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FINAL

**FLORAL & FAUNAL COMPLIANCE STATEMENT FOR THE
PROPOSED
HOUTBAY CEMETERY EXPANSION**

ZUTARI (PTY) LTD

**Houtbay Cemetery,
Cape Town, Western Cape Province**



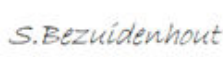
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DECLARATION OF INDEPENDENCE

I, Reuhl Lombard, declare that I act as an independent specialist for the Floral and Faunal Specialist Assessment of this application. I conduct assessments in an objective manner, even when the views and findings might not be favourable to the Applicant. I have the expertise to conduct the assessment and will comply with the Act, regulations and other applicable legislation. I do not have conflicting interests in the undertaking of the activity. I undertake to disclose all material information in my possession that has or may have the potential of influencing any decision to be taken in respect to the application.

SIGNATURE OF SPECIALIST	
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DATE	03/2025

INDEMNITY STATEMENT

Although Biosphere Enviro Solutions (Pty) Ltd exercises due care and diligence in rendering services and preparing documents, the client takes full responsibility for this report and its implementation in terms of the National Environmental Management Act of 1998, and National Water Act (Act 36 of 1998).

This statement exempts Biosphere Enviro Solutions and its associates and their sub-contractors from any legal responsibility based on the timing of the assessment, the result and the duration thereof, which has an influence on the credibility and accuracy of this report.

Biosphere Enviro Solutions accepts no liability, and the client, by receiving this document, indemnifies Biosphere Enviro Solutions and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by Biosphere Enviro Solutions and by the use of the information contained in this report.

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LIST OF ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Areas
CR	Critically Endangered
CSIR	Council for Scientific and Industrial Research
DFFE	Department of Forestry, Fisheries and the Environment
DWAF	Department of Water Affairs and Forestry
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EN	Endangered
ENPAT	Environmental Potential Atlas, South Africa
ESA	Ecological Support Areas
ESO	Environmental Site Officer
IBA	Important Bird Areas
LC	Least Concern
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NFEPA	National Freshwater Ecosystem Protected Areas
NPAES	National Protected Area Expansion Strategy
NT	Near Threatened
NWM5	National Wetland Map 5
PA	Protected Areas
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SWSA	Strategic Water Source Areas
VU	Vulnerable

INTRODUCTION

Biosphere Enviro Solutions (Pty) Ltd is appointed by Zutari (Pty) Ltd to undertake a Floral and Faunal Specialist Assessment in support of the proposed upgrade and transformation works to be undertaken at the Houtbay Cemetery, Cape Town, Western Cape Province.

TERMS OF REFERENCE

Government Notice (GN) 1150 of October 2020 provides protocols and criteria for the assessment and reporting of impacts on terrestrial biodiversity for any activity requiring environmental authorisation. The assessment and minimum reporting requirements of this protocol are associated with detected levels of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The requirements for terrestrial biodiversity are dictated by landscapes or sites which support various levels of biodiversity, inclusive of the presence of potential species of concern.

Prior to commencing with the assessment, the current use of the land and the potential environmental sensitivity of the site under consideration, as identified by the screening tool, were confirmed. As part of the site sensitivity verification, a desktop analysis for the site was completed and followed up by a preliminary on-site inspection. The Environmental Screening Tool Report can be viewed under **Addendum 1**.

An applicant intending to undertake an activity identified in the scope of GN 1150, on a site identified on the screening tool as being of "very high sensitivity" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment. However, 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. Based on the Site Sensitivity Verification report (**Addendum 2**), the site in question has a Low to Very Low site sensitivity, and as such requires the compilation of a Terrestrial Biodiversity Compliance Statement (this report).

LEGAL FRAMEWORK

- The National Environmental Management Act (107 of 1998).
- National Environmental Management: Biodiversity Act (10 of 2004).
- National Environmental Management: Biodiversity Act (10 of 2004): Draft lists of threatened and protected species, 2005.
- National Environmental Management: Biodiversity Act (10 of 2004). Alien and invasive species lists, 2020.
- The National Forest Act: Protected tree species.
- Environmental Impact Assessment (EIA) regulations.
- Terrestrial Biodiversity, Plant and Animal Species protocols, gazetted 30 October 2020 (Government Notice number 1150).
- Western Cape Nature Conservation Ordinance (Ordinance 19 of 1974, as amended).

- Western Cape Nature Conservation Laws Amendment Act (Act No. 3 of 2000).
- Western Cape Biodiversity Act, 2021 (Act 6 of 2021).
- Draft Western Cape Biodiversity Bill (2019).

The National Environmental Management Act (NEMA, Act 107 of 1998) and the National Environmental Management Biodiversity Act (NEMBA, Act 10 Of 2004) ensure the protection of ecological processes, natural systems and the preservation of biotic diversity within the natural environment. They also ensure the protection of the environment against disturbance, deterioration, defacement or destruction as a result of man-made structures, installations, processes, products or activities.

ASSUMPTIONS AND LIMITATIONS

- In order to obtain a comprehensive understanding of the dynamics of the biodiversity of the study area, surveys should ideally be replicated over several seasons and over a number of years. However, due to project time constraints such long-term studies are not feasible. This survey was conducted during February 2025 which is not the ideal flowering period. Nevertheless, adequate rainfall has occurred during the current summer period to allow for sufficient growth.
- Since environmental studies deal with dynamic natural systems, additional information may come to light at a later stage.
- Despite these limitations, a comprehensive desktop study was also conducted, in conjunction with the detailed results from the current survey, and as such there is a high confidence in the information provided.
- Floral identifications of each species on site were documented and were confirmed with family experts located at SANBI.

INFORMATION SOURCES

The following information sources were obtained:

- Relevant maps through GIS mapping, and information on the natural environment of the area concerned.
- Legislation pertaining to the fauna and flora study as relevant.
- The vegetation of South Africa, Lesotho and Swaziland (Mucina and Rutherford, 2006).
- Red data species lists from the South African National Biodiversity Institute (SANBI).
- The Biodiversity and Development Institute – The Virtual Museum data (sourced directly following closure of the portal).
- Relevant plant and animal field guides (see Reference list).
- CapeFarmMapper3 Web-based Mapping Application
- City of Cape Town Open Data Portals – ArcGIS

BACKGROUND TO THE STUDY AREA

The project will entail the expansion of an existing cemetery within the following location:

Table 1: Structure to be developed

Development Description	Type	QDG1	Corner Coordinates	Central Coordinate	Activity
Houtbay Cemetery	Expansion	3418AB	34° 1'25.05"S 18°21'53.06"E	34° 1'27.43"S 18°21'50.56"E	Expansion of a formal existing Cemetery
			34° 1'26.35"S 18°21'52.73"E		
			34° 1'29.36"S 18°21'49.24"E		
			34° 1'28.11"S 18°21'47.90"E		

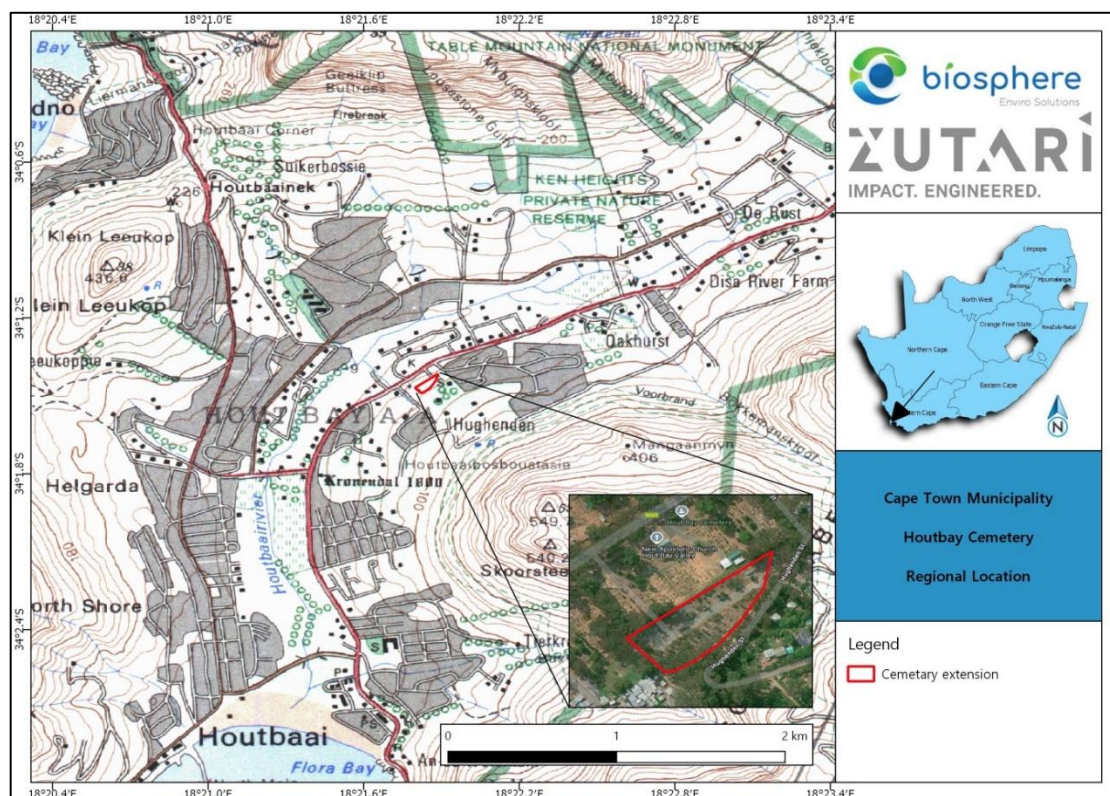


Figure 1: Regional setting of project

The key activities that require environmental authorisation relate to the expansion of the existing Houtbay Cemetery. The structures in question and the project as a whole triggered themes and sensitivities (Table 2) and Site Sensitivity Verification, followed by the relevant level of environmental assessment.

1 Quarter Degree Grid cell wherein the project is located

Table 2: Screening Tool outcomes

Theme/specialist assessment	Sensitivity	Rationale
Animal Species	Medium	Sensitive species
Plant Species	Low	Low sensitivity
Terrestrial Biodiversity	Very High	SWSA (SW)_Table Mountain

LOCATION

The site is located in the upper valley area of Houtbay, situated approximately midway between the coastline and the mountain slopes. It is bordered by Whittlers Way to the north, residential properties along Riverside Terrace to the west, and Mandela Road to the south. The M63 (Hout Bay Main Road) runs along the western boundary of the broader area. The proposed expansion area is approximately 0.7ha in extent.

The site falls within a semi-rural residential zone characterized by larger plot sizes and mixed land use. The property shows evidence of both cleared and naturally vegetated areas, with the eastern portion retaining more natural vegetation coverage. The surrounding landscape is characterised by a mosaic of residential properties, small-scale agricultural activities, and natural vegetation patches assumed to be typical of Peninsula Granite Fynbos. The Hout Bay River system runs north of the site, with associated riparian vegetation visible in the broader landscape.

CLIMATE

The site falls within a winter-rainfall regime, with rainfall peaking from May to August, and varying from 650 mm – 1220 mm per annum across the vegetation type, with higher rainfall occurring at higher elevations of the Hout Bay area. Peninsula Granite Fynbos experiences significantly higher rainfall than Cape Flats Sand Fynbos, influenced by the orographic effect of the Table Mountain chain. The mean daily maximum temperature is 25.8°C in February, and the mean daily minimum is 8.5°C in July. Frost occurrence is rare, mainly limited to higher elevations, while heavy mists are frequent in winter months, particularly on the mountain slopes. The area experiences strong southeastern winds in summer, which influences both temperature and moisture patterns (Mucina & Rutherford 2006).

VEGETATION

South Africa has been recognized as having remarkable plant diversity with high levels of endemism. South Africa hosts a wide range of ecosystems, of which the Fynbos biome is of relevance to this project. (Mucina & Rutherford, 2006). The Fynbos biome is characterised three major vegetation complexes; fynbos, rhenosterveld and strandveld. The site falls within the fynbos vegetation complex which is defined by evergreen, fire-prone shrubland characterised by the presence of wiry graminoids of the Restionaceae, a high cover of fine-leaved ericoid shrubs, and the common occurrence of proteoid shrubs (exclusively Proteaceae). The ecology is driven by intense summer wildfires that typically occur every 10-30 years, though this can range from 5 to 50 years. These fires are sustained by the abundant fine plant material,

particularly from the Restionaceae plants. Fynbos primarily grows in poor, sandy soils, but can also be found in other soil types including limestone, weathered clay soils (originating from shale and granite), and rocky soils formed from hardened surface deposits and alluvial sediments (Mucina & Rutherford, 2006).

The project area is situated in the **Cape Flats Sand Fynbos** vegetation unit which historically occurred on the lowland sand plains (altitude 20 – 200 masl) of the Cape Flats in South Africa, specifically in the area between Table Mountain and the Hottentots Holland mountains near Cape Town. This vegetation is characterized by sandy, nutrient-poor soils and is home to numerous endemic plant species.

The habitat is characterised by moderately undulating and flat sandy plains historically housing a series of seasonal depression wetlands during winter, with dry soft sands in summer. Cape Flats Sand Fynbos consists of a dense, moderately tall, ericoid shrubland containing scattered, emergent, tall shrubs. Proteoid and Restioid Fynbos are dominant, with Asteraceous and Ericaceous Fynbos occurring in drier and wetter areas, respectively. Annuals and bulbs are prominent in spring. In comparison to Sand Fynbos types to the north, Cape Flats Sand Fynbos has more ericas, proteas and other shrub species and more vleis. The National Biodiversity Assessment lists this vegetation unit as **Critically Endangered** with this being the most transformed Sand fynbos type. Over 85% has already been lost to urban sprawl and smallholding cultivation. The areas remaining are small and patchy occurring in pockets surrounded by urban areas. Most of these areas have been identified as “core flora conservation sites”.

METHODS

A site sensitivity verification (refer **Addendum 2**) was conducted to dispute the Screening Tool findings, concluding that a Terrestrial Biodiversity Compliance Statement is required to fulfil the specific themes cover by this report.

BASIC ENVIRONMENT SURVEY

A desktop survey was completed to determine whether the project area is located in any sensitive areas, such as Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA), National Freshwater Ecosystem Priority Areas (NFEPAs), Important Bird Areas (IBA), Nationally Threatened Ecosystems etc. Climate and vegetation were also discussed for the project area. This information is provided in Section 2 above.

FLORA SURVEY

An initial desktop study was completed to find out into which vegetation unit, according to Mucina and Rutherford (2006), the project area falls. A field survey was then completed on the 4th of February 2025, during which vegetation was thoroughly surveyed. The survey consisted of methodically covering the proposed development site and assessing the floristic composition of the habitats present. All floral species encountered were photographed and recorded.

A search for any Species of Conservation Concern (SCC) as listed in the EIA screening tool was also conducted.

Vegetation was described in terms of dominant and protected species (if any) and environmental factors (such as soil type and land use). The red list category, endemism and invasive category are given for each species recorded.

FAUNA SURVEY

A desktop survey was completed to determine which fauna species of conservation concern may be found in the area, according to the Virtual Museum records (full data set retrieved) as well as records verified on iNaturalist. Habitats defined for the floral survey were applicable to fauna as well. Thus, these habitats were assessed for suitability of species that might be present in the area according to their distribution as well as species identified during the field survey.

SENSITIVITY ANALYSIS AND ZONING

The ecological sensitivity of any piece of land is based on its inherent ecosystem service and overall preservation of biodiversity. The project area will be assessed by calculating the Site Ecological Importance (SEI) as per the Species Assessment Guidelines (2022). SEI is considered to be a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site) and its resilience to impacts (receptor resilience [RR]) and will consider the following:

Conservation importance (CI) - *The importance of a site for supporting biodiversity features of conservation concern present.*

CI is evaluated in accordance with recognised established internationally acceptable principles and criteria for the determination of biodiversity related value, including the IUCN Red List of Species, Red List of Ecosystems and Key Biodiversity Areas.

Functional integrity (FI) – *the measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.*

The FI of the receptor (e.g. the vegetation/fauna community or habitat type) is defined here as the receptors current ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions.

Receptor Resilience (RR) – *intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention*

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor.

Given the above, sites are assessed according to their SEI on a scale of Low – Very High, which can then be interpreted according to the development activities.

Table 3: Guidelines to interpret SEI in context of proposed developments (Species Environmental Assessment Guidelines, 2022)

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.

The SEI of the habitats give an indication of the site sensitivity, examples of sensitivity can be generalised as below.

Sensitivity scale

High – sensitive ecosystem with either low inherent resistance or low resilience towards disturbance factors or highly dynamic systems considered being important for the maintenance of ecosystem integrity. Most of these systems represent ecosystems with high connectivity with other important ecological systems or with high species diversity and usually provide suitable habitat for a number of threatened or rare species. These areas should be protected.

Medium – These are slightly modified systems which occur along gradients of disturbances of low-medium intensity with some degree of connectivity with other ecological systems or ecosystems with intermediate levels of species diversity but may include potential ephemeral habitat for threatened species; and

Low – Degraded and highly disturbed / transformed systems with little ecological function and are generally very poor in species diversity.

SENSITIVITY ANALYSIS AND CONSERVATION ANALYSIS TOOLS

There are several assessments for South Africa as a whole, as well as on provincial levels that allow for detailed conservation planning as well as meeting biodiversity targets for the country's variety of ecosystems. These guides are essential to consult for development projects and will form an important part of the sensitivity analysis. Areas earmarked for conservation in the future, or that are essential to meet biodiversity and conservation targets should not be developed and have a high sensitivity as they

are necessary for overall functioning. In addition, sensitivity analysis in the field based on much finer scale data can be used to ground truth the larger scale assessments and put it into a more localised context.

Of particular relevance for this project is the Biodiversity Network for the City of Cape Town which used a systematic biodiversity planning approach to prioritise remnant indigenous vegetation (discussed below).

CRITICAL BIODIVERSITY AREAS AND ECOLOGICAL SUPPORT AREAS

Critical Biodiversity Areas (CBA) are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan. Ecological Support Areas (ESA) are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services. Critical Biodiversity Areas and Ecological Support Areas may be terrestrial or aquatic.

The primary purpose of a map of Critical Biodiversity Areas and Ecological Support Areas is to guide decision-making about where best to locate development. It should inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. It is the biodiversity sector's input into multi-sectoral planning and decision-making processes (SANBI Biodiversity Advisor, 2017).

The fine-scale systematic biodiversity plan for Cape Town, known as the Biodiversity Network or BioNet was recently updated and now comprises maps for the Terrestrial BioNet 2023, Aquatic BioNet 2023, and combined BioNet 2023 with extended planning domain (10 km buffer around the City and all of Cape Town's major water supply dams and their associated sub-catchments). According to the BioNet (2023), the site in question does not fall within any sensitive areas (CBA or ESA). The nearest CBA and ESA are respectively located approximately 1km south and 800m east of the site and are associated with the Table Mountain National Park.

The site is separated from nearby biodiversity areas by urban road and housing infrastructure which limits the connectivity of the site for animal movement.

Table 4: Overall sensitivities

Structure	Screening Tool and Biodiversity Network	Observations
Houtbay Cemetery Expansion	No CBAs or ESAs overlapping with site CBA 1a – 1.1km south and 1.1km north CBA 1c – 1.3 km south-west CBA 2 – 1.7km south-east and 2.3km east ESA 1 – 0.7km east	No CBAs or ESAs overlapping with site

	Strategic Waters Source Area – Table Mountain	Noted – area already disturbed and impacted in terms of run-off
	Critically Endangered Peninsula Granite Fynbos	Site not representative of regional vegetation type - altered, degraded and invaded. Project area vegetation was completely cleared during September 2017. Continued recolonisation of entire area not possible due to land-use practice.

PROTECTED AREAS (PA) AND NATIONAL PROTECTED AREA EXPANSION STRATEGY (NPAES)

Officially protected areas, either provincially or nationally that occur close to a project site could have consequences as far as impacts on these areas are concerned. The National Protected Area Expansion Strategy (NPAES) sets targets for protected area expansion, provides maps of the most important areas for protected area expansion, and makes recommendations on mechanisms for protected area expansion.

The project area is not located in a protected area or in a NPAES focus area. The nearest protected area (Table Mountain National Park) is located approximately 260m south-east of the proposed project site. The proposed project poses no direct threat to the existence of the protected area.

Important Bird Areas (Key Biodiversity Areas): Important Bird Areas (IBAs) are sites of global significance for bird conservation (Marnewick *et al.*, 2015). The project area is located approximately 12 km from the northern edge of the False Bay Nature Reserve IBA.

Nationally threatened ecosystems: The Biodiversity Act (Act 10 of 2004) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to preserve sites of exceptionally high conservation value.

The initial mapping of terrestrial ecosystems was based on the South African vegetation map, national forest types recognized by DWAF, priority areas identified in a provincial systematic biodiversity plan, or high irreplaceability forest patches or clusters systematically identified by DWAF (SANBI, 2011). This has since been updated to include additional identified sensitive ecosystems (National List of Threatened Ecosystems, 2022)

The project area is located broadly in a nationally threatened ecosystems, namely the Peninsula Granite Fynbos which is considered critically endangered (SANBI, 2011; SANBI, 2018, Vegmap 2024 BETA).

National Freshwater Ecosystem Priority Areas (NFEPA) and National Wetland Map 5: South Africa's freshwater ecosystems are diverse, ranging from sub-tropical in the north-eastern part of the country, to semi-arid and arid in the interior, to the cool and temperate rivers of the fynbos. "Freshwater ecosystems" refer to all inland water bodies whether fresh or saline, including rivers, lakes, wetlands, sub-surface waters and estuaries. Consistent with global trends, high levels of threat have been reported for freshwater ecosystems. According to the National Biodiversity Assessment 2018 nearly 80% of inland wetland ecosystem types in South Africa are threatened and approximately 75% of inland wetland ecosystem types are both threatened and under-protected (SANBI, 2019). South Africa's freshwater fauna also displays high levels of threat: at least one third of freshwater fish indigenous to South Africa are reported as threatened, and a recent southern African study on the conservation status of major freshwater-dependent taxonomic groups (fishes, molluscs, dragonflies, crabs and vascular plants) reported far higher levels of threat in South Africa than in the rest of the region.

Urgent attention is needed to ensure that we conserve some representative natural examples of the different ecosystems that make up the natural heritage of this country for current and future generations. NFEPA responds to this need, providing strategic spatial priorities for conserving South Africa's freshwater ecosystems and supporting sustainable use of water resources (Driver *et al.*, 2011). However, the NFEPA database is largely outdated.

The National Wetland Map version 5 (NWM5), an output from the NBA 2018 assessment, shows the distribution of inland wetland ecosystem types across South Africa and includes estuaries and the extent of some rivers (CSIR, 2018). These delineated wetlands are generally more accurate than the older NFEPA database. Even more representative of the wetlands in the project vicinity are the wetlands delineated in the City of Cape Town Wetlands (2017) data, which forms part of the updated Aquatic BioNet data (2023).

The NWM5 and Aquatic BioNet data largely overlap, however more wetlands in areas surrounding the site are delineated by the Aquatic BioNet data. These data indicate that channelled valley-bottom wetlands area located approximately 410m north-east (between Meadow Lane and Hout Bay Main Road) and 360m north (associated with the Houtbay stream north of Riverside Terrace) of the site.

RESULTS AND JUSTIFICATION OF SENSITIVITIES

PLANTS

A list of 2448 plant species have been recorded in the quarter degree squares 3418AB encompassing the project area as a whole, of which 188 were listed as SCC. The Screening Tool did not identify any further species to be investigated.

Table 5: Plants SCC known to occur in the vicinity of the project site

Family	Taxon with collector	IUCN	Site status
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Asteraceae	<i>Arctotis angustifolia L.</i>	CR	Not observed on site
Asteraceae	<i>Cotula myriophylloides Harv.</i>	CR	Not observed on site
Asteraceae	<i>Senecio foeniculoides Harv.</i>	CR	Not observed on site
Campanulaceae	<i>Wahlenbergia pyrophila Lammers</i>	CR	Not observed on site
Cytinaceae	<i>Cytinus capensis Marloth</i>	CR	Not observed on site
Ericaceae	<i>Erica heleogena T.M.Salter</i>	CR	Not observed on site
Ericaceae	<i>Erica margaritacea Aiton</i>	CR	Not observed on site
Ericaceae	<i>Erica ribisaria Guthrie & Bolus</i>	CR	Not observed on site
Ericaceae	<i>Erica sociorum L.Bolus</i>	CR	Not observed on site
Fabaceae	<i>Amphithalea ericifolia subsp. erecta Granby</i>	CR	Not observed on site
Fabaceae	<i>Cyclopia latifolia DC.</i>	CR	Not observed on site
Fabaceae	<i>Psoralea glaucina Harv.</i>	CR	Not observed on site
Iridaceae	<i>Aristea pauciflora Wolley-Dod</i>	CR	Not observed on site
Iridaceae	<i>Gladiolus aureus Baker</i>	CR	Not observed on site
Iridaceae	<i>Moraea angulata Goldblatt</i>	CR	Not observed on site
Iridaceae	<i>Watsonia humilis Mill.</i>	CR	Not observed on site
Malvaceae	<i>Hermannia procumbens Cav. subsp. procumbens</i>	CR	Not observed on site
Orchidaceae	<i>Disa brachyceras Lindl.</i>	CR	Not observed on site
Orchidaceae	<i>Holothrix longicornu G.J.Lewis</i>	CR	Not observed on site
Oxalidaceae	<i>Oxalis natans Thunb.</i>	CR	Not observed on site
Potamogetonaceae	<i>Pseudalthenia aschersoniana (Graebn.) Hartog</i>	CR	Not observed on site
Proteaceae	<i>Leucadendron levisanus (L.) P.J.Bergius</i>	CR	Not observed on site
Proteaceae	<i>Leucadendron macowanii E.Phillips</i>	CR	Not observed on site
Proteaceae	<i>Serruria aemula Salisb. ex Knight</i>	CR	Not observed on site
Proteaceae	<i>Serruria pinnata (Andr.) R.Br.</i>	CR	Not observed on site
Aizoaceae	<i>Lampranthus glomeratus (L.) N.E.Br.</i>	EN	Not observed on site
Aizoaceae	<i>Lampranthus scaber (L.) N.E.Br.</i>	EN	Not observed on site
Aizoaceae	<i>Lampranthus stenus (Haw.) N.E.Br.</i>	EN	Not observed on site
Aizoaceae	<i>Lampranthus tenuifolius (L.) N.E.Br.</i>	EN	Not observed on site

Amaryllidaceae	<i>Cyrtanthus leucanthus</i> Schltr.	EN	Not observed on site
Amaryllidaceae	<i>Gethyllis kaapensis</i> D.Mull. - <i>Doblies</i>	EN	Not observed on site
Amaryllidaceae	<i>Hessea cinnamomea</i> (L'Her.) <i>T.Durand & Schinz</i>	EN	Not observed on site
Apiaceae	<i>Centella tridentata</i> (L.f.) <i>Drude ex Domin</i>	EN	Not observed on site
Apiaceae	<i>Dasispermum perennans</i> <i>Magee & B. -E.van Wyk</i>	EN	Not observed on site
Asteraceae	<i>Athanasia capitata</i> (L.) L.	EN	Not observed on site
Asteraceae	<i>Senecio verbascifolius</i> Burm.f.	EN	Not observed on site
Ericaceae	<i>Erica caterviflora</i> Salisb. var. <i>caterviflora</i>	EN	Not observed on site
Ericaceae	<i>Erica ecklonii</i> E.G.H.Oliv.	EN	Not observed on site
Fabaceae	<i>Aspalathus globulosa</i> E.Mey.	EN	Not observed on site
Fabaceae	<i>Aspalathus macrantha</i> Harv.	EN	Not observed on site
Fabaceae	<i>Aspalathus tylodes</i> Eckl. & <i>Zeyh.</i>	EN	Not observed on site
Fabaceae	<i>Aspalathus varians</i> Eckl. & <i>Zeyh.</i>	EN	Not observed on site
Fabaceae	<i>Indigofera psoraloides</i> (L.) L.	EN	Not observed on site
Fabaceae	<i>Lebeckia meyeriana</i> Eckl. & <i>Zeyh.</i>	EN	Not observed on site
Fabaceae	<i>Lebeckia plukenetiana</i> E.Mey.	EN	Not observed on site
Fabaceae	<i>Liparia angustifolia</i> (Eckl. & <i>Zeyh.</i>) A.L.Schutte	EN	Not observed on site
Fabaceae	<i>Podalyria argentea</i> (Salisb.) <i>Salisb.</i>	EN	Not observed on site
Fabaceae	<i>Xiphotheca reflexa</i> (Thunb.) <i>A.L.Schutte & B. -E.van Wyk</i>	EN	Not observed on site
Geraniaceae	<i>Pelargonium ellaphieae</i> <i>E.M.Marais</i>	EN	Not observed on site
Hyacinthaceae	<i>Lachenalia reflexa</i> Thunb.	EN	Not observed on site
Hypoxidaceae	<i>Spiloxene canaliculata</i> <i>Garside</i>	EN	Not observed on site
Iridaceae	<i>Babiana pygmaea</i> (Burm.f.) <i>Baker</i>	EN	Not observed on site
Iridaceae	<i>Codonorhiza azurea</i> (Eckl. ex <i>Baker</i>) Goldblatt & <i>J.C.Manning</i>	EN	Not observed on site
Iridaceae	<i>Geissorhiza brehmii</i> Eckl. ex <i>Klatt</i>	EN	Not observed on site
Iridaceae	<i>Geissorhiza pusilla</i> (Andrews)	EN	Not observed on site

	<i>Klatt</i>		
Iridaceae	<i>Gladiolus jonquilliodorus</i> Eckl. ex G.J.Lewis	EN	Not observed on site
Iridaceae	<i>Hesperantha spicata</i> subsp. <i>graminifolia</i> (Sweet) Goldblatt	EN	Not observed on site
Iridaceae	<i>Ixia monadelpha</i> D.Delaroche	EN	Not observed on site
Iridaceae	<i>Sparaxis grandiflora</i> (D.Delaroche) Ker Gawl. subsp. <i>grandiflora</i>	EN	Not observed on site
Molluginaceae	<i>Adenogramma rigida</i> (Bartl.) Sond.	EN	Not observed on site
Orchidaceae	<i>Disa draconis</i> (L.f.) Sw.	EN	Not observed on site
Orchidaceae	<i>Disa longicornu</i> L.f.	EN	Not observed on site
Orchidaceae	<i>Disa sabulosa</i> Bolus	EN	Not observed on site
Orchidaceae	<i>Pterygodium cruciferum</i> Sond.	EN	Not observed on site
Orchidaceae	<i>Pterygodium microglossum</i> (Lindl.) Schltr.	EN	Not observed on site
Orchidaceae	<i>Satyrium hallackii</i> Bolus subsp. <i>hallackii</i>	EN	Not observed on site
Penaeaceae	<i>Stylapterus fruticulosus</i> (L.f.) A.Juss.	EN	Not observed on site
Poaceae	<i>Pentameris bachmannii</i> (McClean) Galley & H.P.Linder	EN	Not observed on site
Polygalaceae	<i>Muraltia mitior</i> (P.J.Bergius) Levyns	EN	Not observed on site
Proteaceae	<i>Diastella proteoides</i> (L.) Druce	EN	Not observed on site
Proteaceae	<i>Leucadendron floridum</i> R.Br.	EN	Not observed on site
Proteaceae	<i>Leucospermum hypophyllocarpodendron</i> subsp. <i>canaliculatum</i> (H.Buek ex Meisn.) Rourke	EN	Not observed on site
Proteaceae	<i>Leucospermum hypophyllocarpodendron</i> (L.) Druce subsp. <i>hypophyllocarpodendron</i>	EN	Not observed on site
Proteaceae	<i>Serruria collina</i> Salisb. ex Knight	EN	Not observed on site
Proteaceae	<i>Serruria decumbens</i> (Thunb.) R.Br.	EN	Not observed on site
Proteaceae	<i>Serruria meisneriana</i> Schltr.	EN	Not observed on site

Restionaceae	<i>Hypodiscus rugosus</i> Mast.	EN	Not observed on site
Restionaceae	<i>Restio harveyi</i> Mast.	EN	Not observed on site
Restionaceae	<i>Restio micans</i> Nees	EN	Not observed on site
Rosaceae	<i>Cliffortia ericifolia</i> L.f.	EN	Not observed on site
Rosaceae	<i>Cliffortia hirta</i> Burm.f.	EN	Not observed on site
Rutaceae	<i>Adenandra villosa</i> subsp. <i>biseriata</i> (E.Mey. ex Bartl. & H.L.Wendl.) Strid	EN	Not observed on site
Rutaceae	<i>Agathosma glabrata</i> Bartl. & H.L.Wendl.	EN	Not observed on site
Rutaceae	<i>Macrostylis villosa</i> (Thunb.) Sond. subsp. <i>villosa</i>	EN	Not observed on site
Scrophulariaceae	<i>Microdon capitatus</i> (P.J.Bergius) Levyns	EN	Not observed on site
Thymelaeaceae	<i>Gnidia humilis</i> Meisn.	EN	Not observed on site
Thymelaeaceae	<i>Passerina paludosa</i> Thoday	EN	Not observed on site
Orchidaceae	<i>Satyrium hallackii</i> Bolus subsp. <i>hallackii</i>	EN	Not observed on site
Penaeaceae	<i>Stylapterus fruticosus</i> (L.f.) A.Juss.	EN	Not observed on site
Poaceae	<i>Pentameris bachmannii</i> (McClean) Galley & H.P.Linder	EN	Not observed on site
Polygalaceae	<i>Muraltia mitior</i> (P.J.Bergius) Levyns	EN	Not observed on site
Proteaceae	<i>Diastella proteoides</i> (L.) Druce	EN	Not observed on site
Proteaceae	<i>Leucadendron floridum</i> R.Br.	EN	Not observed on site
Proteaceae	<i>Leucospermum</i> <i>hypophyllocarpodendron</i> subsp. <i>canaliculatum</i> (H.Buek ex Meisn.) Rourke	EN	Not observed on site
Proteaceae	<i>Leucospermum</i> <i>hypophyllocarpodendron</i> (L.) Druce subsp. <i>hypophyllocarpodendron</i>	EN	Not observed on site
Proteaceae	<i>Serruria collina</i> Salisb. ex Knight	EN	Not observed on site
Proteaceae	<i>Serruria decumbens</i> (Thunb.) R.Br.	EN	Not observed on site
Proteaceae	<i>Serruria meisneriana</i> Schltr.	EN	Not observed on site
Restionaceae	<i>Hypodiscus rugosus</i> Mast.	EN	Not observed on site
Restionaceae	<i>Restio harveyi</i> Mast.	EN	Not observed on site

Restionaceae	<i>Restio micans</i> Nees	EN	Not observed on site
Rosaceae	<i>Cliffortia ericifolia</i> L.f.	EN	Not observed on site
Rosaceae	<i>Cliffortia hirta</i> Burm.f.	EN	Not observed on site
Rutaceae	<i>Adenandra villosa</i> subsp. <i>biseriata</i> (E.Mey. ex Bartl. & H.L.Wendl.) Strid	EN	Not observed on site
Rutaceae	<i>Agathosma glabrata</i> Bartl. & H.L.Wendl.	EN	Not observed on site
Rutaceae	<i>Macrostylis villosa</i> (Thunb.) Sond. subsp. <i>villosa</i>	EN	Not observed on site
Scrophulariaceae	<i>Microdon capitatus</i> (P.J.Bergius) Levyns	EN	Not observed on site
Thymelaeaceae	<i>Gnidia humilis</i> Meisn.	EN	Not observed on site
Thymelaeaceae	<i>Passerina paludosa</i> Thoday	EN	Not observed on site
Aizoaceae	<i>Cheiridopsis rostrata</i> (L.) N.E.Br.	VU	Not observed on site
Aizoaceae	<i>Erepsia patula</i> (Haw.) Schwantes	VU	Not observed on site
Aizoaceae	<i>Lampranthus filicaulis</i> (Haw.) N.E.Br.	VU	Not observed on site
Aizoaceae	<i>Ruschia geminiflora</i> (Haw.) Schwantes	VU	Not observed on site
Aizoaceae	<i>Skiatophytum tripolium</i> (L.) L.Bolus	VU	Not observed on site
Apiaceae	<i>Centella caespitosa</i> Adamson	VU	Not observed on site
Apocynaceae	<i>Cynanchum zeyheri</i> Schltr.	VU	Not observed on site
Asphodelaceae	<i>Aloe commixta</i> A.Berger	VU	Not observed on site
Asphodelaceae	<i>Aloiampelos commixta</i> (A.Berger) Klopper & Gideon F.Sm.	VU	Not observed on site
Asphodelaceae	<i>Trachyandra chlamydophylla</i> (Baker) Oberm.	VU	Not observed on site
Asphodelaceae	<i>Trachyandra filiformis</i> (Aiton) Oberm.	VU	Not observed on site
Asteraceae	<i>Amellus asteroides</i> subsp. <i>mollis</i> Rommel	VU	Not observed on site
Asteraceae	<i>Cullumia squarrosa</i> (L.) R.Br.	VU	Not observed on site
Asteraceae	<i>Metalasia capitata</i> (Lam.) Less.	VU	Not observed on site
Asteraceae	<i>Polyarrhena reflexa</i> (L.) Cass. subsp. <i>reflexa</i>	VU	Not observed on site
Asteraceae	<i>Steirodiscus tagetes</i> (L.) Schltr.	VU	Not observed on site

Brassicaceae	<i>Heliophila cinerea</i> Marais	VU	Not observed on site
Brassicaceae	<i>Heliophila promontorii</i> Marais	VU	Not observed on site
Brassicaceae	<i>Heliophila tabularis</i> Wolley-Dod	VU	Not observed on site
Campanulaceae	<i>Roella goodiana</i> Adamson	VU	Not observed on site
Colchicaceae	<i>Wurmbea hiemalis</i> B.Nord.	VU	Not observed on site
Colchicaceae	<i>Wurmbea inusta</i> (Baker) B.Nord.	VU	Not observed on site
Cyperaceae	<i>Ficinia elatior</i> Levyns	VU	Not observed on site
Cyperaceae	<i>Ficinia pinguior</i> C.B.Clarke	VU	Not observed on site
Cyperaceae	<i>Isolepis venustula</i> Kunth	VU	Not observed on site
Cyperaceae	<i>Tetraria graminifolia</i> Levyns	VU	Not observed on site
Ericaceae	<i>Erica amoena</i> J.C.Wendl.	VU	Not observed on site
Ericaceae	<i>Erica annectens</i> L.Guthrie & Bolus	VU	Not observed on site
Ericaceae	<i>Erica brachialis</i> Salisb.	VU	Not observed on site
Ericaceae	<i>Erica capensis</i> T.M.Salter	VU	Not observed on site
Ericaceae	<i>Erica cyrilliflora</i> Salisb.	VU	Not observed on site
Ericaceae	<i>Erica diosmifolia</i> Salisb.	VU	Not observed on site
Ericaceae	<i>Erica eburnea</i> T.M.Salter	VU	Not observed on site
Ericaceae	<i>Erica fairii</i> Bolus	VU	Not observed on site
Ericaceae	<i>Erica fontana</i> L.Bolus	VU	Not observed on site
Ericaceae	<i>Erica hendricksei</i> H.A.Baker var. <i>hendricksei</i>	VU	Not observed on site
Ericaceae	<i>Erica limosa</i> L.Bolus	VU	Not observed on site
Ericaceae	<i>Erica marifolia</i> Aiton	VU	Not observed on site
Ericaceae	<i>Erica paludicola</i> L.Bolus	VU	Not observed on site
Ericaceae	<i>Erica urna-viridis</i> Bolus	VU	Not observed on site
Fabaceae	<i>Argyrobium velutinum</i> Eckl. & Zeyh.	VU	Not observed on site
Fabaceae	<i>Aspalathus angustifolia</i> subsp. <i>robusta</i> (E.Phillips) R.Dahlgren	VU	Not observed on site
Fabaceae	<i>Aspalathus araneosa</i> L.	VU	Not observed on site
Fabaceae	<i>Aspalathus barbata</i> (Lam.) R.Dahlgren	VU	Not observed on site
Fabaceae	<i>Aspalathus capitata</i> L.	VU	Not observed on site
Fabaceae	<i>Aspalathus lotooides</i> Thunb. subsp. <i>lotooides</i>	VU	Not observed on site
Fabaceae	<i>Liparia laevigata</i> (L.) Thunb.	VU	Not observed on site
Fabaceae	<i>Liparia parva</i> Vogel ex Walp.	VU	Not observed on site

Fabaceae	<i>Liparia splendens</i> (Burm.f.) <i>Bos & de Wit subsp.</i> <i>splendens</i>	VU	Not observed on site
Fabaceae	<i>Podalyria sericea</i> (Andrews) <i>R.Br.</i>	VU	Not observed on site
Fabaceae	<i>Psoralea alata</i> (Thunb.) <i>T.M.Salter</i>	VU	Not observed on site
Fabaceae	<i>Psoralea fascicularis</i> DC.	VU	Not observed on site
Grubbiaceae	<i>Grubbia rosmarinifolia</i> subsp. <i>gracilis</i> (T.M.Salter) Carlquist	VU	Not observed on site
Haemodoraceae	<i>Wachendorfia brachyandra</i> <i>W.F.Barker</i>	VU	Not observed on site
Hyacinthaceae	<i>Lachenalia capensis</i> <i>W.F.Barker</i>	VU	Not observed on site
Hyacinthaceae	<i>Lachenalia fistulosa</i> Baker	VU	Not observed on site
Hypoxidaceae	<i>Pauridia alba</i> (Thunb.) <i>Snijman & Kocyan</i>	VU	Not observed on site
Iridaceae	<i>Babiana stricta</i> (Aiton) Ker <i>Gawl.</i>	VU	Not observed on site
Iridaceae	<i>Geissorhiza humilis</i> (Thunb.) <i>Ker Gawl.</i>	VU	Not observed on site
Iridaceae	<i>Moraea versicolor</i> (Salisb. ex <i>Klatt</i>) Goldblatt	VU	Not observed on site
Juncaginaceae	<i>Triglochin bulbosa</i> subsp. <i>tenuifolia</i> (Adamson) Horn	VU	Not observed on site
Menyanthaceae	<i>Villarsia goldblattiana</i> <i>Ornduff</i>	VU	Not observed on site
Orchidaceae	<i>Acrolophia bolusii</i> Rolfe	VU	Not observed on site
Orchidaceae	<i>Acrolophia ustulata</i> (Bolos) <i>Schltr. & Bolus</i>	VU	Not observed on site
Orchidaceae	<i>Disa venusta</i> Bolus	VU	Not observed on site
Orchidaceae	<i>Satyrium striatum</i> Thunb.	VU	Not observed on site
Poaceae	<i>Ehrharta setacea</i> subsp. <i>uniflora</i> (Burch. ex Stapf) <i>Gibbs Russ.</i>	VU	Not observed on site
Polygalaceae	<i>Muraltia brachypetala</i> <i>Wolley-Dod</i>	VU	Not observed on site
Polygalaceae	<i>Muraltia brevicornu</i> DC.	VU	Not observed on site
Polygalaceae	<i>Muraltia comptonii</i> Levyns	VU	Not observed on site
Polygalaceae	<i>Muraltia orbicularis</i> Hutch.	VU	Not observed on site
Proteaceae	<i>Leucadendron argenteum</i> (L.) <i>R.Br.</i>	VU	Not observed on site
Proteaceae	<i>Leucadendron discolor</i>	VU	Not observed on site

	<i>E.Phillips & Hutch.</i>		
Proteaceae	<i>Leucospermum vestitum</i> (Lam.) Rourke	VU	Not observed on site
Proteaceae	<i>Mimetes capitulatus</i> R.Br.	VU	Not observed on site
Proteaceae	<i>Mimetes hirtus</i> (L.) Salisb. ex Knight	VU	Not observed on site
Proteaceae	<i>Protea aspera</i> E.Phillips	VU	Not observed on site
Proteaceae	<i>Protea scolymocephala</i> (L.) Reichard	VU	Not observed on site
Proteaceae	<i>Serruria cyanoides</i> (L.) R.Br.	VU	Not observed on site
Proteaceae	<i>Serruria flagellifolia</i> Salisb. ex Knight	VU	Not observed on site
Proteaceae	<i>Serruria hirsuta</i> R.Br.	VU	Not observed on site
Restionaceae	<i>Elegia prominens</i> Pillans	VU	Not observed on site
Restionaceae	<i>Restio communis</i> Pillans	VU	Not observed on site
Restionaceae	<i>Restio dodii</i> Pillans var. <i>dodii</i>	VU	Not observed on site
Restionaceae	<i>Restio paludosus</i> Pillans	VU	Not observed on site
Restionaceae	<i>Restio papillosus</i> (Esterh.) H.P.Linder & C.R.Hardy	VU	Not observed on site
Restionaceae	<i>Willdenowia rugosa</i> Esterh.	VU	Not observed on site
Rhamnaceae	<i>Phylica dioica</i> L.	VU	Not observed on site
Rhamnaceae	<i>Phylica harveyi</i> (Arn.) Pillans	VU	Not observed on site
Rhamnaceae	<i>Phylica plumosa</i> var. <i>horizontalis</i> (Vent.) Sond.	VU	Not observed on site
Rosaceae	<i>Cliffortia longifolia</i> (Eckl. & Zeyh.) Weim.	VU	Not observed on site
Rutaceae	<i>Agathosma hookeri</i> Sond.	VU	Not observed on site
Rutaceae	<i>Agathosma lanceolata</i> (L.) Engl.	VU	Not observed on site
Thymelaeaceae	<i>Gnidia spicata</i> (L.f.) Gilg	VU	Not observed on site
Thymelaeaceae	<i>Lachnaea capitata</i> (L.) Crantz	VU	Not observed on site
Thymelaeaceae	<i>Lachnaea grandiflora</i> (L.f.) Baill.	VU	Not observed on site
Thymelaeaceae	<i>Lachnaea uniflora</i> (L.) Crantz	VU	Not observed on site

MAMMALS

Very few mammal species have been recorded previously in the quarter degree cell in which the sites fall. To be thorough, neighbouring areas were included to get fair representation of the complete mammal assemblage in the area. A total of 102 mammal (including marine mammal) species have been recorded in the quarter degree grid cells in the vicinity of the project site (3418AB, 3318CD), of which only three species are listed as a SCC. The Screening Tool did not identify any further mammal species to be investigated.

Table 6: Mammal SCC known to occur in the vicinity of the project site

Scientific name	Common name	Status	Site status
<i>Damaliscus pygargus pygargus</i>	Bontebok	VU	Not present on site
<i>Equus zebra zebra</i>	Mountain Zebra	VU	Not present on site
<i>Hippotragus niger niger</i>	Sable Antelope	VU	Not present on site

REPTILES AND AMPHIBIANS

A list of 55 reptile and 24 amphibian species have been recorded in the quarter degree square encompassing the project area (3418AB, 3318CD). Four amphibian Species of Conservation Concern were identified from the data in conjunction with the Screen Tool.

Table 7: Reptiles and Amphibians SCC known to occur in the vicinity of the project site

Scientific name	Common name	Status	Site status
<i>Capensibufo rosei</i>	Rose's Toadlet	CR	Not present on site. Site does not overlap with the known locations for this species.
<i>Sclerophrys pantherina</i>	Panther Toad	EN	Not present on site. Species requires foraging areas in close proximity to freshwater habitats, which are not present on site.
<i>Xenopus gilli</i>	Cape Platanna	EN	Not present on site. Species requires freshwater habitats, which are not present on site.
<i>Microbatrachella capensis</i>	Micro Frog	CR	Not present on site. Specialised habitat requirements are not present on site (or within close proximity)

OTHER

The Screening Tool identified one Insecta and one Arachnida SCC that need to be considered and investigated.

Table 8: Insecta and Arachnida SCC known to occur in the vicinity of the project site

Scientific name	Common name	Status	Site status
Invertebrate - <i>Conocephalus peringueyi</i>	Peringuey's Meadow Katydid	Medium	Not present on site. Species located above 500m altitude only.

			Site located at 60m altitude.
Arachnida - <i>Psammoduon arenicola</i>	Sand-dwelling trapdoor spider	Medium	Not present on site. Disturbed soil layer uncondusive to species prevalence.

SENSITIVITY ANALYSIS FOR THE PROJECT AREA

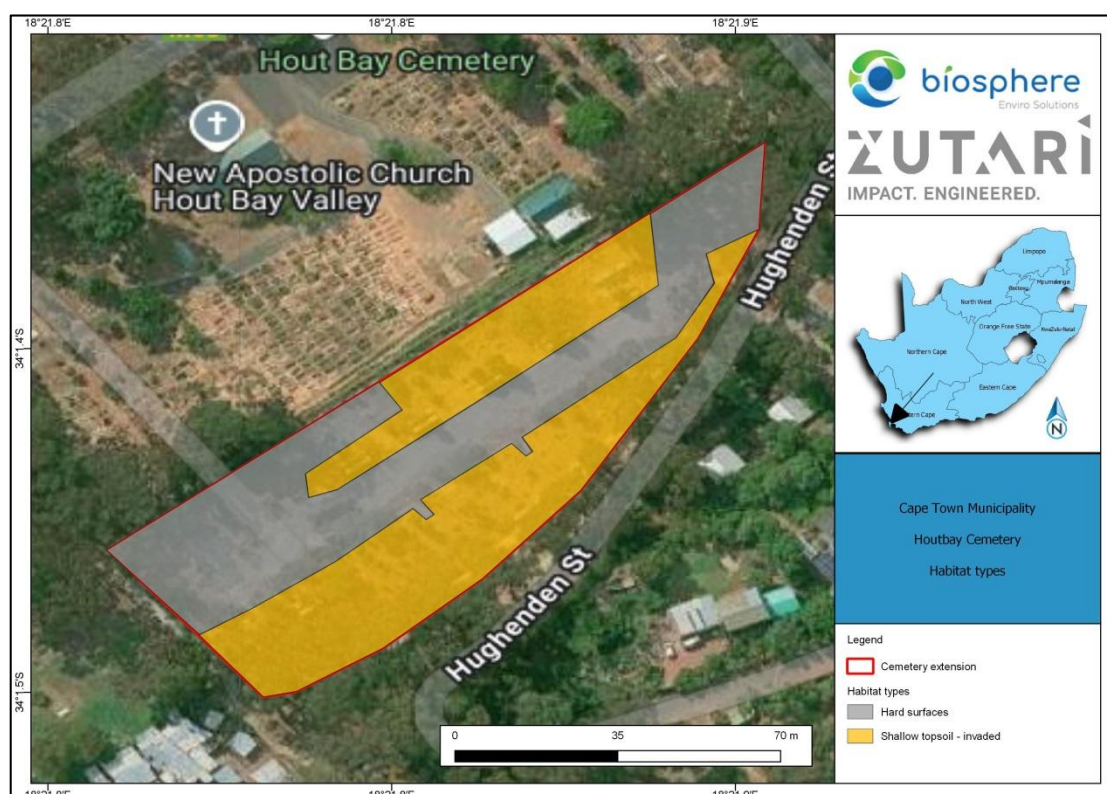


Figure 2: Habitat types

Table 6: SEI Summary

SEI Summary per habitat type	
Habitat	Rating
Hard surfaces	CI: Very Low FI: Very Low BI: Very Low RR: Very High Site Ecological Importance: Very Low
Shallow topsoil - invaded	CI: Very Low FI: Low BI: Very Low RR: Medium Site Ecological Importance: Very Low

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

Overall, from a floral and faunal perspective the site can be classified as having and overall **Very Low** sensitivity.



Figure 3: Site habitats (A & C: Hard surfaces, B & D & F: Shallow topsoil and invaded, G: Perimeter highwall)

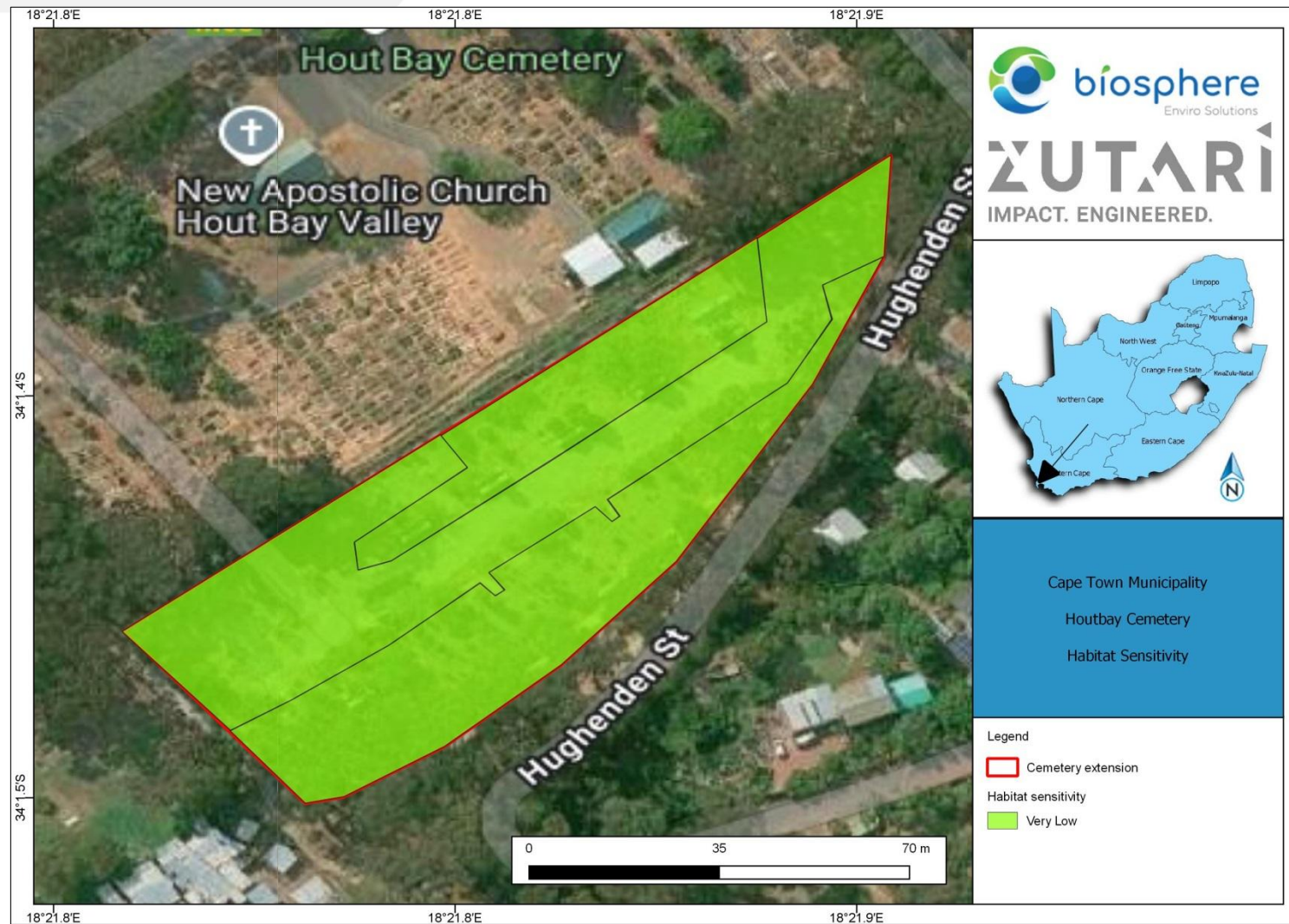


Figure 4: Sensitivity map

POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

An environmental impact is defined as a change in the environment, be it the physical/chemical, biological, cultural and or socio-economic environment. Any impact can be related to certain aspects of human activities in this environment and this impact can be either positive or negative. It could also affect the environment directly or indirectly and the effect of it can be cumulative.

There are three major categories of impacts on biodiversity namely:

- Impacts on habitat resulting in loss, degradation and / or fragmentation.
- Direct impacts on fauna and flora and species, for example plants and animals that are endemic / threatened / specially adapted to a habitat, will not be able to survive if that habitat is destroyed or altered by the development.
- Impact on natural environmental processes and ecosystem functioning. This can lead to an accumulated effect on both habitat and species.

Due to the degraded and altered nature of the site in question, should the expansion of the cemetery be authorised, any potential impact that could arise would fall within an insignificant category (i.e. Very Low possible impact). The following management actions are proposed to mitigate any potential damage:

- The impact should be restricted to the smallest footprint possible.
- Compliance with industry best practice standards related to potential hydrocarbon pollution from spills must be adhered to.
- Vegetation and soil removal should be limited to the smallest footprint possible and should only be removed where necessary.
- Disturbed soils are prone to alien invasive species establishment, thus the site should be monitored for alien species germination along with the necessary removal and management thereof (i.e. Alien Invasive Plant Species Management Plan).

DISCUSSION & CONCLUSION

Biosphere Enviro Solutions (Pty) Ltd was appointed by Zutari (Pty) Ltd to undertake a Floral and Faunal Specialist Assessment in support of the proposed upgrade and transformation works to be undertaken at the Houtbay Cemetery, Cape Town, Western Cape Province.

According to the national web-based environmental screening tool in terms of National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), the site has the following sensitivities:

- Animal Species - Medium
- Plant Species - Low
- Terrestrial Biodiversity - Very High

These sensitivities were subsequently refuted through Site Sensitivity Verification (**Addendum 2**), triggering the requirements of a Terrestrial Biodiversity Compliance Statement inclusive of the Animal and Plant themes.

In the context of much of the site being in a degraded state, but still having a low ecological functioning, apart from the broad management actions mentioned in this report, there are no conditions to which this compliance statement is subjected.

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ADDENDUM 1: SCREENING TOOL REPORT

ADDENDUM 2: SITE SENSITIVITY VERIFICATION REPORT

ADDENDUM 1: SCREENING TOOL REPORT

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE
ENVIRONMENTAL SENSITIVITY**

EIA Reference number: n/a

Project name: Houtbay Cemetery

Project title: Cemetery Extension/Expansion

Date screening report generated: 27/01/2025 09:07:55

Applicant: COCT

Compiler: Biosphere Enviro-Solutions

Compiler signature:

.....

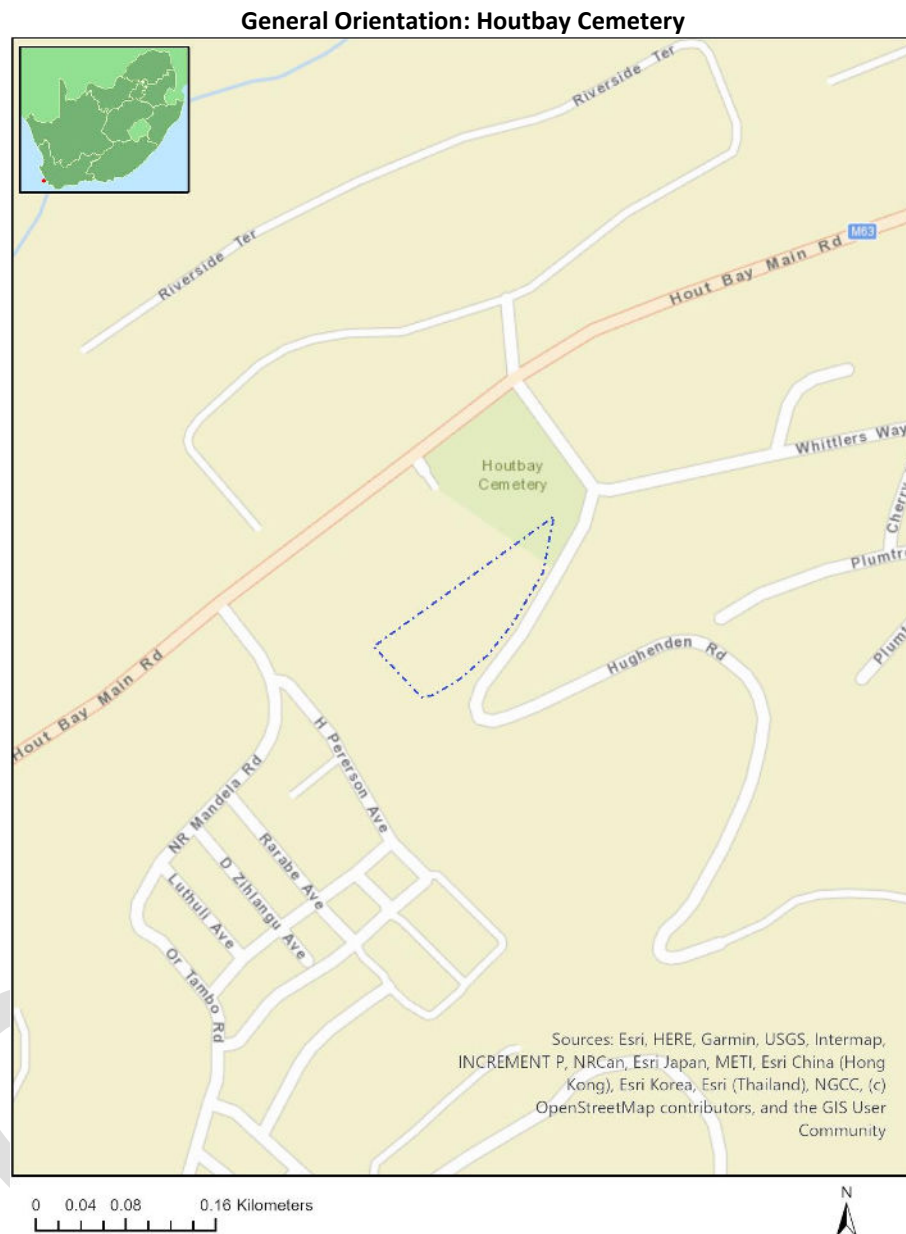
Application Category: Services|Burial and cemeteries|Cemeteries

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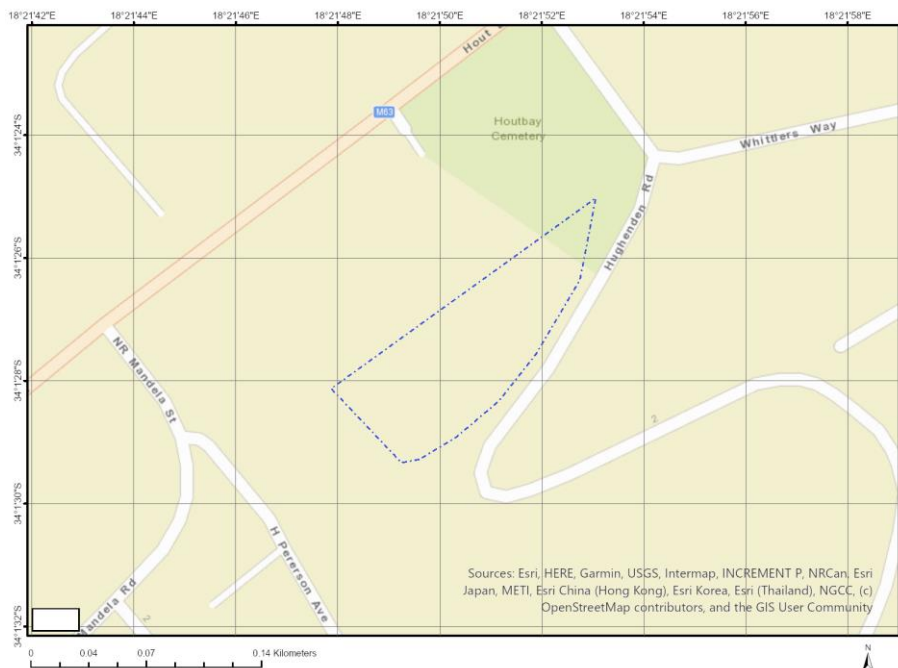
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Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	HOUT BAY	6355	0	34°1'37.48S	18°21'52.46E	Erven
2	HOUT BAY	2596	0	34°1'27.27S	18°21'50.85E	Public Place

Development footprint¹ vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

¹ “development footprint”, means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

Services | Burial and cemeteries | Cemeteries.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Transmission Corridor-Central corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme			X	
Defence Theme			X	
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

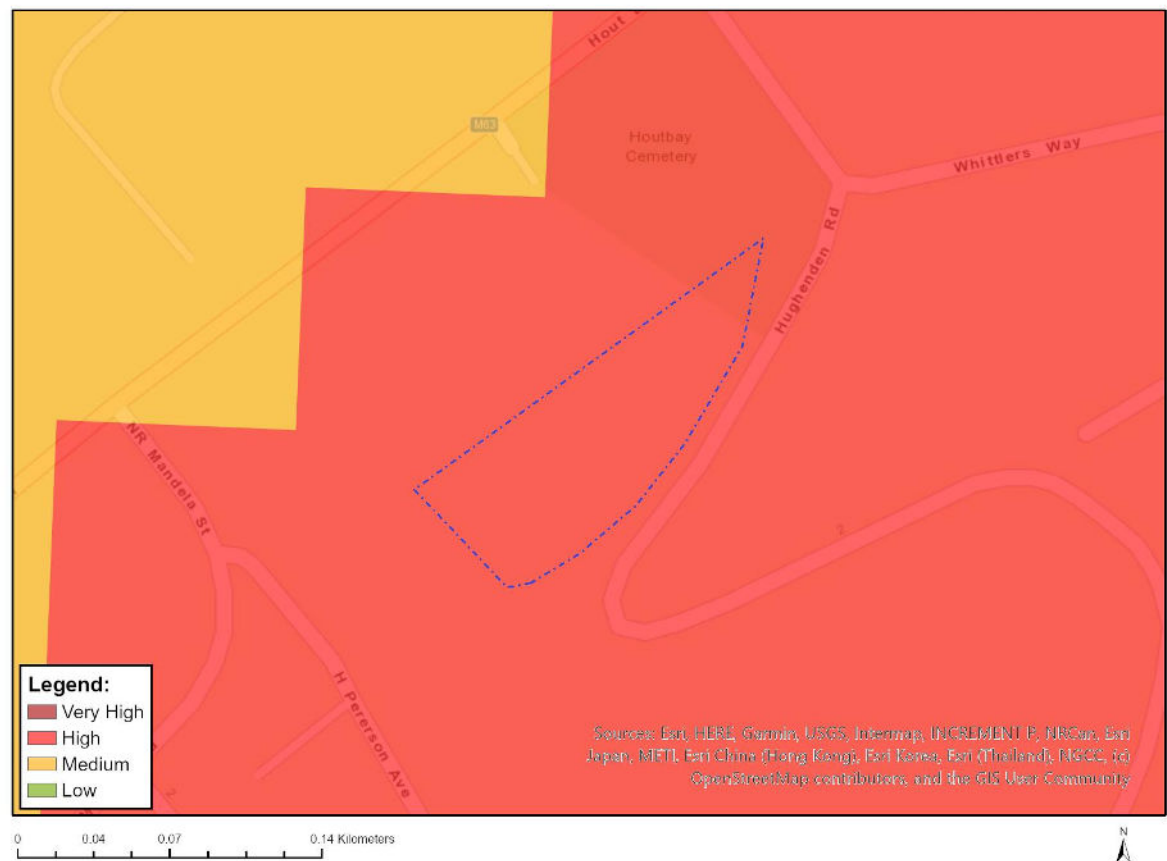
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf

2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
7	Traffic Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
9	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
10	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
11	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

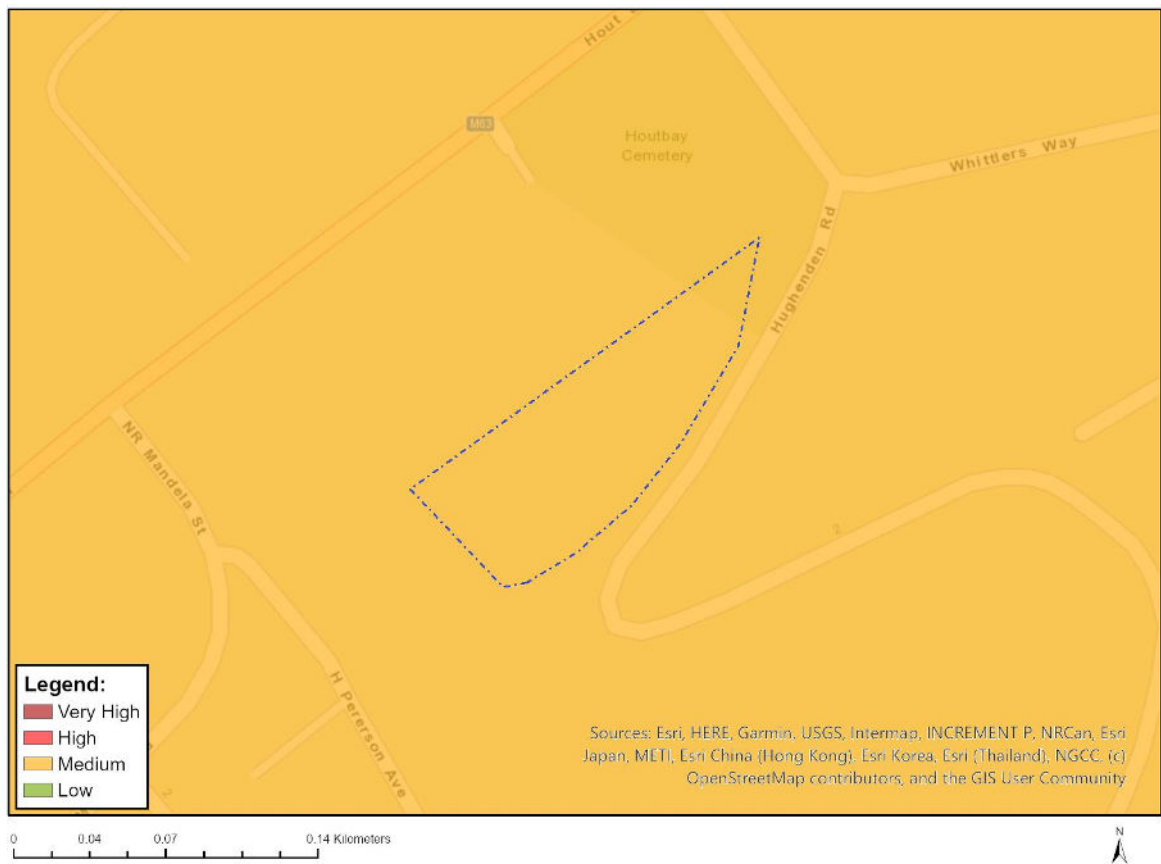


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



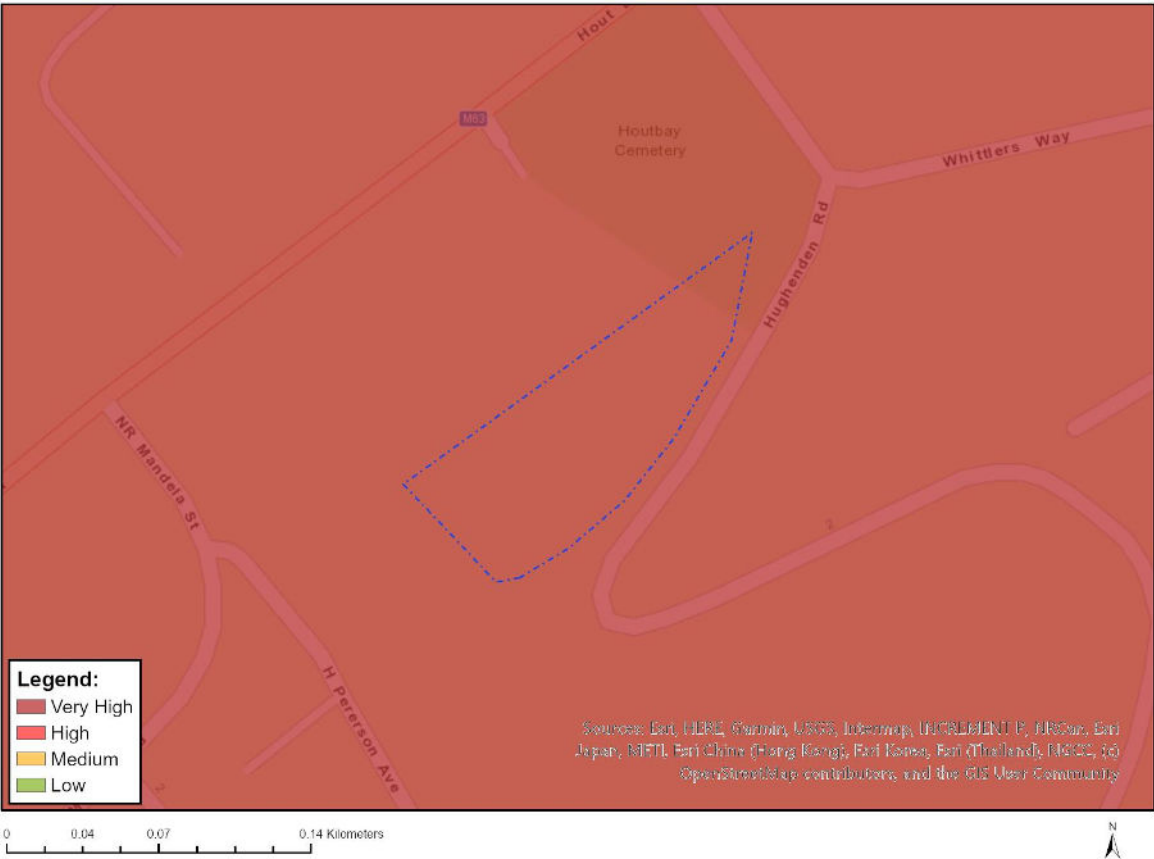
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Amphibia-Sclerophrys pantherina
Medium	Invertebrate-Conocephalus peringueyi
Medium	Arachnida-Psammoduon arenicola

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

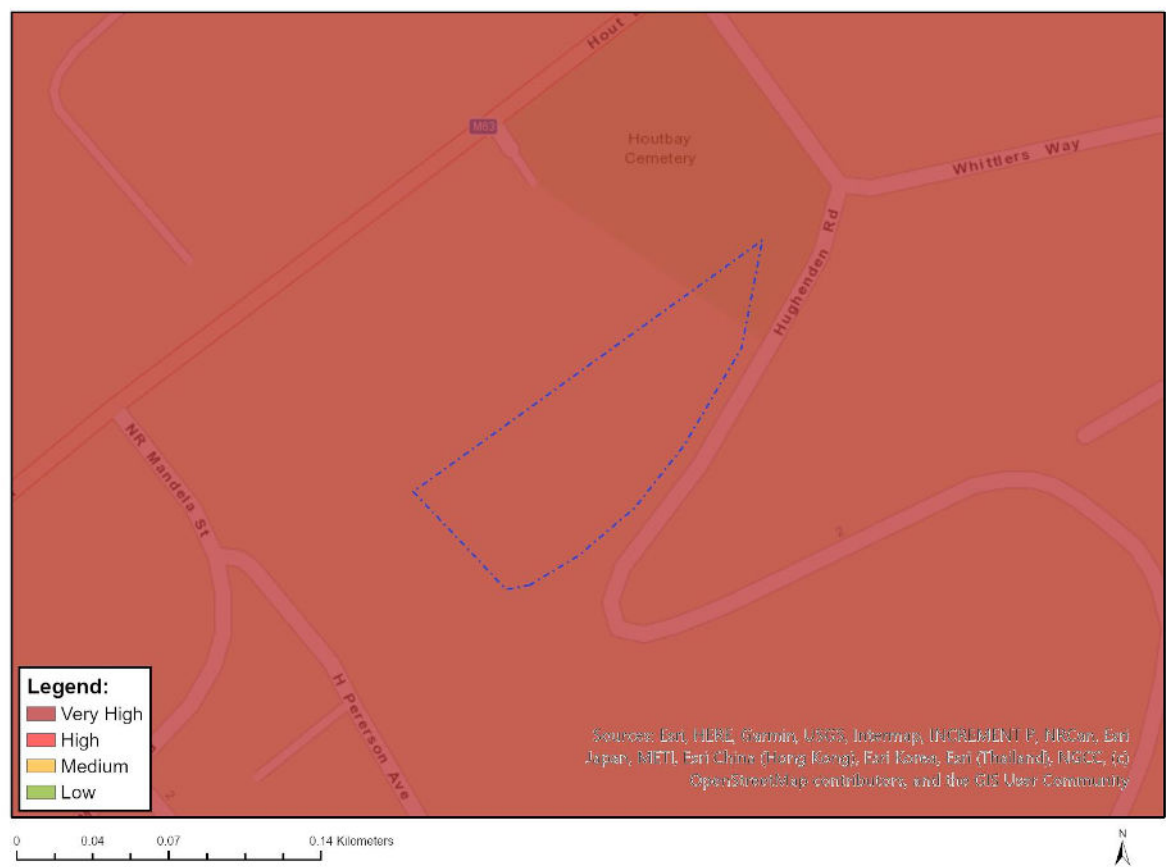


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	SWSA (SW) _Table Mountain

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

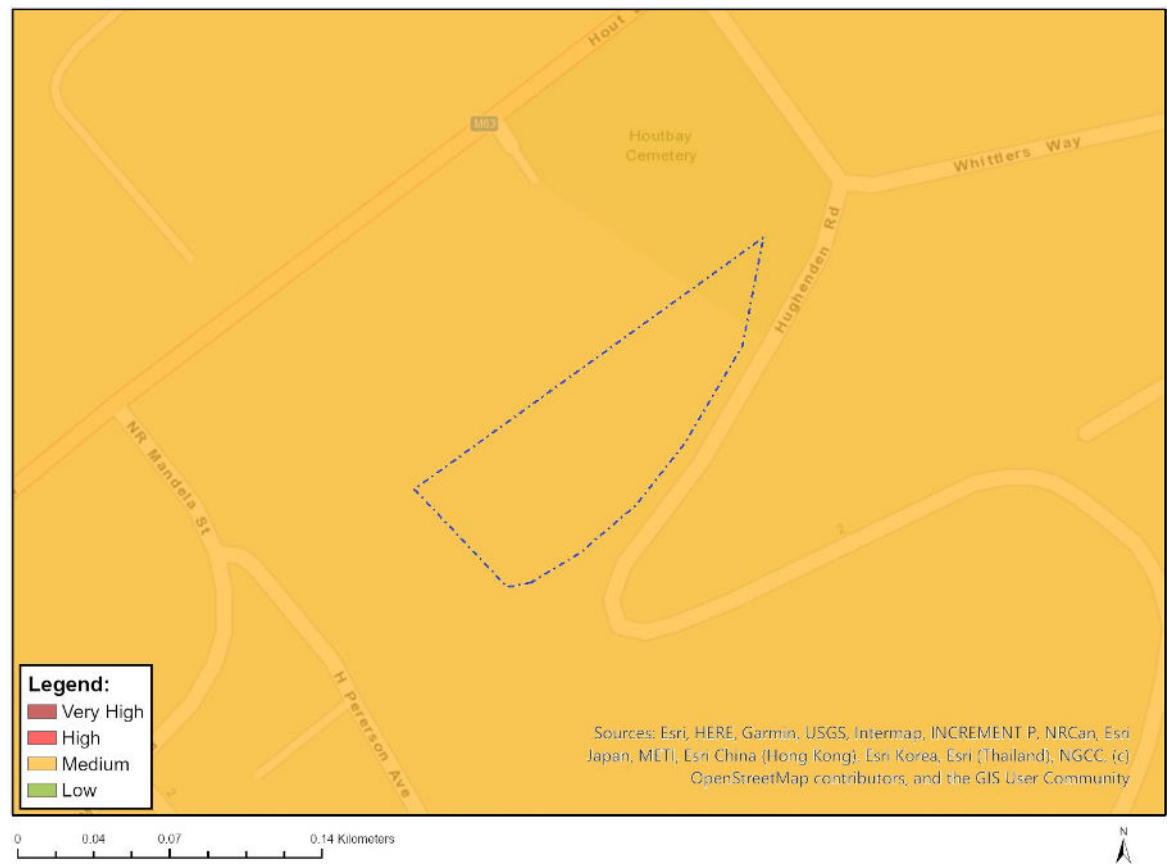


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Within 2km of a Grade II Heritage site

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

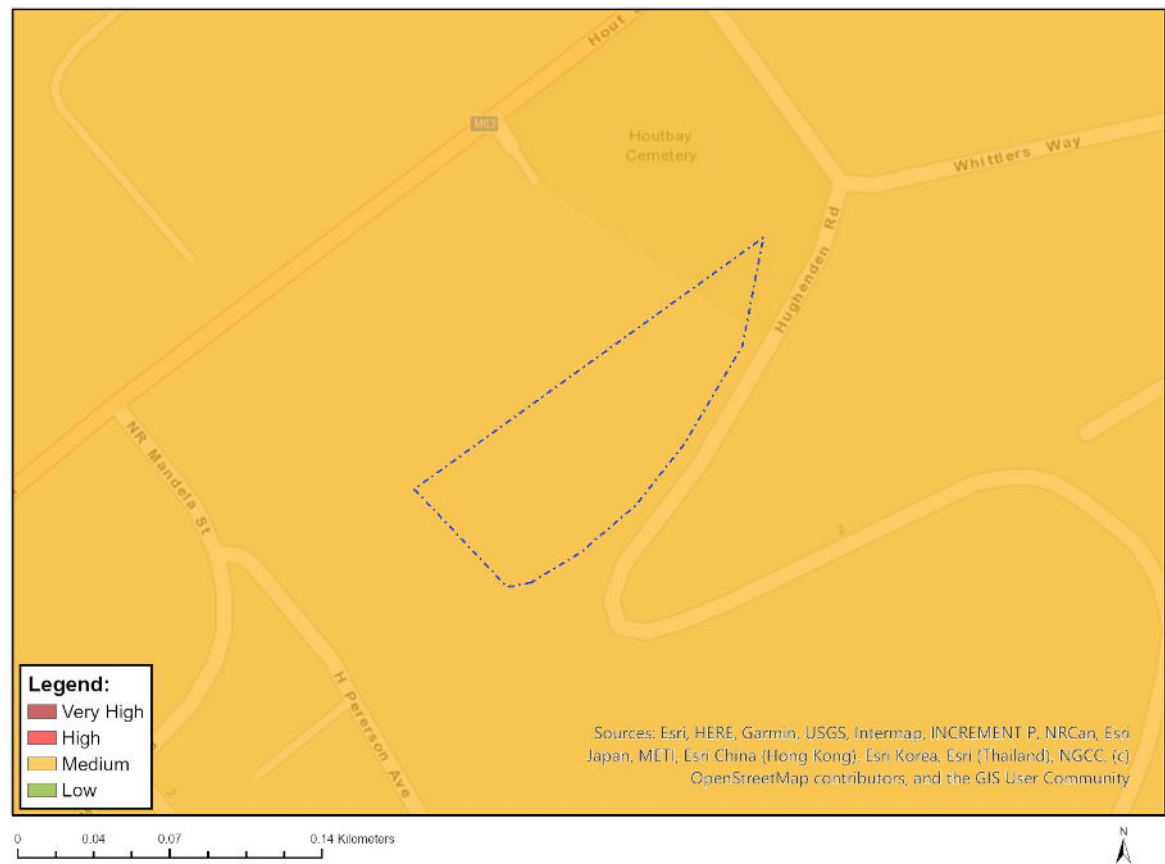


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Within 5 km of an air traffic control or navigation site
Medium	Between 15 and 35 km from a civil aviation radar
Medium	Between 15 and 35 km from a major civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

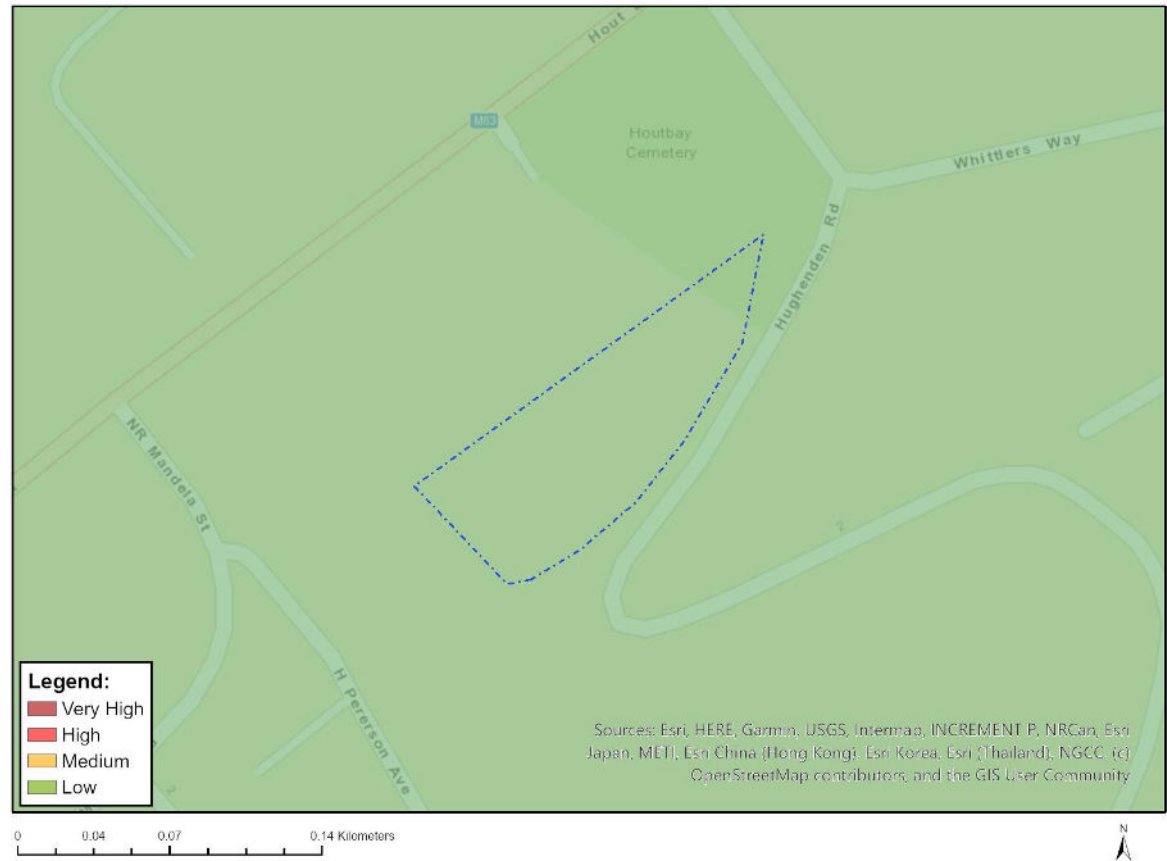


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Military and Defence Site

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



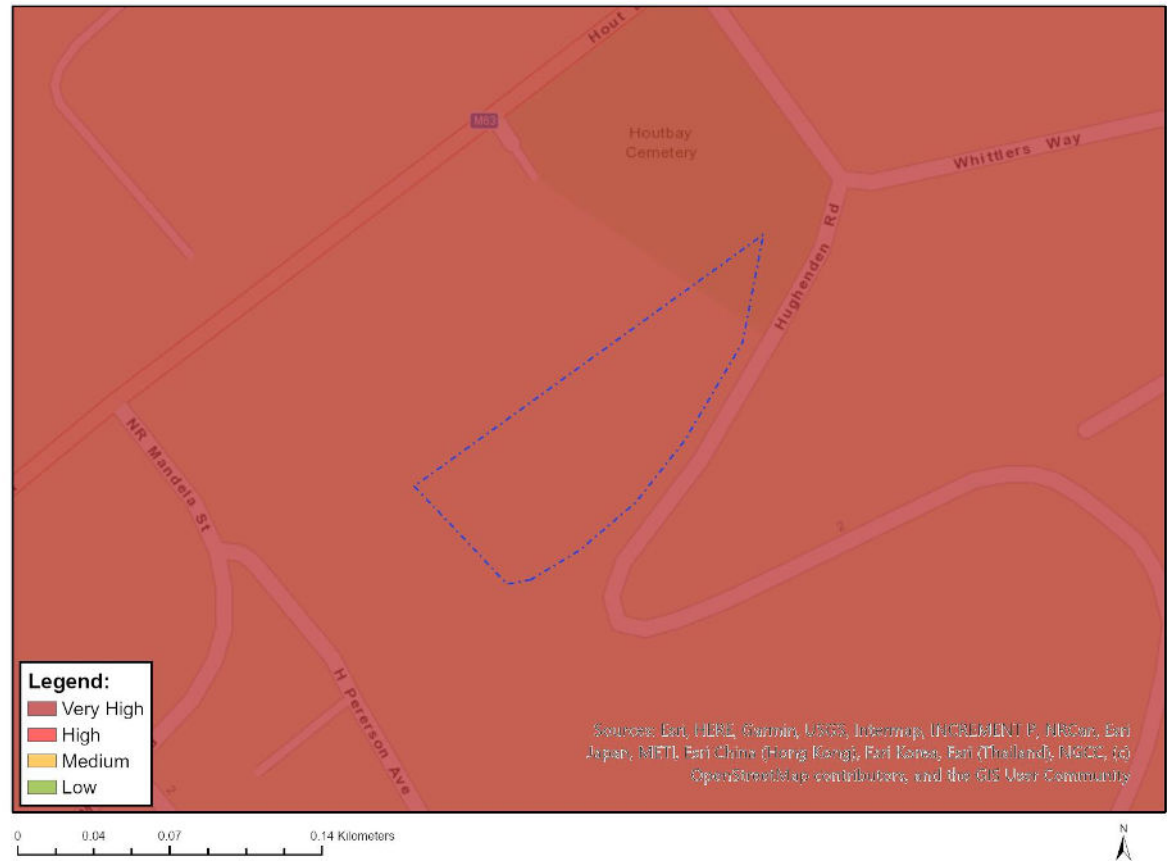
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	SWSA (SW) _Table Mountain
Very High	CR_Peninsula Granite Fynbos

ADDENDUM 2: SITE SENSITIVITY VERIFICATION REPORT



biosphere
Enviro Solutions

ZUTARI
IMPACT. ENGINEERED.

FINAL

**SITE SENSITIVITY VERIFICATION REPORT FOR THE PROPOSED
HOUTBAY CEMETERY EXPANSION**

ZUTARI (PTY) LTD

**Houtbay Cemetery,
Cape Town, Western Cape Province**



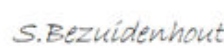
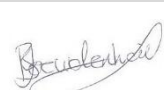
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Internal Review & Quality Assurance	Suné Bezuidenhout Accredited SASS5 Practitioner	02/2025		V0.2
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FINAL SUBMISSION	Zutari (Pty) Ltd – Angela Botha	03/2025	*	V1.0

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DECLARATION OF INDEPENDENCE

I, Reuhl Lombard, declare that I act as an independent specialist for the Terrestrial Biodiversity, Animal and Plant theme of this application. I conduct assessments in an objective manner, even when the views and findings might not be favourable to the Applicant. I have the expertise to conduct the assessment and will comply with the Act, regulations and other applicable legislation. I do not have conflicting interests in the undertaking of the activity. I undertake to disclose all material information in my possession that has or may have the potential of influencing any decision to be taken in respect to the application.

SIGNATURE OF SPECIALIST	
REGISTRATIONS	SACNASP Reg No: 128735
DATE	02/2025

I, Hanjo Fourie, declare that I act as an independent specialist for the Aquatic Biodiversity theme of this application. I conduct assessments in an objective manner, even when the views and findings might not be favourable to the Applicant. I have the expertise to conduct the assessment and will comply with the Act, regulations and other applicable legislation. I do not have conflicting interests in the undertaking of the activity. I undertake to disclose all material information in my possession that has or may have the potential of influencing any decision to be taken in respect to the application.

SIGNATURE OF SPECIALIST	
REGISTRATIONS	SACNASP Reg No: 128735
DATE	02/2025

INDEMNITY STATEMENT

Although Biosphere Enviro Solutions (Pty) Ltd exercises due care and diligence in rendering services and preparing documents, the client takes full responsibility for this report and its implementation in terms of the National Environmental Management Act of 1998, and National Water Act (Act 36 of 1998).

This statement exempts Biosphere Enviro Solutions and its associates and their sub-contractors from any legal responsibility based on the timing of the assessment, the result and the duration thereof, which has an influence on the credibility and accuracy of this report.

Biosphere Enviro Solutions accepts no liability, and the client, by receiving this document, indemnifies Biosphere Enviro Solutions and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by Biosphere Enviro Solutions and by the use of the information contained in this report.

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LIST OF ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Areas
CR	Critically Endangered
CSIR	Council for Scientific and Industrial Research
DFFE	Department of Forestry, Fisheries and the Environment
DWAF	Department of Water Affairs and Forestry
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EN	Endangered
ENPAT	Environmental Potential Atlas, South Africa
ESA	Ecological Support Areas
ESO	Environmental Site Officer
IBA	Important Bird Areas
LC	Least Concern
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NFEPA	National Freshwater Ecosystem Protected Areas
NPAES	National Protected Area Expansion Strategy
NT	Near Threatened
NWM5	National Wetland Map 5
PA	Protected Areas
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SWSA	Strategic Water Source Areas
VU	Vulnerable

INTRODUCTION

Biosphere Enviro Solutions (Pty) Ltd is appointed by Zutari (Pty) Ltd to fulfil the Terrestrial Biodiversity Theme in support of the proposed Expansion of the Houtbay Cemetery, Cape Town, Western Cape Province.

In line with GN 1150, an applicant intending to undertake an identified activity on a site identified on the screening tool as being of "very high sensitivity" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment. Similarly, if the site is classed as having "very high sensitivity" according to GN 320 for aquatic ecology, the applicant must submit an Aquatic Ecological Specialist Assessment. The protocols also state that 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. In the event that the site is classified by the screening tool as being of "low" or "very low sensitivity" for either theme, the applicant must submit Compliance Statements in accordance to the abovementioned regulations. This report presents desktop and ground-truthing findings in order to determine the sensitivity of the site as per above.

BACKGROUND

The project will entail the expansion of an existing cemetery within the following location:

Table 1: Structure to be developed

Development Description	Type	QDG1	Corner Coordinates	Central Coordinate	Activity
Houtbay Cemetery	Expansion	3418AB	34° 1'25.05"S 18°21'53.06"E	34° 1'27.43"S 18°21'50.56"E	Expansion of a formal existing Cemetery
			34° 1'26.35"S 18°21'52.73"E		
			34° 1'29.36"S 18°21'49.24"E		
			34° 1'28.11"S 18°21'47.90"E		

1 Quarter Degree Grid cell wherein the project is located

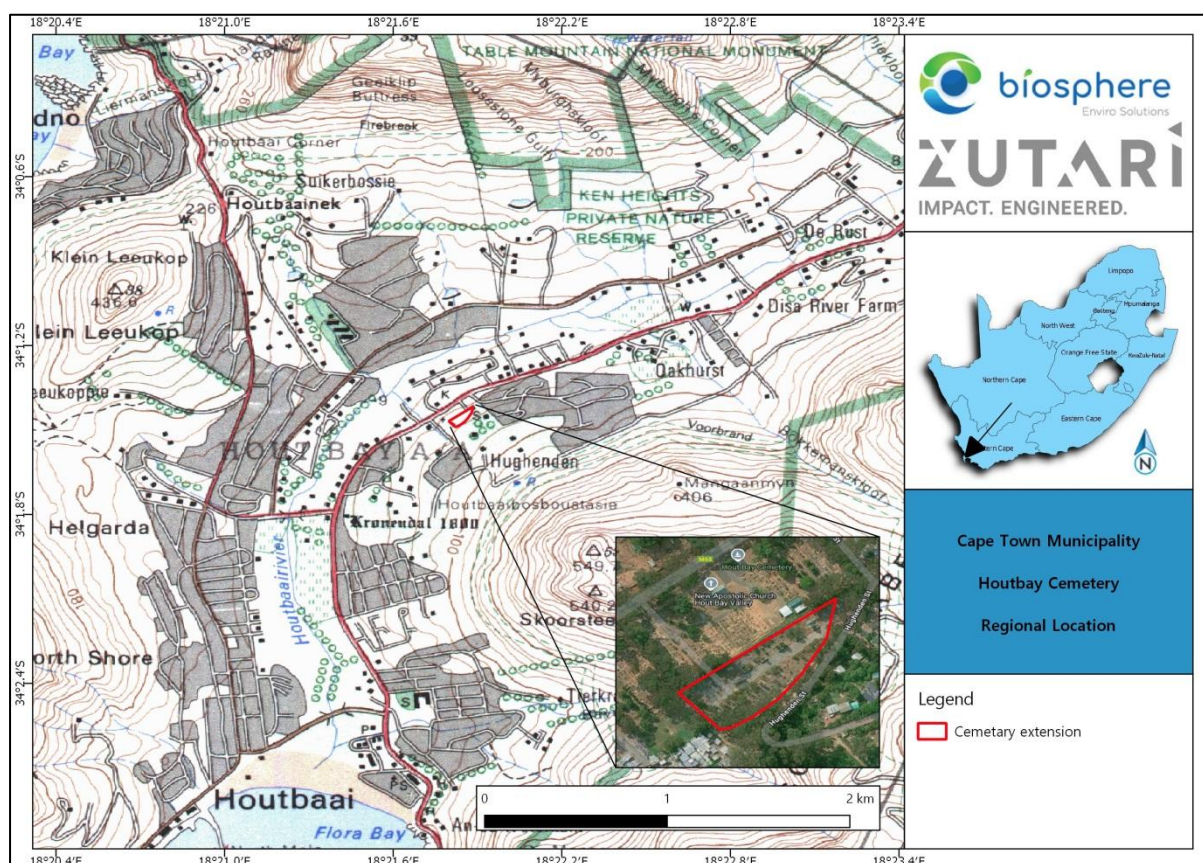


Figure 1: Regional setting of project

The key activities that require environmental authorisation relate to the expansion of the existing Houtbay Cemetery. The structures in question and the project as a whole triggered themes and sensitivities (Table 2) and Site Sensitivity Verification, followed by the relevant level of environmental assessment.

Table 2: Screening Tool outcomes

Theme/specialist assessment	Sensitivity	Rationale
Animal Species	Medium	Sensitive species
Aquatic Biodiversity	Very High	SWSA (SW)_Table Mountain CR_Peninsula Granite Fynbos
Plant Species	Low	Low sensitivity
Terrestrial Biodiversity	Very High	SWSA (SW)_Table Mountain

LOCATION

The site is located in the upper valley area of Hout Bay, situated approximately midway between the coastline and the mountain slopes. It is bordered by Whittlers Way to the north, residential properties along Riverside Terrace to the west, and Mandela Road to the south. The M63 (Hout Bay Main Road) runs along the western boundary of the broader area. The proposed expansion area is approximately 0.7ha in extent.

The site falls within a semi-rural residential zone characterized by larger plot sizes and mixed land use. The property shows evidence of both cleared and naturally vegetated areas, with the eastern portion retaining more natural vegetation coverage. The surrounding landscape is characterised by a mosaic of residential properties, small-scale agricultural activities, and natural vegetation patches assumed to be typical of Peninsula Granite Fynbos. The Hout Bay River system runs north of the site, with associated riparian vegetation visible in the broader landscape.

CLIMATE

The site falls within a winter-rainfall regime, with rainfall peaking from May to August, and varying from 650 mm – 1220 mm per annum across the vegetation type, with higher rainfall occurring at higher elevations of the Hout Bay area. Peninsula Granite Fynbos experiences significantly higher rainfall than Cape Flats Sand Fynbos, influenced by the orographic effect of the Table Mountain chain. The mean daily maximum temperature is 25.8°C in February, and the mean daily minimum is 8.5°C in July. Frost occurrence is rare, mainly limited to higher elevations, while heavy mists are frequent in winter months, particularly on the mountain slopes. The area experiences strong southeastern winds in summer, which influences both temperature and moisture patterns (Mucina & Rutherford 2006).

SENSITIVITY ANALYSIS AND CONSERVATION ANALYSIS TOOLS

There are several assessments for South Africa as a whole, as well as on provincial levels that allow for detailed conservation planning as well as meeting biodiversity targets for the country's variety of ecosystems. These guides are essential to consult for development projects and will form an important part of the sensitivity analysis. Areas earmarked for conservation in the future, or that are essential to meet biodiversity and conservation targets should not be developed and have a high sensitivity as they are necessary for overall functioning. In addition, sensitivity analysis in the field based on much finer scale data can be used to ground truth the larger scale assessments and put it into a more localised context.

Of particular relevance for this project is the Biodiversity Network for the City of Cape Town which used a systematic biodiversity planning approach to prioritise remnant indigenous vegetation (discussed below).

CRITICAL BIODIVERSITY AREAS AND ECOLOGICAL SUPPORT AREAS

Critical Biodiversity Areas (CBA) are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan. Ecological Support Areas (ESA) are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services. Critical Biodiversity Areas and Ecological Support Areas may be terrestrial or aquatic.

The primary purpose of a map of Critical Biodiversity Areas and Ecological Support Areas is to guide decision-making about where best to locate development. It should inform land-use planning, environmental assessment

and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. It is the biodiversity sector's input into multi-sectoral planning and decision-making processes (SANBI Biodiversity Advisor, 2017).

The fine-scale systematic biodiversity plan for Cape Town, known as the Biodiversity Network or BioNet was recently updated and now comprises maps for the Terrestrial BioNet 2023, Aquatic BioNet 2023, and combined BioNet 2023 with extended planning domain (10 km buffer around the City and all of Cape Town's major water supply dams and their associated sub-catchments). According to the BioNet (2023), the site in question does not fall within any sensitive areas (CBA or ESA). The nearest CBA and ESA are respectively located approximately 1km south and 800m east of the site and are associated with the Table Mountain National Park.

The site is separated from nearby biodiversity areas by urban road and housing infrastructure which limits the connectivity of the site for animal movement.

PROTECTED AREAS (PA) AND NATIONAL PROTECTED AREA EXPANSION STRATEGY (NPAES)

Officially protected areas, either provincially or nationally that occur close to a project site could have consequences as far as impacts on these areas are concerned. The National Protected Area Expansion Strategy (NPAES) sets targets for protected area expansion, provides maps of the most important areas for protected area expansion, and makes recommendations on mechanisms for protected area expansion.

The project area is not located in a protected area or in a NPAES focus area. The nearest protected area (Table Mountain National Park) is located approximately 260m south-east of the proposed project site. The proposed project poses no direct threat to the existence of the protected area.

Important Bird Areas (Key Biodiversity Areas): Important Bird Areas (IBAs) are sites of global significance for bird conservation (Marnewick *et al.*, 2015). The project area is located approximately 12 km from the northern edge of the False Bay Nature Reserve IBA.

Nationally threatened ecosystems: The Biodiversity Act (Act 10 of 2004) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to preserve sites of exceptionally high conservation value.

The initial mapping of terrestrial ecosystems was based on the South African vegetation map, national forest types recognized by DWAF, priority areas identified in a provincial systematic biodiversity plan, or high irreplaceability forest patches or clusters systematically identified by DWAF (SANBI, 2011). This has since been updated to include additional identified sensitive ecosystems (National List of Threatened Ecosystems, 2022)

The project area is located broadly in a nationally threatened ecosystems, namely the Peninsula Granite Fynbos which is considered critically endangered (SANBI, 2011; SANBI, 2018, Vegmap 2024 BETA).

National Freshwater Ecosystem Priority Areas (NFEPA) and National Wetland Map 5: South Africa's freshwater ecosystems are diverse, ranging from sub-tropical in the north-eastern part of the country, to semi-arid and arid in the interior, to the cool and temperate rivers of the fynbos. "Freshwater ecosystems" refer to all inland water bodies whether fresh or saline, including rivers, lakes, wetlands, sub-surface waters and estuaries. Consistent with global trends, high levels of threat have been reported for freshwater ecosystems. According to the National Biodiversity Assessment 2018 nearly 80% of inland wetland ecosystem types in South Africa are threatened and approximately 75% of inland wetland ecosystem types are both threatened and under-protected (SANBI, 2019). South Africa's freshwater fauna also displays high levels of threat: at least one third of freshwater fish indigenous to South Africa are reported as threatened, and a recent southern African study on the conservation status of major freshwater-dependent taxonomic groups (fishes, molluscs, dragonflies, crabs and vascular plants) reported far higher levels of threat in South Africa than in the rest of the region.

Urgent attention is needed to ensure that we conserve some representative natural examples of the different ecosystems that make up the natural heritage of this country for current and future generations. NFEPA responds to this need, providing strategic spatial priorities for conserving South Africa's freshwater ecosystems and supporting sustainable use of water resources (Driver *et al.*, 2011). However, the NFEPA database is largely outdated.

The National Wetland Map version 5 (NWM5), an output from the NBA 2018 assessment, shows the distribution of inland wetland ecosystem types across South Africa and includes estuaries and the extent of some rivers (CSIR, 2018). These delineated wetlands are generally more accurate than the older NFEPA database. Even more representative of the wetlands in the project vicinity are the wetlands delineated in the City of Cape Town Wetlands (2017) data, which forms part of the updated Aquatic BioNet data (2023).

The NWM5 and Aquatic BioNet data largely overlap, however more wetlands in areas surrounding the site are delineated by the Aquatic BioNet data. These data indicate that channelled valley-bottom wetlands area located approximately 410m north-east (between Meadow Lane and Hout Bay Main Road) and 360m north (associated with the Houtbay stream north of Riverside Terrace) of the site.

JUSTIFICATION OF SENSITIVITY

The Terrestrial Biodiversity Network of the City of Cape Town (2017) provides the most recent data to delineate biodiversity priority areas in the region. These are called Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole. Table 3 describes the relationship between the project area, Screening Tool Results, the Biodiversity Network of the City of Cape Town and field-observations.

Table 3: Overall sensitivities

Structure	Screening Tool and Biodiversity Network	Observations
Houtbay Cemetery Expansion	No CBAs or ESAs overlapping with site <i>CBA 1a – 1.1km south and 1.1km north</i> <i>CBA 1c – 1.3 km south-west</i> <i>CBA 2 – 1.7km south-east and 2.3km east</i> <i>ESA 1 – 0.7km east</i>	No CBAs or ESAs overlapping with site
	Strategic Waters Source Area – Table Mountain	Noted – area already disturbed and impacted in terms of run-off
	Critically Endangered Peninsula Granite Fynbos	Site not representative of regional vegetation type - altered, degraded and invaded. Project area vegetation was completely cleared during September 2017. Continued recolonisation of entire area not possible due to land-use practice.

In terms of the current project, both sites have been strategically selected and placed to avoid sensitive areas. The proposed site is situated within an already disturbed area with a large informal settlement situated downstream of the proposed site. Wetlands downstream of the site are also restricted to the riparian area of the main Houtbay River consisting of mostly floodplain wetlands with a few channelled Valley bottom wetlands also present.

When considering SANBI's National Freshwater Ecosystem Priority Areas (NFEPA), it is found that the project area falls within an area, draining into the Houtbay River which is situated towards the west of the property area. This slightly non-perennial River is not threatened with a PES as well as an EC of a Health Class D stating that the River system is in a Largely Modified state.

PLANTS

A list of 2448 plant species have been recorded in the quarter degree squares 3418AB encompassing the project area as a whole, of which 188 were listed as SCC. The Screening Tool did not identify any further species to be investigated.

Table 4: Plants SCC known to occur in the vicinity of the project site

Family	Taxon with collector	IUCN
Asteraceae	<i>Arctotis angustifolia</i> L.	CR
Asteraceae	<i>Cotula myriophylloides</i> Harv.	CR
Asteraceae	<i>Senecio foeniculoides</i> Harv.	CR
Campanulaceae	<i>Wahlenbergia pyrophila</i> Lammers	CR
Cytinaceae	<i>Cytinus capensis</i> Marloth	CR
Ericaceae	<i>Erica heleogena</i> T.M.Salter	CR
Ericaceae	<i>Erica margaritacea</i> Aiton	CR
Ericaceae	<i>Erica ribisaria</i> Guthrie & Bolus	CR
Ericaceae	<i>Erica sociorum</i> L.Bolus	CR
Fabaceae	<i>Amphithalea ericifolia</i> subsp. <i>erecta</i> Granby	CR
Fabaceae	<i>Cyclopia latifolia</i> DC.	CR
Fabaceae	<i>Psoralea glaucina</i> Harv.	CR
Iridaceae	<i>Aristea pauciflora</i> Wolley-Dod	CR
Iridaceae	<i>Gladiolus aureus</i> Baker	CR
Iridaceae	<i>Moraea angulata</i> Goldblatt	CR
Iridaceae	<i>Watsonia humilis</i> Mill.	CR
Malvaceae	<i>Hermannia procumbens</i> Cav. subsp. <i>procumbens</i>	CR
Orchidaceae	<i>Disa brachyceras</i> Lindl.	CR
Orchidaceae	<i>Holothrix longicornu</i> G.J.Lewis	CR
Oxalidaceae	<i>Oxalis natans</i> Thunb.	CR
Potamogetonaceae	<i>Pseudalthenia aschersoniana</i> (Graebn.) Hartog	CR
Proteaceae	<i>Leucadendron levisanus</i> (L.) P.J.Bergius	CR
Proteaceae	<i>Leucadendron macowanii</i> E.Phillips	CR
Proteaceae	<i>Serruria aemula</i> Salisb. ex Knight	CR
Proteaceae	<i>Serruria pinnata</i> (Andr.) R.Br.	CR
Aizoaceae	<i>Lampranthus glomeratus</i> (L.) N.E.Br.	EN
Aizoaceae	<i>Lampranthus scaber</i> (L.) N.E.Br.	EN
Aizoaceae	<i>Lampranthus stenus</i> (Haw.) N.E.Br.	EN
Aizoaceae	<i>Lampranthus tenuifolius</i> (L.) N.E.Br.	EN
Amaryllidaceae	<i>Cyrtanthus leucanthus</i> Schltr.	EN
Amaryllidaceae	<i>Gethyllis kaapensis</i> D.Mull.-Doblies	EN
Amaryllidaceae	<i>Hessea cinnamomea</i> (L'Her.) T.Durand & Schinz	EN
Apiaceae	<i>Centella tridentata</i> (L.f.) Drude ex Domin	EN
Apiaceae	<i>Dasispermum perennans</i> Magee & B.-E.van Wyk	EN
Asteraceae	<i>Athanasia capitata</i> (L.) L.	EN
Asteraceae	<i>Senecio verbascifolius</i> Burm.f.	EN
Ericaceae	<i>Erica caterviflora</i> Salisb. var. <i>caterviflora</i>	EN
Ericaceae	<i>Erica ecklonii</i> E.G.H.Oliv.	EN

Fabaceae	<i>Aspalathus globulosa</i> E.Mey.	EN
Fabaceae	<i>Aspalathus macrantha</i> Harv.	EN
Fabaceae	<i>Aspalathus tyloses</i> Eckl. & Zeyh.	EN
Fabaceae	<i>Aspalathus varians</i> Eckl. & Zeyh.	EN
Fabaceae	<i>Indigofera psoraloides</i> (L.) L.	EN
Fabaceae	<i>Lebeckia meyeriana</i> Eckl. & Zeyh.	EN
Fabaceae	<i>Lebeckia plukenetiana</i> E.Mey.	EN
Fabaceae	<i>Liparia angustifolia</i> (Eckl. & Zeyh.) A.L.Schutte	EN
Fabaceae	<i>Podalyria argentea</i> (Salisb.) Salisb.	EN
Fabaceae	<i>Xiphotheca reflexa</i> (Thunb.) A.L.Schutte & B.-E.van Wyk	EN
Geraniaceae	<i>Pelargonium ellaphieae</i> E.M.Maraïs	EN
Hyacinthaceae	<i>Lachenalia reflexa</i> Thunb.	EN
Hypoxidaceae	<i>Spiloxene canaliculata</i> Garside	EN
Iridaceae	<i>Babiana pygmaea</i> (Burm.f.) Baker	EN
Iridaceae	<i>Codonorhiza azurea</i> (Eckl. ex Baker) Goldblatt & J.C.Manning	EN
Iridaceae	<i>Geissorhiza brehmii</i> Eckl. ex Klatt	EN
Iridaceae	<i>Geissorhiza pusilla</i> (Andrews) Klatt	EN
Iridaceae	<i>Gladiolus jonquillodorus</i> Eckl. ex G.J.Lewis	EN
Iridaceae	<i>Hesperantha spicata</i> subsp. <i>graminifolia</i> (Sweet) Goldblatt	EN
Iridaceae	<i>Ixia monadelphica</i> D.Delaroche	EN
Iridaceae	<i>Sparaxis grandiflora</i> (D.Delaroche) Ker Gawl. subsp. <i>grandiflora</i>	EN
Molluginaceae	<i>Adenogramma rigida</i> (Bartl.) Sond.	EN
Orchidaceae	<i>Disa draconis</i> (L.f.) Sw.	EN
Orchidaceae	<i>Disa longicornu</i> L.f.	EN
Orchidaceae	<i>Disa sabulosa</i> Bolus	EN
Orchidaceae	<i>Pterygodium cruciferum</i> Sond.	EN
Orchidaceae	<i>Pterygodium microglossum</i> (Lindl.) Schltr.	EN
Orchidaceae	<i>Satyrium hallackii</i> Bolus subsp. <i>hallackii</i>	EN
Penaeaceae	<i>Stylapterus fruticosus</i> (L.f.) A.Juss.	EN
Poaceae	<i>Pentameris bachmannii</i> (McClellan) Galley & H.P.Linder	EN
Polygalaceae	<i>Muraltia mitior</i> (P.J.Bergius) Levyns	EN
Proteaceae	<i>Diastella proteoides</i> (L.) Druce	EN
Proteaceae	<i>Leucadendron floridum</i> R.Br.	EN
Proteaceae	<i>Leucospermum hypophyllocarpodendron</i> subsp. <i>canaliculatum</i> (H.Buek ex Meisn.) Rourke	EN
Proteaceae	<i>Leucospermum hypophyllocarpodendron</i> (L.)	EN

	<i>Druce subsp. hypophyllocarpodendron</i>	
Proteaceae	<i>Serruria collina</i> Salisb. ex Knight	EN
Proteaceae	<i>Serruria decumbens</i> (Thunb.) R.Br.	EN
Proteaceae	<i>Serruria meisneriana</i> Schltr.	EN
Restionaceae	<i>Hypodiscus rugosus</i> Mast.	EN
Restionaceae	<i>Restio harveyi</i> Mast.	EN
Restionaceae	<i>Restio micans</i> Nees	EN
Rosaceae	<i>Cliffortia ericifolia</i> L.f.	EN
Rosaceae	<i>Cliffortia hirta</i> Burm.f.	EN
Rutaceae	<i>Adenandra villosa</i> subsp. <i>biseriata</i> (E.Mey. ex Bartl. & H.L.Wendl.) Strid	EN
Rutaceae	<i>Agathosma glabrata</i> Bartl. & H.L.Wendl.	EN
Rutaceae	<i>Macrostylis villosa</i> (Thunb.) Sond. subsp. <i>villosa</i>	EN
Scrophulariaceae	<i>Microdon capitatus</i> (P.J.Bergius) Levyns	EN
Thymelaeaceae	<i>Gnidia humilis</i> Meisn.	EN
Thymelaeaceae	<i>Passerina paludosa</i> Thoday	EN
Orchidaceae	<i>Satyrium hallackii</i> Bolus subsp. <i>hallackii</i>	EN
Penaeaceae	<i>Stylapterus fruticosus</i> (L.f.) A.Juss.	EN
Poaceae	<i>Pentameris bachmannii</i> (McClean) Galley & H.P.Linder	EN
Polygalaceae	<i>Muraltia mitior</i> (P.J.Bergius) Levyns	EN
Proteaceae	<i>Diastella proteoides</i> (L.) Druce	EN
Proteaceae	<i>Leucadendron floridum</i> R.Br.	EN
Proteaceae	<i>Leucospermum hypophyllocarpodendron</i> subsp. <i>canaliculatum</i> (H.Buek ex Meisn.) Rourke	EN
Proteaceae	<i>Leucospermum hypophyllocarpodendron</i> (L.) Druce subsp. <i>hypophyllocarpodendron</i>	EN
Proteaceae	<i>Serruria collina</i> Salisb. ex Knight	EN
Proteaceae	<i>Serruria decumbens</i> (Thunb.) R.Br.	EN
Proteaceae	<i>Serruria meisneriana</i> Schltr.	EN
Restionaceae	<i>Hypodiscus rugosus</i> Mast.	EN
Restionaceae	<i>Restio harveyi</i> Mast.	EN
Restionaceae	<i>Restio micans</i> Nees	EN
Rosaceae	<i>Cliffortia ericifolia</i> L.f.	EN
Rosaceae	<i>Cliffortia hirta</i> Burm.f.	EN
Rutaceae	<i>Adenandra villosa</i> subsp. <i>biseriata</i> (E.Mey. ex Bartl. & H.L.Wendl.) Strid	EN
Rutaceae	<i>Agathosma glabrata</i> Bartl. & H.L.Wendl.	EN
Rutaceae	<i>Macrostylis villosa</i> (Thunb.) Sond. subsp. <i>villosa</i>	EN
Scrophulariaceae	<i>Microdon capitatus</i> (P.J.Bergius) Levyns	EN
Thymelaeaceae	<i>Gnidia humilis</i> Meisn.	EN

Thymelaeaceae	<i>Passerina paludosa</i> Thoday	EN
Aizoaceae	<i>Cheiridopsis rostrata</i> (L.) N.E.Br.	VU
Aizoaceae	<i>Erepsia patula</i> (Haw.) Schwantes	VU
Aizoaceae	<i>Lampranthus filicaulis</i> (Haw.) N.E.Br.	VU
Aizoaceae	<i>Ruschia geminiflora</i> (Haw.) Schwantes	VU
Aizoaceae	<i>Skiatophytum tripolium</i> (L.) L.Bolus	VU
Apiaceae	<i>Centella caespitosa</i> Adamson	VU
Apocynaceae	<i>Cynanchum zeyheri</i> Schltr.	VU
Asphodelaceae	<i>Aloe commixta</i> A.Berger	VU
Asphodelaceae	<i>Aloiampelos commixta</i> (A.Berger) Klopper & Gideon F.Sm.	VU
Asphodelaceae	<i>Trachyandra chlamydophylla</i> (Baker) Oberm.	VU
Asphodelaceae	<i>Trachyandra filiformis</i> (Aiton) Oberm.	VU
Asteraceae	<i>Amellus asteroides</i> subsp. <i>mollis</i> Rommel	VU
Asteraceae	<i>Cullumia squarrosa</i> (L.) R.Br.	VU
Asteraceae	<i>Metalasia capitata</i> (Lam.) Less.	VU
Asteraceae	<i>Polyarrhena reflexa</i> (L.) Cass. subsp. <i>reflexa</i>	VU
Asteraceae	<i>Steirodiscus tagetes</i> (L.) Schltr.	VU
Brassicaceae	<i>Heliophila cinerea</i> Marais	VU
Brassicaceae	<i>Heliophila promontorii</i> Marais	VU
Brassicaceae	<i>Heliophila tabularis</i> Wolley-Dod	VU
Campanulaceae	<i>Roella goodiana</i> Adamson	VU
Colchicaceae	<i>Wurmbea hiemalis</i> B.Nord.	VU
Colchicaceae	<i>Wurmbea inusta</i> (Baker) B.Nord.	VU
Cyperaceae	<i>Ficinia elatior</i> Levyns	VU
Cyperaceae	<i>Ficinia pinguior</i> C.B.Clarke	VU
Cyperaceae	<i>Isolepis venustula</i> Kunth	VU
Cyperaceae	<i>Tetraria graminifolia</i> Levyns	VU
Ericaceae	<i>Erica amoena</i> J.C.Wendl.	VU
Ericaceae	<i>Erica annectens</i> L.Guthrie & Bolus	VU
Ericaceae	<i>Erica brachialis</i> Salisb.	VU
Ericaceae	<i>Erica capensis</i> T.M.Salter	VU
Ericaceae	<i>Erica cyrilliflora</i> Salisb.	VU
Ericaceae	<i>Erica diosmifolia</i> Salisb.	VU
Ericaceae	<i>Erica eburnea</i> T.M.Salter	VU
Ericaceae	<i>Erica fairii</i> Bolus	VU
Ericaceae	<i>Erica fontana</i> L.Bolus	VU
Ericaceae	<i>Erica hendricksei</i> H.A.Baker var. <i>hendricksei</i>	VU
Ericaceae	<i>Erica limosa</i> L.Bolus	VU
Ericaceae	<i>Erica marifolia</i> Aiton	VU
Ericaceae	<i>Erica paludicola</i> L.Bolus	VU

Ericaceae	<i>Erica urna-viridis</i> Bolus	VU
Fabaceae	<i>Argyrobium velutinum</i> Eckl. & Zeyh.	VU
Fabaceae	<i>Aspalathus angustifolia</i> subsp. <i>robusta</i> (E.Phillips) R.Dahlgren	VU
Fabaceae	<i>Aspalathus araneosa</i> L.	VU
Fabaceae	<i>Aspalathus barbata</i> (Lam.) R.Dahlgren	VU
Fabaceae	<i>Aspalathus capitata</i> L.	VU
Fabaceae	<i>Aspalathus lotoides</i> Thunb. subsp. <i>lotoides</i>	VU
Fabaceae	<i>Liparia laevigata</i> (L.) Thunb.	VU
Fabaceae	<i>Liparia parva</i> Vogel ex Walp.	VU
Fabaceae	<i>Liparia splendens</i> (Burm.f.) Bos & de Wit subsp. <i>splendens</i>	VU
Fabaceae	<i>Podalyria sericea</i> (Andrews) R.Br.	VU
Fabaceae	<i>Psoralea alata</i> (Thunb.) T.M.Salter	VU
Fabaceae	<i>Psoralea fascicularis</i> DC.	VU
Grubbiaceae	<i>Grubbia rosmarinifolia</i> subsp. <i>gracilis</i> (T.M.Salter) Carlquist	VU
Haemodoraceae	<i>Wachendorfia brachyandra</i> W.F.Barker	VU
Hyacinthaceae	<i>Lachenalia capensis</i> W.F.Barker	VU
Hyacinthaceae	<i>Lachenalia fistulosa</i> Baker	VU
Hypoxidaceae	<i>Pauridia alba</i> (Thunb.) Snijman & Kocyan	VU
Iridaceae	<i>Babiana stricta</i> (Aiton) Ker Gawl.	VU
Iridaceae	<i>Geissorhiza humilis</i> (Thunb.) Ker Gawl.	VU
Iridaceae	<i>Moraea versicolor</i> (Salisb. ex Klatt) Goldblatt	VU
Juncaginaceae	<i>Triglochin bulbosa</i> subsp. <i>tenuifolia</i> (Adamson) Horn	VU
Menyanthaceae	<i>Villarsia goldblattiana</i> Ornduff	VU
Orchidaceae	<i>Acrolophia bolusii</i> Rolfe	VU
Orchidaceae	<i>Acrolophia ustulata</i> (Bolus) Schltr. & Bolus	VU
Orchidaceae	<i>Disa venusta</i> Bolus	VU
Orchidaceae	<i>Satyrium striatum</i> Thunb.	VU
Poaceae	<i>Ehrharta setacea</i> subsp. <i>uniflora</i> (Burch. ex Stapf) Gibbs Russ.	VU
Polygalaceae	<i>Muraltia brachypetala</i> Wolley-Dod	VU
Polygalaceae	<i>Muraltia brevicornu</i> DC.	VU
Polygalaceae	<i>Muraltia comptonii</i> Levyns	VU
Polygalaceae	<i>Muraltia orbicularis</i> Hutch.	VU
Proteaceae	<i>Leucadendron argenteum</i> (L.) R.Br.	VU
Proteaceae	<i>Leucadendron discolor</i> E.Phillips & Hutch.	VU
Proteaceae	<i>Leucospermum vestitum</i> (Lam.) Rourke	VU
Proteaceae	<i>Mimetes capitulatus</i> R.Br.	VU

Proteaceae	<i>Mimetes hirtus</i> (L.) Salisb. ex Knight	VU
Proteaceae	<i>Protea aspera</i> E.Phillips	VU
Proteaceae	<i>Protea scolymocephala</i> (L.) Reichard	VU
Proteaceae	<i>Serruria cyanoides</i> (L.) R.Br.	VU
Proteaceae	<i>Serruria flagellifolia</i> Salisb. ex Knight	VU
Proteaceae	<i>Serruria hirsuta</i> R.Br.	VU
Restionaceae	<i>Elegia prominens</i> Pillans	VU
Restionaceae	<i>Restio communis</i> Pillans	VU
Restionaceae	<i>Restio dodii</i> Pillans var. <i>dodii</i>	VU
Restionaceae	<i>Restio paludosus</i> Pillans	VU
Restionaceae	<i>Restio papillosus</i> (Esterh.) H.P.Linder & C.R.Hardy	VU
Restionaceae	<i>Willdenowia rugosa</i> Esterh.	VU
Rhamnaceae	<i>Phylica dioica</i> L.	VU
Rhamnaceae	<i>Phylica harveyi</i> (Arn.) Pillans	VU
Rhamnaceae	<i>Phylica plumosa</i> var. <i>horizontalis</i> (Vent.) Sond.	VU
Rosaceae	<i>Cliffortia longifolia</i> (Eckl. & Zeyh.) Weim.	VU
Rutaceae	<i>Agathosma hookeri</i> Sond.	VU
Rutaceae	<i>Agathosma lanceolata</i> (L.) Engl.	VU
Thymelaeaceae	<i>Gnidia spicata</i> (L.f.) Gilg	VU
Thymelaeaceae	<i>Lachnaea capitata</i> (L.) Crantz	VU
Thymelaeaceae	<i>Lachnaea grandiflora</i> (L.f.) Baill.	VU
Thymelaeaceae	<i>Lachnaea uniflora</i> (L.) Crantz	VU

MAMMALS

Very few mammal species have been recorded previously in the quarter degree cell in which the sites fall. To be thorough, neighbouring areas were included to get fair representation of the complete mammal assemblage in the area. A total of 102 mammal (including marine mammal) species have been recorded in the quarter degree grid cells in the vicinity of the project site (3418AB, 3318CD), of which only three species are listed as a SCC. The Screening Tool did not identify any further mammal species to be investigated but did mention two Arthropoda species that are mentioned under a separate section.

Table 6: Mammal SCC known to occur in the vicinity of the project site

Scientific name	Common name	Status
<i>Damaliscus pygargus pygargus</i>	Bontebok	VU
<i>Equus zebra zebra</i>	Mountain Zebra	VU
<i>Hippotragus niger niger</i>	Sable Antelope	VU

REPTILES AND AMPHIBIANS

A list of 55 reptile and 24 amphibian species have been recorded in the quarter degree square encompassing the project area (3418AB, 3318CD). Four amphibian Species of Conservation Concern were identified from the data in conjunction with the Screen Tool.

Table 7: Amphibians SCC known to occur in the vicinity of the project site

Scientific name	Common name	Status
<i>Capensibufo rosei</i>	Rose's Toadlet	CR
<i>Sclerophrys pantherina</i>	Panther Toad	EN
<i>Xenopus gilli</i>	Cape Platanna	EN
<i>Microbatrachella capensis</i>	Micro Frog	CR

OTHER

The Screening Tool identified one Insecta and one Arachnida SCC that need to be considered and investigated.

Table 8: Insecta and Arachnida SCC known to occur in the vicinity of the project site

Scientific name	Common name	Status
Invertebrate - <i>Conocephalus peringueyi</i>	Peringuey's Meadow Katydid	Medium
Arachnida - <i>Psammoduon arenicola</i>	Sand-dwelling trapdoor spider	Medium

AQUATIC BIODIVERSITY

The site in question was identified as having "low sensitivities" following the site sensitivity verification as far as aquatic biodiversity is concerned with no sensitive features transecting the site. As far as sensitive features identified downstream of the site a few small OESA wetlands (Other Ecological Support Areas) were observed. Larger CESA wetlands (Critical Ecological Support Areas) were identified near and within the estuarine area of the Hout Bay River which is situated at least a further 1.4km downstream of the site.

In terms of aquatic ecology, the project area falls within the "G" (G2) Drainage Region within the Berg-Olifants Management Area. The applicable quaternary catchment area, G22B, falls within a Class D Largely Modified category, while the Best Attainable Ecological Class is set at a Class C (Moderately Modified). The Hout Bay River (River Order 1) is located approximately 400 m west of the proposed development site. This River system is classified as having a strong seasonal flow variation, with peak flows occurring during the winter months of June through August, coinciding with the Western Cape's rainy season. During these periods, the river experiences significant flow increases due to frontal rainfall systems. Conversely, summer months from December to February are characterized by markedly reduced flows, often reaching critically low levels that can impact ecological functioning.

Flow modifications have occurred due to various anthropogenic influences. Urban development has increased impervious surfaces, leading to more rapid runoff and heightened peak flows during rain events. Stormwater system inputs have altered the natural flow regime, while historical wetland drainage has reduced the system's natural flow attenuation capacity. These modifications have created a flashier hydrological response to rainfall events. The river's physical structure varies considerably along its course. The upper reaches feature a steep gradient as the river descends from the Table Mountain range, characterized by boulder-dominated channels and rapid flow. The middle reaches transition to a moderate gradient with cobble-gravel substrates, while the lower valley sections exhibit a gentler gradient with predominantly sandy-silty substrates. This natural progression significantly influences flow patterns and velocity throughout the system.

Urban development represents one of the most substantial impacts on the river system. The expansion of residential areas and informal settlements has led to increased stormwater runoff, which carries pollutants and sediments into the river. This urbanization has also resulted in the modification of natural drainage patterns and the loss of riparian vegetation that historically helped filter pollutants and stabilise riverbanks. The river receives significant pollution from informal settlements (such as the community just downstream of the study area) lacking adequate sanitation infrastructure, leading to elevated E.coli levels and nutrient enrichment. Historical land use changes have permanently altered the river's character. Agricultural activities in the middle reaches have contributed to increased sediment loads and chemical inputs from fertilisers and pesticides. The drainage of historical wetlands has also reduced the system's natural ability to attenuate floods and filter pollutants.

The Ecological Sensitivity of the Hout Bay River is considered to be High, while the Ecological Integrity is rated as being Moderate. The River is only considered to have a total length of 12 km and also confluences with the Atlantic Ocean. A high (ES) is expected as an important corridor for biodiversity, connecting the mountains to the ocean and facilitating species movement and genetic exchange. The riparian which provide essential habitat for both aquatic and terrestrial species has been significantly impacted and removed over the last few years, which is particularly evident when taking historic imagery into account.

The middle and lower reaches exhibit different ecological characteristics, largely influenced by human activities. These sections generally support more tolerant aquatic species adapted to modified conditions. The macroinvertebrate communities in these areas often include species that can withstand varying water quality conditions, though diversity tends to be reduced compared to the upper reaches.

DISCUSSION & CONCLUSION

Based on the information gathered from online databases, as well as a ground truthing site visit conducted on the 4th and 5th of February 2025, it is the opinion of this specialist that the habitat found on the sites will unlikely house sensitive plant and animal species. The site has been severely degraded through past clearance for purposes of informal settlement establishment. In addition, large section of the property has no topsoil remaining but is rather covered by compacted aggregate, while uncompacted areas are close to fully vegetated by alien invasive plant species. In terms of aquatic biodiversity, the site has no interconnection with surface water resources in the area.

Therefore, the protocols stated in GN 320 of March 2020 should be followed and a Terrestrial Biodiversity Compliance Statement and an Aquatic Biodiversity Compliance Statement should be compiled.

RISK ASSESSMENT MATRIX (RAM)

PROJECT: Risk Assessment for the Houtbay Cemetery Expansion

RISK ASSESSMENT MATRIX for Section 21 (c) and (j) Water Use activities - Version 2.1.1

Name of Assessor: JP Fourie
SACNASP Registration Number: 125420
Date of assessment: Feb-25

Signature: 

Risk to be scored for all relevant phases of the project (factoring in specified control measures). MUST BE COMPLETED BY SACNASP PROFESSIONAL MEMBER REGISTERED IN AN APPROPRIATE FIELD OF EXPERTISE.

Phase	Activity	Impact	Mitigation Measures	Potentially affected watercourses			Intensity of Impact on Resource Quality					Overall Intensity (max = 10)	Spatial scale (max = 5)	Duration (max = 5)	Severity (max = 20)	Importance rating (max = 5)	Consequence (max = 100)	Likelihood (Probability) of impact	Significance (max = 100)	Risk Rating	Confidence level	
				Name/s	PES	Overall Watercourse Importance	Abiotic Habitat (Drivers)			Biota (Responses)												
							Hydrology	Water Quality	Geomorph	Vegetation	Fauna											
CONSTRUCTION	<1> Site clearing and preparation. Earthworks and Vehicle Movement.	Disturbance of soil leading to potential erosion and sediment runoff.	Implement silt fences and erosion control measures. Minimize exposed soil areas and stabilize disturbed zones. Schedule activities outside of heavy rainfall periods.	Houtbay River	C	High	1	0	0	2	2	4	1	1	6	4	24	20%	4,8	L	High	
		Potential for sediment transport into nearby stormwater channels leading to Hout Bay River.	Construct temporary retention areas for runoff. Implement stormwater management to prevent direct flow into sensitive areas. Regular inspections and maintenance of sediment control structures.	Houtbay River	C	High	1	1	0	1	1	2	1	1	4	4	16	20%	3,2	L	High	
	<2> Increased Surface Runoff & Stormwater Flow Alterations	Possible increase in stormwater volume affecting downstream water quality.	Implement temporary stormwater controls (e.g., swales or detention basins). Avoid direct discharge into the Hout Bay River or adjacent drainage channels. Vegetative stabilization of exposed areas post-construction.	Houtbay River	C	High	1	2	0	1	1	4	1	1	6	4	24	20%	4,8	L	High	
OPERATIONAL	<1> Stormwater Management & Runoff	Potential for increased surface runoff carrying sediments and pollutants into nearby drainage systems.	Maintain stormwater drainage systems (regular clearing of silt and debris). Implement permeable surfaces where possible to encourage infiltration. Establish vegetative buffers along drainage channels.	Houtbay River	C	High	2	1	1	1	1	4	2	2	8	4	32	20%	6,4	L	High	
		Potential for leachate generation affecting groundwater quality.	Ensure burial depths comply with environmental and groundwater regulations. Locate burials away from high-water table areas. Monitor groundwater quality periodically if required by authorities.	Houtbay River	C	Moderate	2	2	1	1	1	4	1	3	8	3	24	40%	9,6	L	High	
	<2> Erosion & Soil Stability Issues	Loss of topsoil from pathways and burial sites leading to sedimentation of nearby drainage channels.	Maintain vegetation cover and stabilize high-risk areas. Regular maintenance of cemetery pathways to prevent soil displacement. Use natural drainage design to slow down water flow.	Houtbay River	C	Moderate	1	2	1	1	1	4	1	2	7	3	21	40%	8,4	L	High	
	<3> Alien Vegetation Encroachment	Invasive species colonizing disturbed areas, potentially altering local hydrology.	Ongoing vegetation management and removal of invasive species. Encourage planting of indigenous, low-water-use plants. Regular monitoring of landscape for early detection.	Houtbay River	C	Moderate	1	1	0	2	1	4	1	1	6	3	18	40%	7,2	L	High	