	18
Figure 4-2: No mapped NFEPA (2011) or NWM5 (2018), NGI (2019) or drainage line watercourses indicated within the study area.....	19
Figure 4-3: CBAs and ESAs (WCBSP, 2017) indicated within study area and 500 m thereof.....	19
Figure 5-1: Delineation Map.....	21
Figure 5-2: Overview of the study area (P8 & P9) consisting of a sloping landscape & sparse terrestrial vegetation..	22
Figure 5-3: Overview of the study area (P8 & P9) consisting of terrestrial vegetation.	22
Figure 5-4: Overview of the study area (P8 & P9) with disturbance evident.....	23
Figure 5-5: Overview of the study area (P10 & P12) consisting of a flat landscape & terrestrial vegetation.....	23
Figure 5-6: Overview of the study area (P11) consisting of a flat landscape & terrestrial vegetation.	24
Figure 5-7: Overview of the study area (P1) consisting of a flat landscape & terrestrial vegetation.....	24
Figure 5-8: Drainage line 4 now consisting of a stone channel.....	25
Figure 5-9: Drainage line 3 within P9.	25
Figure 5-10: Overview of the portion of Drainage line 4 upstream of the study area, after which the flow is directed to the stone channel.....	26
Figure 5-11: Drainage line 1.....	26
Figure 5-12: Drainage line 1.	27
Figure 5-13: Terrestrial soil sample.....	27
Figure 6-1: Opportunities and constraints map indicating the 32 m regulated area according to NEMA, the 100 m regulated area according to the NWA and the 15 m buffer area stipulated by the buffer tool.	29

List of Tables

Table 4-1: General biophysical characteristics of the proposed study area.....	17
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A signed statement of independence will be provided as a separate document.

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A signed statement of independence will be provided as a separate document.



1. Introduction

The feasibility of developing a mixed-use development on Farm Duyker Eiland No. 4/6, St Helena Bay, Western Cape (**Figure 1-1**), is being investigated. The proposed mixed-use development includes a retirement estate, eco estate, medical facility, fuel station and commercial retail areas, along with associated infrastructure. The proposed development has a footprint of 163.5 ha and will be located in the northern portion of the site (referred to as the study area in this report).

The study area is located southwest of Stompneus Bay, within the West Coast District Municipality, and is surrounded by natural vegetation to the south, fallow agricultural fields to the west, with residential housing along its eastern to northwestern border (**Figure 1-2**).

According to the Department of Forestry, Fisheries, and the Environment (DFFE) national web-based environmental screening tool report generated for the study area, the Combined Aquatic Biodiversity Theme Sensitivity is classified as “Very High” (DFFE, 2025). The classification trigger is the location of mapped Western Cape Biodiversity Spatial Plan (WCBSP, 2017) aquatic Ecological Support Areas 1 (ESAs) within the study area (**Figure 1-4**).

Given that the study area may have potential aquatic biodiversity constraints, Delta Ecology was appointed by SRK Consulting to undertake an aquatic biodiversity assessment with the aim of (1) verifying the site sensitivity with regards to aquatic biodiversity; and (2) clarifying aquatic biodiversity constraints within the study area.



Figure 1-1: Regional location of the proposed site.

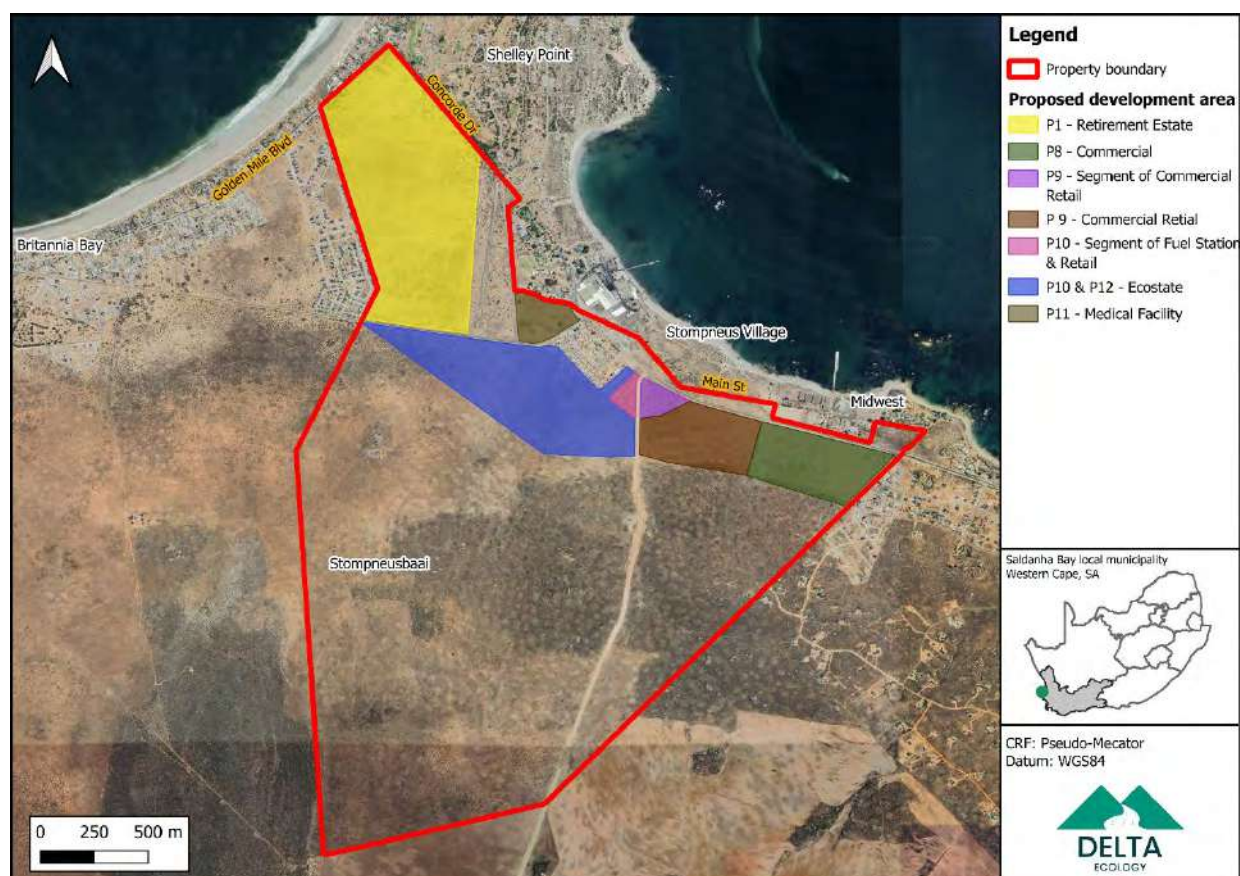


Figure 1-2: Location of proposed development area, hereafter referred to as the study area, within the site.

1.1. Terms of Reference

The Terms of Reference (ToR) agreed upon for this aquatic biodiversity screening report include:

- A desktop background assessment to identify potential aquatic biodiversity constraints within the proposed study area and within the 500 m regulated proximity thereof.
- A field assessment to confirm aquatic biodiversity constraints.
- Delineation of any watercourse (s) using a combination of site-based and desktop methodologies as appropriate.
- Drafting of an aquatic biodiversity screening report including the following:
 - o General site description;
 - o Site sensitivity verification;
 - o Description of the drivers and key components of any watercourse (s) (as applicable) that are likely to be impacted by the proposed development as applicable;
 - o Clarification of the legislative implications and authorisation processes required for various development scenarios as applicable; and
 - o Recommendations for minimisation of aquatic biodiversity impact as applicable.

1.2. Limitations and Assumptions

The following limitations and assumptions apply to this assessment:

- The site assessment was undertaken on the 6th and 7th of March 2025, during the summer season. Therefore, this assessment does not cover complete seasonal variation in conditions at the study area. An additional survey may be conducted during the wet season to confirm findings, however, for the purposes of this screening assessment, watercourse indicators observed during the March 2025 surveys appear to be sufficient.
- The watercourses were delineated using a Garmin handheld GPSMAP 66i with an expected accuracy of 3 m or less at the 95% confidence interval. In the opinion of the specialist, this limitation is of no material significance to the assessment and all aquatic biodiversity constraints have been adequately identified.
- It is important to note that during the course of converting spatial data to final drawings, several steps in the process may affect the accuracy of areas delineated in the current report. It is therefore suggested that the no-go areas identified in the current report as well as during the Impact Assessment phase be pegged in the field in collaboration with the surveyor for precise boundaries. The scale at which maps and drawings are presented in the current report may become distorted should they be reproduced by, for example, photocopying and printing.
- The information provided by the client forms the basis of the planning and layouts discussed.
- Formal vegetation sampling was not done by the specialist, however general observations pertaining to vegetation were recorded based on onsite visual observations. Furthermore, only dominant, and noteworthy plant species were recorded. Thus, the vegetation information provided has limitations for true botanical applications.
- Deriving a 100% factual report based on field collecting and observations can only be done over several years and seasons to account for fluctuating environmental conditions, species' seasonality, and migrations. Since environmental impact studies deal with dynamic natural systems, additional information may come to light at a later stage.

Notwithstanding the above limitations, the specialist is of the opinion that the aquatic biodiversity constraints for the study area have been adequately identified for the purposes of this aquatic biodiversity screening.

1.3. Use of this report

This report reflects the professional judgement of its author and, as such, the full and unedited contents of this should be presented in any application to relevant authorities. Any summary of the findings should only be produced with the approval of the author.

2. Site Sensitivity Verification

According to the DFFE national web-based environmental screening tool report generated for the proposed study area, the Combined Aquatic Biodiversity Theme Sensitivity is classified as "Very High" (DFFE, 2025). The classification trigger is the location of aquatic Ecological Support Areas 1 (ESAs) within the study area. The Initial Site Sensitivity Verification was undertaken by a desktop assessment of the study area, and two field assessments conducted on the 6th and 7th of March 2025.



During the desktop assessment, it was determined that there were no mapped rivers, or natural wetlands within the study area according to the National Wetland Map Version 5 (NWM5) (SANBI, 2018), the National Freshwater Ecosystem Priority Area (NFEPA) spatial data (CSIR, 2011), and the watercourse information from the Department of Rural Development and Land Reform (DRDLR). Additionally, according to the updated WCBSP (2023), the study area no longer coincides with aquatic ESAs.

However, desktop resources (DRDLR and NFEPA) do indicate that the proposed study area overlaps with the 100 m and 500 m regulated area for two non-perennial drainage lines and one artificial wetland respectively. During the field assessments, two watercourses were delineated within the proposed study area, including two small ephemeral drainage lines, one of which is now a stone channel. The proposed study area occurs within the regulated area of two additional non-perennial drainage lines. These two drainage lines are located more than 20 m upstream and were both therefore deemed not to be “At Risk” of activities associated with the proposed development. Additionally, the mapped artificial NFEPA wetland was confirmed to be a disused dam associated with the Oceana fishing company and was therefore excluded from the sensitivity analysis.

If the watercourses and associated buffers (Macfarlane *et al.*, 2016) can be avoided by development activities, then the study area is considered to be of a “Low” aquatic biodiversity sensitivity and a compliance statement will be required. However, if the watercourses and associated buffer areas cannot be avoided, then a full aquatic biodiversity impact assessment will be recommended. See **Section 5** and **Section 6** for more information.

3. Methodology

The methodology used in this aquatic biodiversity screening report, including a desktop background assessment and one site visit is outlined in the subsections below.

3.1. Desktop Assessment

A review of desktop resources was undertaken to determine the nature of the proposed study area, the presence of watercourses in the vicinity, and the significance of the area in terms of biodiversity planning. The following desktop resources were consulted:

- Topographical and watercourse information from the DRDLR;
- The South African Atlas of Climatology and Agrohydrology (1997, 2007, and 2009);
- Geological information from the Council for Geoscience;
- The South African National Biodiversity Institute (SANBI) (2018) National Vegetation Map (NVM);
- The NWM5 (SANBI, 2018);
- The NFEPA (CSIR, 2011) wetland, wetland vegetation group classification, river, & Freshwater Ecological Priority Areas (FEPA) datasets;
- The Chief Directorate: National Geo-spatial Information (NGI) (DRDLR) Rivers and Topography dataset;
- The WCBSP (2017).



3.2. Wetland Identification & Delineation

Watercourses, if present, were identified and delineated using the method described in the Manual for the Identification and Delineation of Wetlands and Riparian Areas for field-based delineation (DWAF, 2008). This method is the accepted best practice method for delineating watercourses in South Africa and its use is required by GN 509.

For wetlands, the method makes use of four key field indicators to guide the delineation process (refer to **Box 1**):

Box 1. Four indicators of wetland presence as described in DWAF (2008):

1. The **position in the landscape** – Identifies parts of the landscape where wetlands are more likely to occur;
2. The presence of **aquatic vegetation communities**;
3. The presence of **hydromorphic soil features**, which are morphological signatures that appear in soils with prolonged periods of saturation (associated with anaerobic conditions). Key hydromorphic features include:
 - a. Mottling – Formation of clumps of iron oxide within the soil matrix in the form of orange, yellow, black, or reddish-brown speckling. Mottling occurs in most soils and reaches maximum density in the centre of the seasonal zone with sparse mottling in the temporary zone and no mottling in the permanent zone.
 - b. Gleying – Shift in soil colour from the terrestrial baseline towards a blue, green, or grey colour and an overall reduction in soil chroma. This phenomenon is normally difficult to identify in the temporary zone, noticeable in the seasonal zone and most significant in the permanent zone.
 - c. Organic Surface Layers – surface layers with very high organic content that typically occur in the wetland seasonal and permanent zones.
 - d. Organic Streaking – Streaks of organic matter within the soil column which may be present in all zones, but particularly the temporary and seasonal zones.

Soil samples were taken for inspection by hand augering to determine soil form and presence of redoximorphic and other hydromorphic soil features. Aquatic vegetation communities were identified using the (DWAF, 2008) classification of wetland plant species, along with auxiliary information (Van Ginkel *et al.*, 2011). Wetland plant species classification categories are as follows:

- Obligate species (occurring in wetlands >99% of the time – usually in the permanent or seasonal zone);
- Facultative Positive species (67 to 99% of the population occurs within wetlands – typically in the seasonal and temporary zones with the remaining 1 to 33% in the adjacent area on the wetland periphery);
- Facultative Species (33 – 67% of the population occurs within wetlands – usually in seasonal or temporary zones with the remaining 67 – 33% in the adjacent area on the wetland periphery);
- Facultative Negative Species (1 – 33% of the population occurs within wetlands – usually in the temporary zone with the remaining 99 to 67% in the adjacent area on the wetland periphery); and
- Wetland Cosmopolitan Species (No specific affinity for wetlands; colonise wetland and terrestrial areas).



3.3. Riparian Area Delineation

Riparian areas were identified using the method described in the DWAF, (2008) Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas. This method is the accepted best practice method for identifying and delineating riparian areas in South Africa and its use is required by GN 509. The method makes use of four key field indicators (refer to **Box 2**):

Box 2. Four indicators of riparian areas as described in DWAF (2008)

1. The **position in the landscape** – riparian areas are only likely to develop on valley bottom landscape units.
2. The **soil form** – Riparian areas are often (but not always) associated with alluvial soils and recently deposited material.
3. **Topography** associated with riparian areas – riparian areas may have clearly identifiable banks associated with alluvial deposited material adjacent to the active channel.
4. The presence of **aquatic vegetation communities**.

The identification of riparian areas relies heavily on vegetative indicators. Using vegetation, the outer boundary of a riparian area can be defined as the point where a distinctive change occurs in the:

- species composition relative to the adjacent terrestrial area; and
- physical structure, such as vigour or robustness of growth forms of species similar to that of adjacent terrestrial areas. Growth form refers to the health, compactness, crowding, size, structure and/or numbers of individual plants.

In addition to indicators of structural differences in vegetation, indicator species themselves can be used to denote riparian areas. Riparian plant species classification categories are as follows:

- Obligate riparian species occur almost exclusively in the riparian zone (> 90% probability)
- Preferential riparian species are preferentially, but not exclusively, found in the riparian zone (>75% probability). Preferential riparian species may harden to drought conditions but will always indicate sites with increased moisture availability.

3.4. Watercourse Classification

The Ollis *et al* (2013) Classification System for Wetlands and Other Aquatic Ecosystems in South Africa, as used in this assessment, is a tiered structured classification system that provides a uniform description of wetland types based on their hydrogeomorphic characteristics. This classification system categorises wetlands into 7 distinct hydrogeomorphic units described in **Figure 3-1**.



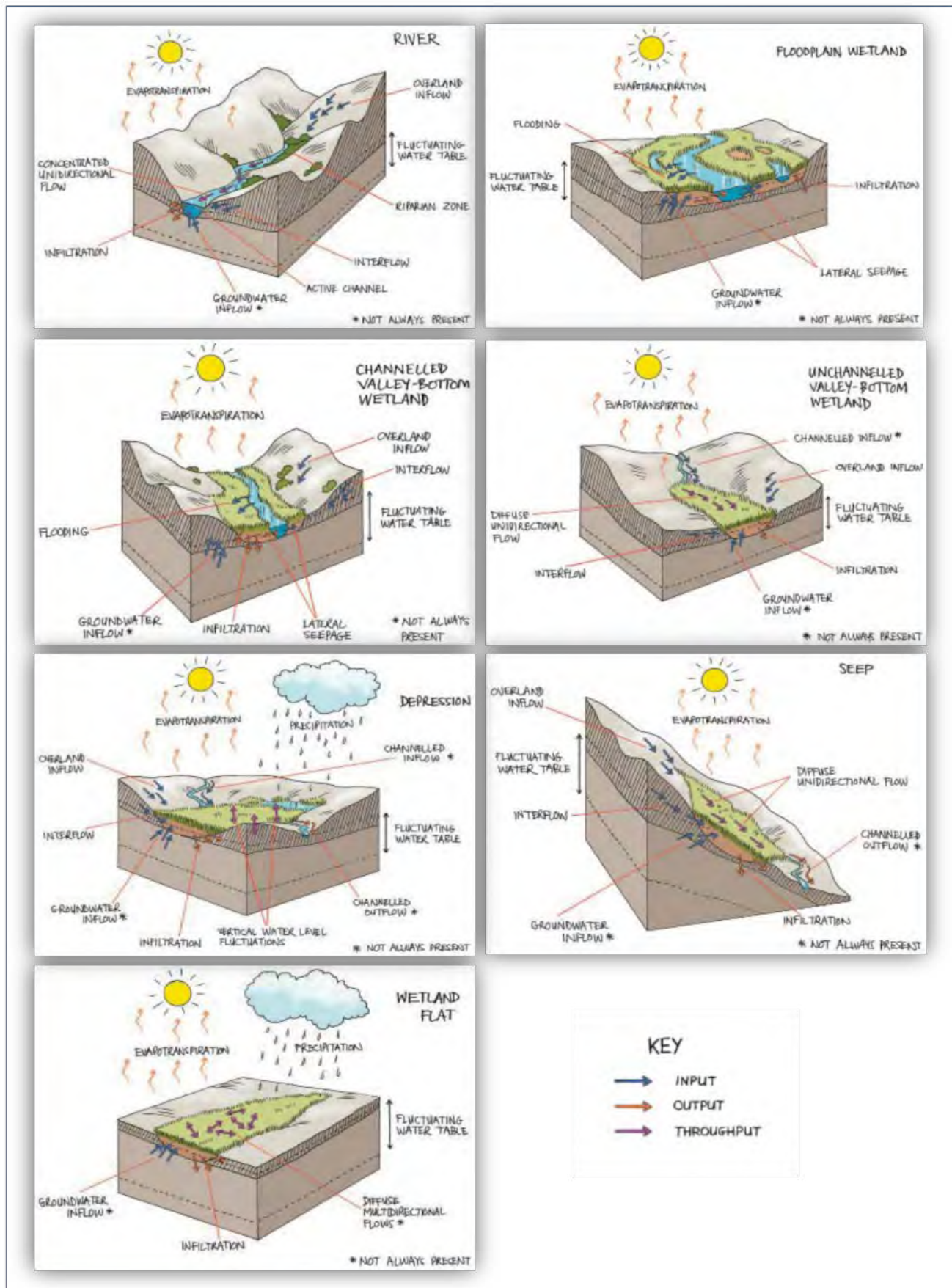


Figure 3-1: Wetland Hydrogeomorphic Types as defined in the Classification System for Wetlands and Other Aquatic Ecosystems in South Africa (Ollis *et al.*, 2013).

4. Desktop Assessment

A brief review of desktop resources was undertaken during the aquatic biodiversity screening assessment. A summary of key desktop information relevant to this assessment is provided below. The general biophysical characteristics of the study area is summarised in **Table 4-1**.

4.1. Biophysical Context

The general biophysical characteristics of the study area under evaluation are summarised in **Table 4-1**. The study area is situated in quaternary catchment G10M. The catchment is predominantly characterised by low hills that transition into flat coastal plains. The study area is situated on hill slopes to the east which transitions to relatively flat terrain in the west.

The study area falls within the BSk class of the Köppen-Geiger Climate Classification (Beck *et al.*, 2018), and therefore experiences a cold, semi-arid climate characterised by warm to hot dry summers, and cold, possibly freezing winters. The area receives a mean annual rainfall of 229 mm, which mostly occurs during the winter months of June to August (Schulze, 2009). The mean annual temperature is 16.10 °C, with a high average monthly temperature of 19 °C in January to February and a low average monthly temperature of 13 °C during July to August (Schulze, 2009).

Geology of the area consists of Granite of the Vredenburg Pluton; Cape Granite Suite (ENPAT, 2021). Soils are characterised by Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils (**Table 4-1**).

The surrounding natural terrestrial vegetation, where present, consists mainly of Saldanha Granite Strandveld and a small portion of Langebaan Dune Strandveld. The Saldanha Granite Strandveld vegetation type is listed as Critically Endangered (CR) and is classified as Poorly Protected (PP), while the Langebaan Dune Strandveld vegetation type is listed as Endangered (EN) and is classified as Well Protected (WP). The natural wetland vegetation, where wetlands are present, comprises Western Strandveld (**Figure 4-2**) (CSIR, 2011) which is listed as EN and is classified as Zero Protected (ZP)- WP depending on wetland type.



Table 4-1: General biophysical characteristics of the proposed study area.

Site attribute	Description	Data source
Eco-region	South Western Coastal Belt	Department of Water Affairs Level 1 Ecoregions (Department of Water and Sanitation, 2011)
Terrestrial Vegetation Type	Saldanha Granite Strandveld (CR & PP) Langebaan Dune Strandveld (EN & WP)	National Vegetation Map of South Africa, 2018 (SANBI, 2018)
Dominant Geology and Soils	Aeolian sand with limestone and calcrete of the Langebaan Formation and also granite of the Vredenburg Pluton and greywacke, phyllite, quartz schist with thin lenses of limestone and grit; Malmesbury Group. Soils consist of glenrosa and/or Mispah forms (other soils may occur), lime generally present in the entire landscape	Cape Farm Mapper (ENPAT, 2021)
Soil Erodibility Factor (K)	0.63 (High Erodibility)	SA Atlas of Climatology and Agrohydrology (Schultz, 2009)
Soil Depth & Clay Percentage (%)	>= 450 mm and < 750 mm & < 15 %	Soil types and descriptions for the Western Cape, Department of Agriculture, Forestry and Fisheries (DAFF, 2021)
Mean Annual Precipitation (mm)	229 mm	SA Atlas of Climatology and Agrohydrology (Schultz, 2009)
Rainfall seasonality	Winter rainfall	
Mean Annual Temperature (°C)	16.10 °C	
Water Management Area (WMA)	Breede-Olifants WMA	Water Management Areas (DWS, 2023)
Quaternary Catchment	G10M	South African Quaternary Catchments Database (Schulze et al., 2007)
Wetland Ecosystem Type	Western Strandveld (EN & ZP-WP)	NFEPA Wetland Ecosystem Types (CSIR, 2011)



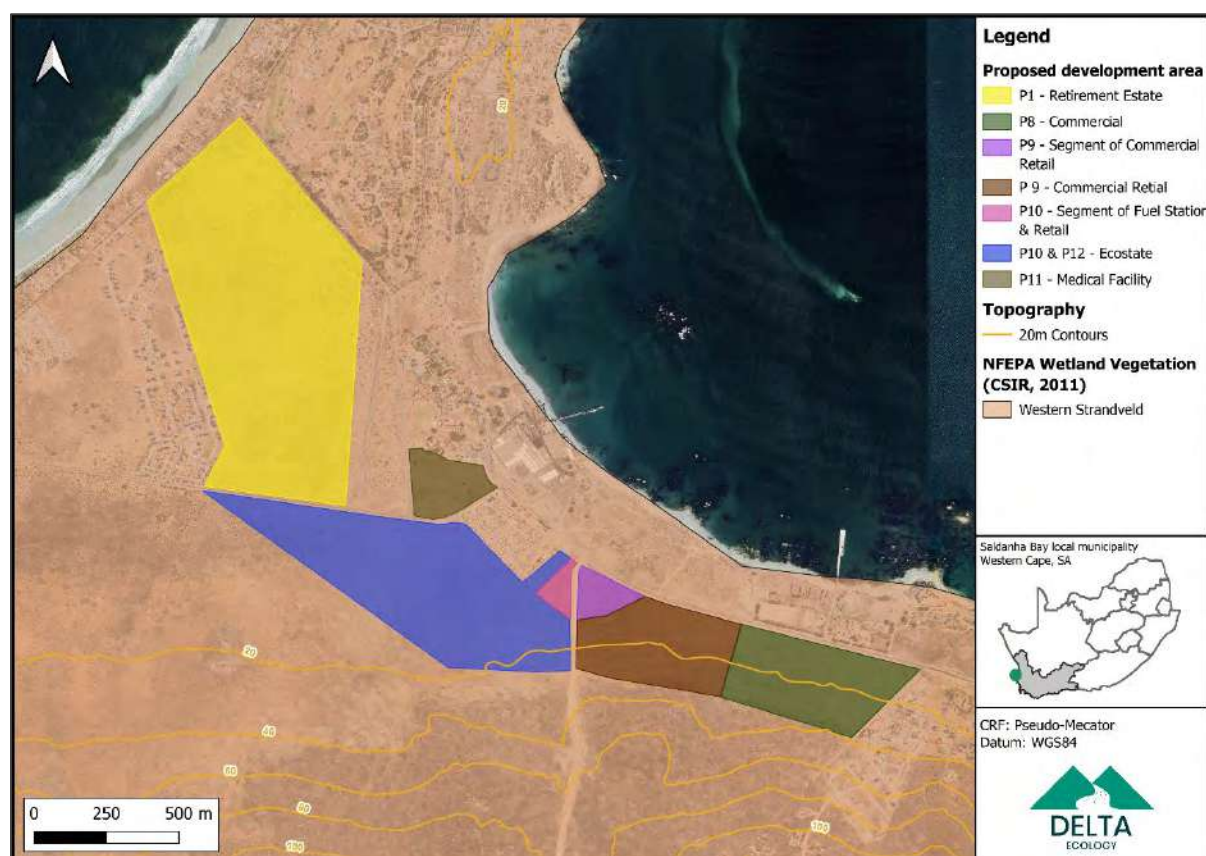


Figure 4-1: Natural wetland vegetation would have consisted of the Western Strandveld.

4.2. Biodiversity Planning Context

The study area under evaluation lies within the Breede-Olifants WMA. The area does not intersect any Strategic Water Source Area for Surface Water (SWSA-sw) or Groundwater (SWSA-gw) (Le Maitre *et al.*, 2018). The applicable sub-quaternary catchment is not demarcated as a FEPA (CSIR, 2011). In terms of delineated eco-regions for South Africa, this catchment falls within the South Western Coastal Belt eco-region (Level 1 Department of Water Affairs (DWA), now Department of Water and Sanitation (DWS)) (**Table 4-1**). According to the WCBSP (2017), the study area overlays an aquatic ESA and an aquatic ESA 2 demarcated due to “Coastal Corridor, Watercourse”, **however, according to the updated WCBSP (2023), the study area no longer coincides with aquatic ESAs (Figure 4-2).**

According to the NWM5 (SANBI, 2018), NFEPA spatial data (CSIR, 2011) and the DRDLR, there are no mapped rivers or natural wetlands within the study area (**Figure 4-3**). However, desktop resources (DRDLR and NFEPA) do indicate that the proposed study area overlaps with the 100 m and 500 m regulated area for two non-perennial drainage lines and one artificial wetland respectively (**Figure 4-3**). During the field assessments, two watercourses were delineated within the proposed study area, including two small ephemeral drainage lines, one of which is now a stone channel. The proposed study area occurs within the regulated area of two additional non-perennial drainage lines. These two drainage lines are located more than 20 m upstream and were both therefore deemed not to be “At Risk” of activities associated with the proposed development. Additionally, the mapped artificial NFEPA wetland was confirmed to be a disused dam associated with the Oceana fishing company and was not assessed further in this report. See **Section 5** for more information.

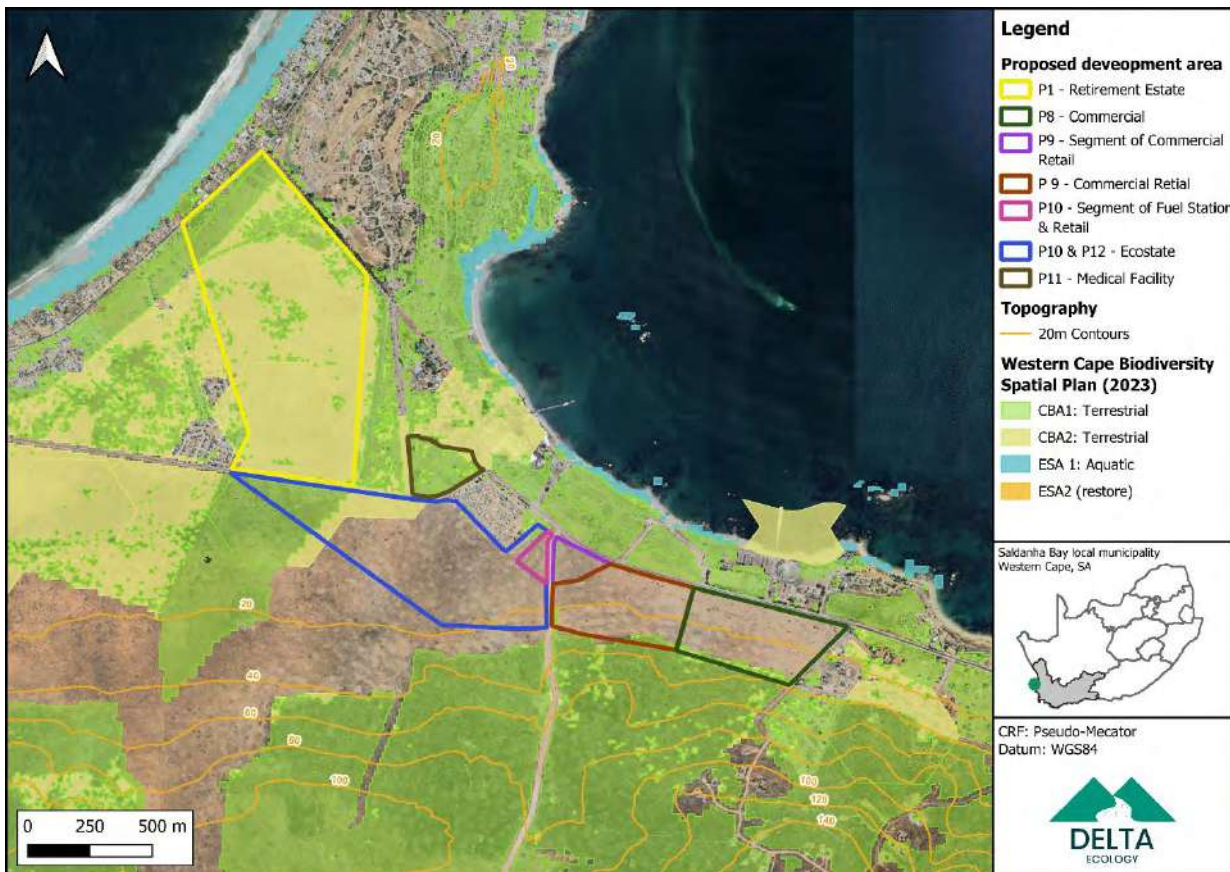


Figure 4-2: CBAs and ESAs (WCBSP, 2017) indicated within study area and 500 m thereof.

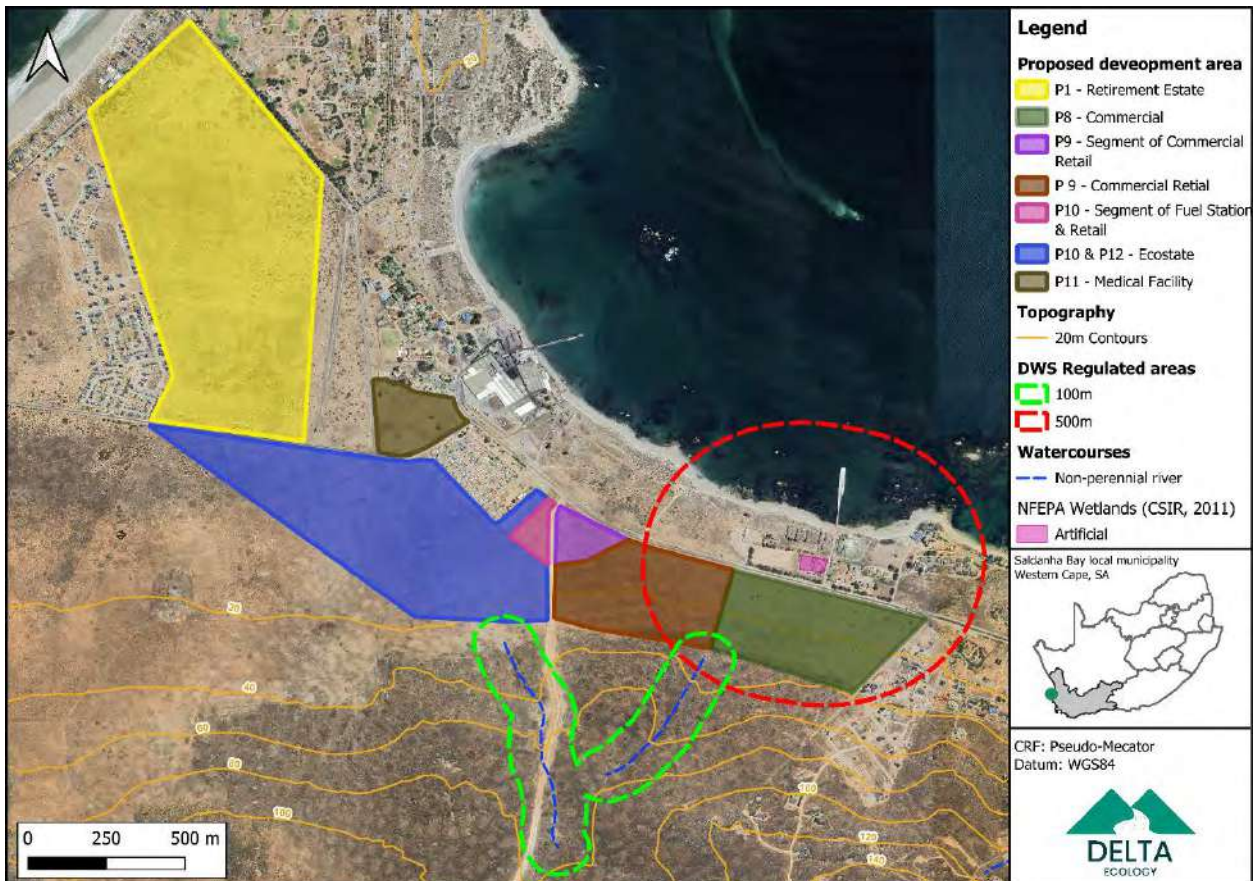


Figure 4-3: Mapped watercourses according to the NFEPA (CSIR, 2011) and NGI resources.

5. Site Description

The study area is largely comprised of fallow agricultural land. **P8 and P9** features a landscape that slopes downward to the north (**Figure 5-3–Figure 5-5**). **P10 & P12** have a gentle slope and contains no existing infrastructure (**Figure 5-6**). **P11** is relatively flat and has a historic graveyard present (**Figure 5-7**). **P1** is relatively flat and with no infrastructure present and has been impacted as a result of the encroachment of scattered alien invasive Port Jackson trees (**Figure 5-8**). No buildings occur within the proposed 163 ha footprint area.

The majority of the vegetation found within the study area was terrestrial, consisting of *Euphorbia burmannii* (Sweet Milkbush), *Searsia lucida* (Glossy Crowberry), *Osteospermum moniliferum* (Bietou) and *Muraltia spinosa* (Tortoise Berry), among others. Soil samples indicated well-drained, light brown sand (**Figure 5-14**).

Two non-perennial drainage lines were identified to the south of the study area (drainage lines 1 and 2) (**Figure 5-1** and **Figure 5-2**). These two drainage lines are located more than 20 m upstream and were both therefore deemed not to be “At Risk” of activities associated with the proposed development.

In the north east of the proposed Retirement Estate (P1), there appears to be stormwater drainage from adjacent roads and the eastern golf course, which accumulates along Golden Mile Boulevard. This area is completely artificial and contains no wetland functionality and has therefore been excluded from the sensitivity analysis. Additionally, the mapped artificial NFEPA wetland was confirmed to be a disused dam associated with the Oceana fishing company and was also excluded from the sensitivity analysis.

5.1. At Risk Watercourses

Two watercourses were delineated within the proposed study area that are considered to be “At-Risk” of being impacted, including a small ephemeral drainage line flowing through the proposed Commercial Retail area P9 (drainage line 3), and an ephemeral drainage line (now a stone-lined channel) which flows through the proposed commercial retail area P8 and P9 (drainage line 4) (**Figure 5-9 – Figure 5-13**).

The two at-risk drainage lines within the study area have been transformed by historical agricultural activities and currently have limited to no riparian vegetation present. These features are currently functioning as surface drains.



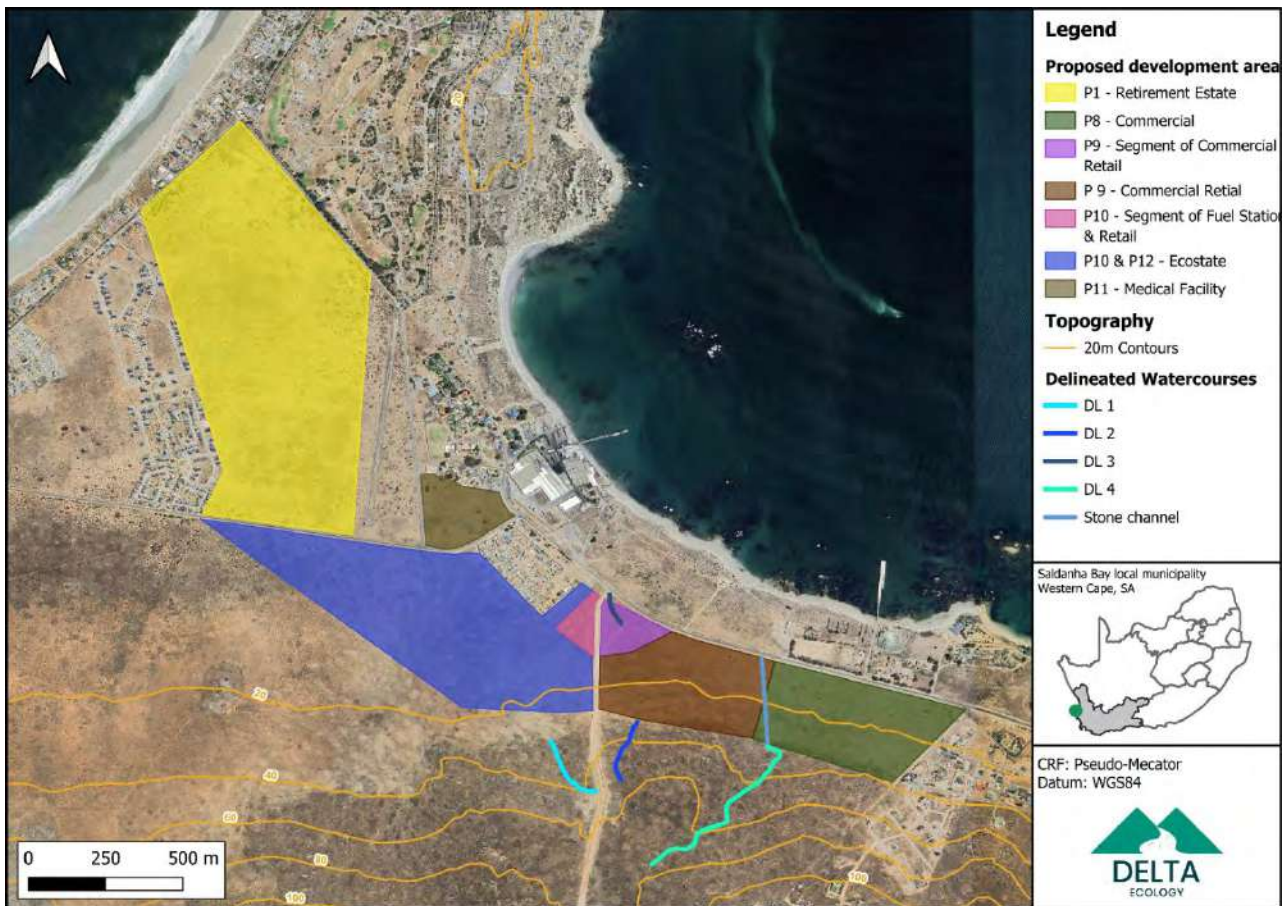


Figure 5-1: Delineation Map.

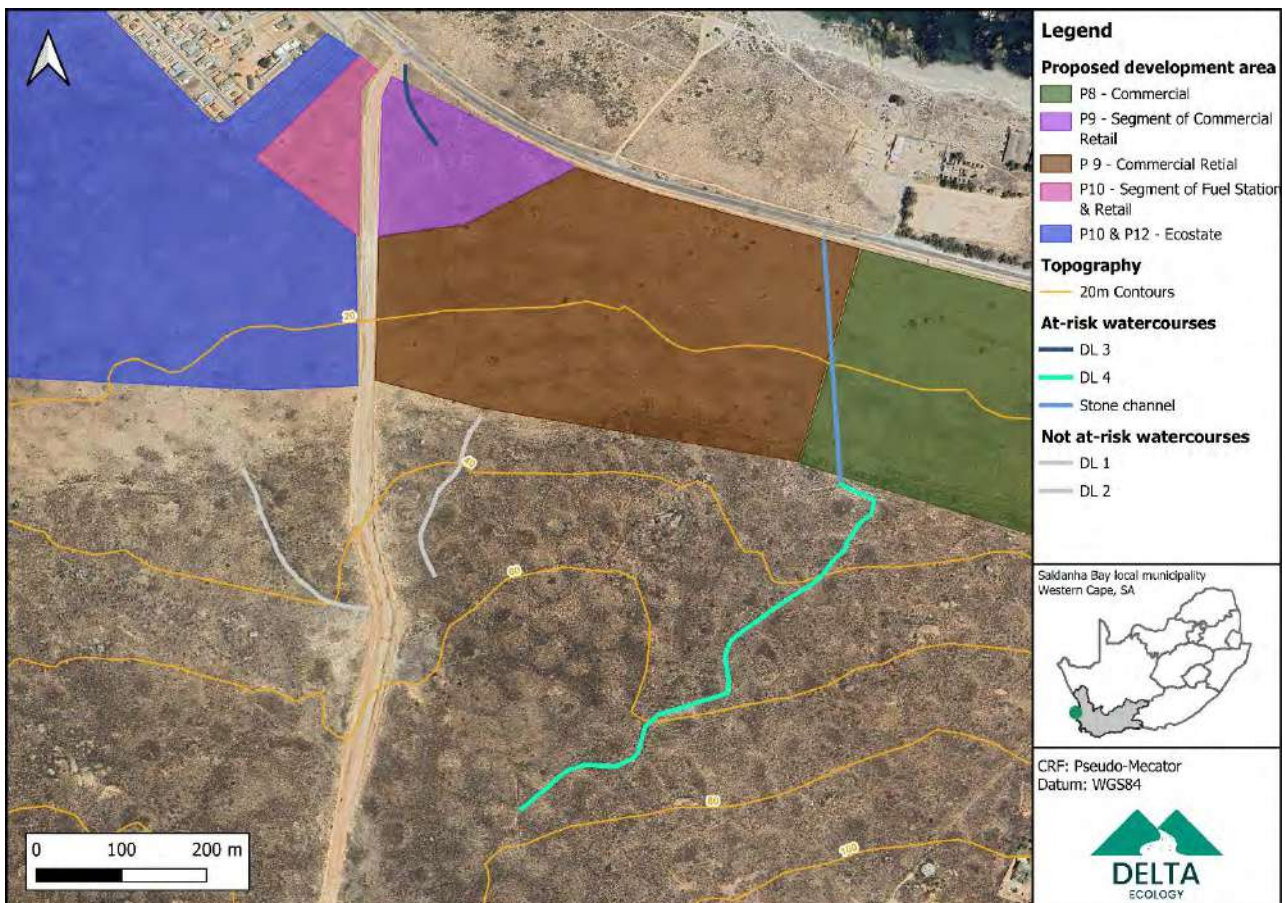


Figure 5-2: Watercourses deemed to be "At-Risk" of the proposed development.



Figure 5-3: Overview of the study area (P8 & P9) consisting of sparse terrestrial vegetation.



Figure 5-4: Overview of the study area (P8 & P9) consisting of terrestrial vegetation.



Figure 5-5: Overview of the study area (P8 &P9) with disturbance evident.



Figure 5-6: Overview of the study area (P10 & P12) consisting of a flat landscape & terrestrial vegetation.



Figure 5-7: Overview of the study area (P11) consisting of a flat landscape & terrestrial vegetation.



Figure 5-8: Overview of the study area (P1) consisting of a flat landscape & terrestrial vegetation.



Figure 5-9: Drainage line 4, now consisting of a stone-lined channel.



Figure 5-10: Drainage line 3 within P9.



Figure 5-11: Overview of the portion of Drainage line 4 upstream of the study area, after which the flow is directed to the stone channel.



Figure 5-12: Drainage line 1.



Figure 5-13: Drainage line 1.



Figure 5-14: Terrestrial soil sample.

6. Opportunities and Constraints Mapping

The majority of the study area is considered to be terrestrial under natural conditions and therefore has no Aquatic Sensitivity (**Figure 6-1**). However, two watercourses (deemed to be at-risk) were delineated within the proposed study area, including a small ephemeral drainage line flowing through the proposed Commercial Retail area P9, and an ephemeral drainage line (now a stone channel) which flows through the proposed commercial retail area P8 and P9 within section 1.

The drainage lines have been transformed by historic agricultural activities and currently have limited to no riparian vegetation present. Although these watercourses are degraded from their natural state, they do still function as natural conduits of surface water through the landscape and impacts to these features should therefore be avoided.

The buffer guideline (Macfarlane *et al.*, 2016) does not apply to channels which lack active channel characteristics i.e. channels which are not in contact with the zone of saturation and which do not have base flow; and can therefore not be applied to the ephemeral drainage lines. However, the minimum buffer zone requirements for watercourses associated with proposed mixed-use developments is 15 m. If possible, this buffer zone must be avoided during both the construction and operational phases of the development.

In terms of the National Environmental Management Act (NEMA), Act No. 107 of 1998, a Basic Assessment (BA) will be required if there is construction of 100 m² or more of infrastructure within a watercourse (i.e. wetland, river, or drainage line) or within 32 m thereof, or removal, deposition, or movement of 10 m³ or more of sediment or any other substance within a watercourse (i.e. wetland, river, or drainage line). Considering the current layout plan it is considered likely that these two Listed Activities will be triggered by the proposed development.

Should the avoidance of the drainage lines and their associated buffer areas be possible, then it is the opinion of the specialist that an Aquatic Biodiversity Compliance Statement will be required during the Environmental Authorisation (EA) process. However, should this not be possible then a full Aquatic Biodiversity Impact Assessment will be required.

Furthermore, a water use authorisation, either in the form of a General Authorisation (GA) in terms of GN 4167 of 2023 promulgated in terms of the National Water Act ([NWA] 36 of 1998) or in the form of a Water Use Licence (WULA) will also be required for the proposed development. Should the drainage lines as well as an adequate buffer area surrounding the drainage lines be designated as no-go areas, the risk to the watercourses is likely to be negligible and the proposed development may fall under the ambit of a GA. However, should development within the drainage lines be unavoidable, a full WULA will likely be required. This will have to be confirmed with the application of the Risk Assessment Matrix (RAM) prescribed by GN 4167 of 2023.



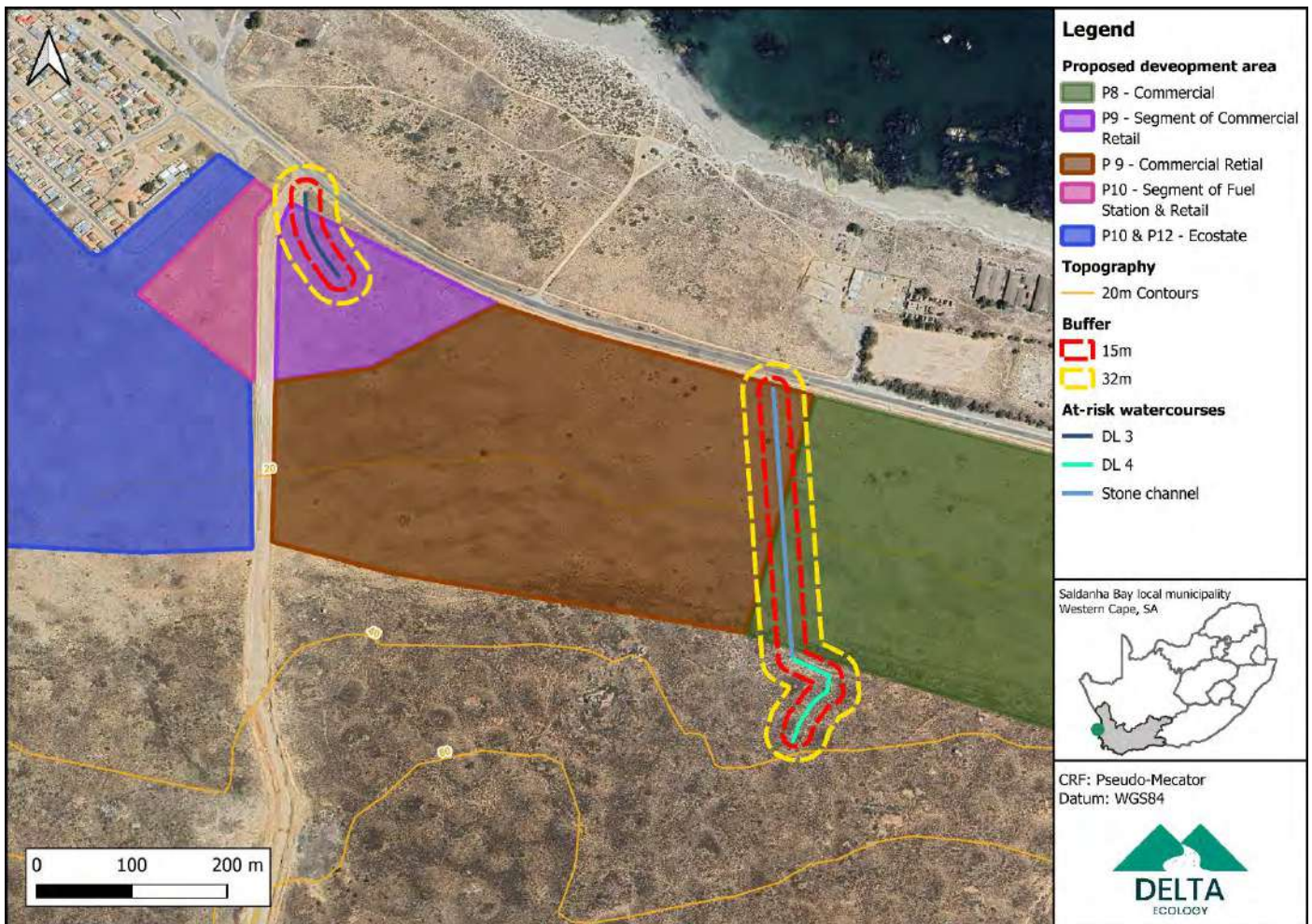


Figure 6-1: Opportunities and constraints map indicating the 32 m regulated area according to NEMA, and the 15 m buffer area stipulated by the buffer tool.

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