Terrestrial Biodiversity & Offset Review

Goedgelof 250-745

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Draft Report

Revisions

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1 Introduction & Background

An environmental application is being submitted for the development of Portion 250 of the farm Goedgeloof No. 745, located on the western outskirts of St. Francis Bay in the Kouga Municipality, Eastern Cape (Figure 1). The proposed development involves constructing a warehouse and storage facility. The original assessment undertaken by the respective terrestrial biodiversity specialist for the proposed development plan (Figure 2), stipulated the requirement for a biodiversity offset in order to mitigate impacts that were identified. As a response ot this, the client has proposed a biodiversity offset site on a nearby property owned by the client (Figure 1), Portion 154/745 which is located on the northern edge of St Francis Bay to the north, between the St Francis Bay Golf Club and the Sand River and bounded by the R330 on the west side. This site, *hereafter referred to as the "offset site"*, is considered a viable offset receiving site for the reasons that will be made clear in this report.

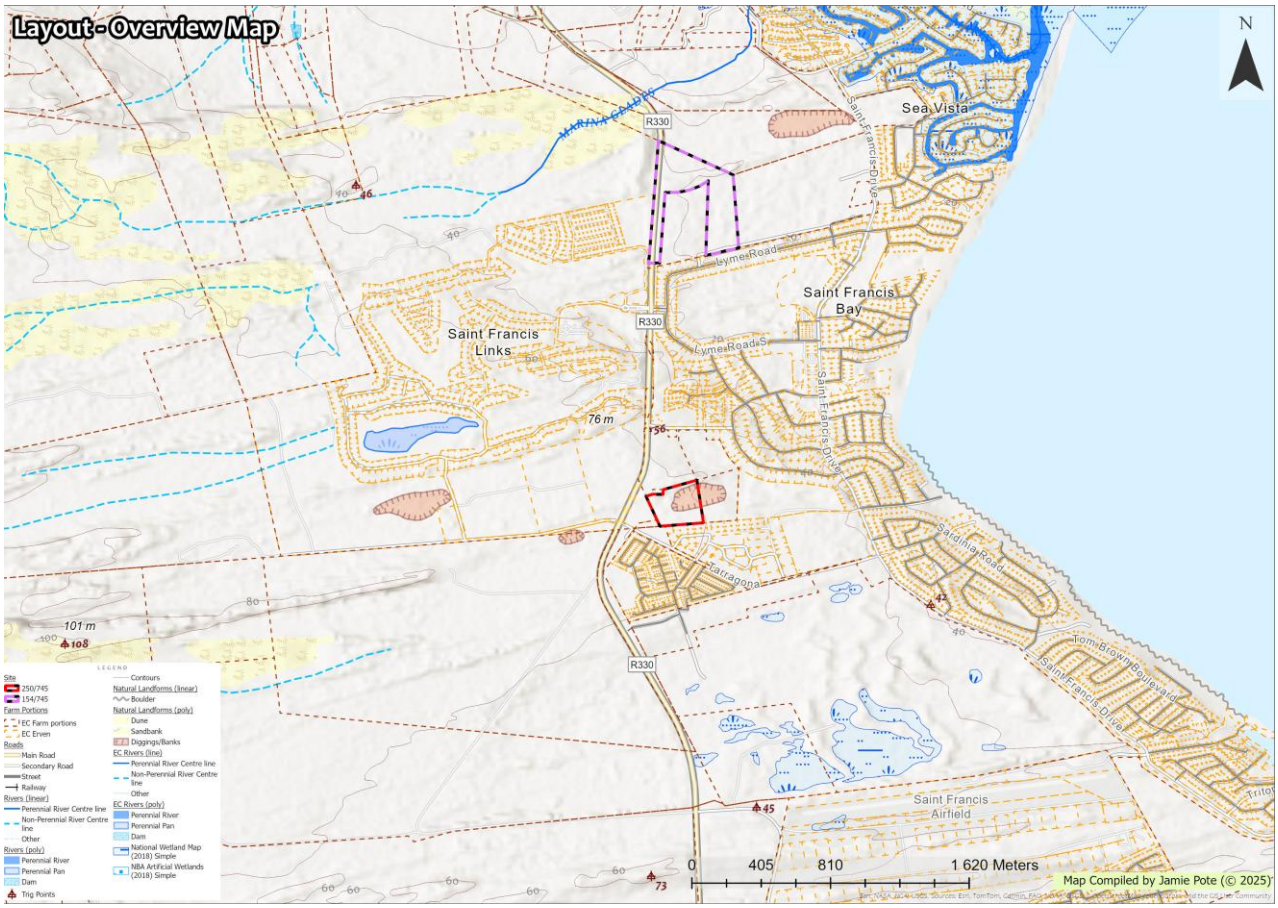

Figure 1: Locality Map.

In compliance with the 2014 EIA Regulations promulgated in terms of the National Environmental Management Act (Act 36 of 107), a Basic Assessment process is being conducted on behalf of Goedgeloof Properties, commencing in 2023, in order to assess the potential environmental and social impacts of the proposed development. A terrestrial biodiversity assessment was undertaken and a report compiled ("*Proposed Goedgeloof Storage Facility, St. Francis Bay, Kouga Municipality, Eastern Cape Terrestrial Biodiversity Impact Assessment, Weatherall-Thomas, C,* SRK Report Number 593906", hereafter referred to as **SRK (2023), however the original application was withdrawn in order to investigate the offset requirements further**. A primary objective of this report is thus to 1) determine if the proposed offset site described above is feasible as an offset option and 2) to review the original assessment for inclusion with the submission, as a supplemental report to the original assessment (SRK, 2023).

The biodiversity offset site being considered is to develop the site as per the originally submitted SDP (Figure 2), with a portion of farm portion 154/745 (equivalent to the development area, as per the 1:1 ratio offset recommendation of the terrestrial biodiversity assessment undertaken for the development site), situated on the northern boundary of Cape St Francis (Figure 1) as the offset area.

Figure 2: Original Site Development Plan (December 2023), as assessed by SRK (2023).

Figure 2 indicates the original Site Development Plan that was assessed in the SRK terrestrial biodiversity and plant species assessment, *hereafter referred to as "the site"*. In order for this plan to be implemented, a biodiversity offset receiving site must be identified, at a 1:1 ratio as stipulated by the original specialist. "*The site*" is located on the western edge of St Francis Bay, in a business/light industrial area as depicted in Figure 1. The site is bounded by developed light industrial erven on the south side and undeveloped natural and disturbed areas on the remining sides and is approximately 5.1 Ha in extent. At that time the DFFE online screening tool report (dated 20 October 2022) had identified 'the site' to have a VERY HIGH terrestrial biodiversity sensitivity and a MEDIUM plant species sensitivity, which corresponds to the current sensitivity. The screening report highlighted the necessity for a plant species and terrestrial biodiversity impact assessment, as dictated by the assessment protocols in the Screening Report, which was undertaken by SRK accordingly and according to the Protocol for the Specialist Assessment and Minimum Report Content Requirements for environmental impacts on Terrestrial Biodiversity (GN 320, published 20 March 2020) and Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species (GN 1150, published 30 October 2020). The impact assessment methodology as per the protocols was utilized to determine the proposed development's impact on floral species and is deemed to be appropriate.

The original site development plan (Figure 2) occupied approximately 3.8 Ha or 75 % of the site, with approximately 25 % being retained as open space. This equated to more or less the conservation target for the vegetation unit.

The *"offset site"* is located on the northern edge of St Francis Bay (Figure 3), bounded on the west side by the R330 surfaced road and a row of houses adjacent to the St Francis Bay Golf course on the south side. The northern edge of the site more or less abuts the Sand River and associated dunefields. A designated Private Nature Reserve, the Sand River PNR is situated on an adjacent property on the west side of the R330 road to the west and abuts a portion of the site towards the northern end. The site is an inverted U-shape consisting of a western, northern and eastern strip of vegetated land with another property in the middle, understood to be currently zoned for a school. The site abuts undeveloped vegetated land to the north and east.

Figure 3: Aerial Photo of the 154/74 site located north of Cape St Francis and adjacent to the Sand River and R330 road (west side).

1.1 Purpose of Report

The purpose of this report is to assess alternative sites as offset receiving area (Portion 154/745) in lieu of development of the site as per the originally submitted layout plan and also to review the original assessment, in light of the time that has passed since it was compiled. This terrestrial biodiversity and offset review has been undertaken as per the requirements of the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation (GN 320, 20 March 2020).

This report (read in conjunction with the original assessment undertaken by SRK, 2023) is aligned with the "*Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24 (5) (a) and (h) and 44 of the Act, when applying for Environmental Authorisation*", as published on 20 March, 2020 in National Gazette, No. 43110 in terms of NEMA (Act 107 of 1998) sections 24(5)(a), (h) and 44, lists protocols and minimum report requirements for environmental impacts on terrestrial biodiversity and provides the criteria for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation. The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the National web based Environmental Screening Tool.

1.2 Assumptions, Uncertainties and Gaps in Knowledge

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

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

1.3 Site visit

A preliminary site visit of the development site was conducted on 22 November 2024 during early summer, with a follow up visit to the offset site on 03 April 2025. The site falls within a bimodal summer & winter rainfall area, so the site visit is deemed adequate. The site visit and assessment are undertaken by Mr Jamie Pote, SACNASP registered ecological scientist with a BSc (Hons) degree in Botany and a BSc degree in Botany and environmental Science, with over 20 years' experience undertaking ecological and terrestrial biodiversity assessments.

2 Policy

2.1 Legislation Framework

In terms of NEMA EIA Regulations (07 April 2014, as amended), the following is applicable[1]:

- In terms of section 52 of NEMBA *(Activity (a)(i))*, the vegetation unit St Francis Dune Thicket, has a **Least Concern** status as per National Biodiversity Assessment (2022).
- In terms of the CBA classification (ECBCP 2019), the site overlaps with designated CBA 1 & CBA 2.

Listing Notice 1:
Activity 27: The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—
(i) the undertaking of a linear activity; or
(ii) ~~maintenance purposes undertaken in accordance with a maintenance management plan.~~

1 *The listed activities itemized are only those with Biodiversity relevance to this report and is not a complete list.*

The site development plan will require clearing of in excess of 1 Ha of indigenous vegetation, hence triggering the need for a basic assessment, which was undertaken and EA issued with requirement for 1:1 biodiversity offset.

Listing Notice 2:
None are applicable.

Listing Notice 3:

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

i. Within critical biodiversity areas identified in bioregional plans.

Vegetation clearing of the revised site development plan will exceed 300m² within a designed CBA, hence triggering the need for a basic assessment, which was undertaken and EA issued with requirement for 1:1 biodiversity offset.

2.2 Systematic Planning Frameworks

A screening of Systematic Planning Framework for the region was undertaken (summarised in Table 1), that included the following features:

- National Environmental Screening Tool
- Critically Endangered, Endangered and Vulnerable Ecosystems
- Critical Biodiversity and Ecological Support Areas
- River, Estuarine and Wetland Freshwater Ecosystem Priority Areas (FEPAs) and buffers
- Protected Areas (and buffers) and National Protected Area Expansion Strategy areas (NPAES).
- Critical Habitat for listed endemic or protected species.

Table 1: Summary of Regional Planning Biodiversity features.

FEATURE[2]	DESCRIPTION	IMPLICATIONS/COMMENT
National Environmental Screening Tool (Terrestrial Biodiversity)	Terrestrial Biodiversity High & Medium Plant & Animal Species sensitivities Aquatic Biodiversity	Very High Several Plant & Animal Species are flagged for screening. Very High
National Vegetation Map (NVM, 2018)	St Francis Dune Thicket	Least Concern
Critically Endangered and Endangered Ecosystems (NBA 2018)	None	N/A
Vulnerable Ecosystems (NBA)	None	N/A
Eastern Cape Biodiversity	CBA 1 & CBA 2	The proposed development will result in the loss of natural vegetation within, and area

[2] Refer to Figure 8 to **Error! Reference source not found.**.

FEATURE[2]	DESCRIPTION	IMPLICATIONS/COMMENT
Conservation Plan (2019)		designated as CBA 1 & CBA 2 as per the applicable Bioregional Plan.
Protected Areas (SAPAD)	None	N/A
NPAES	None	N/A
Strategic Water Source Areas (SWSA)	Tsitsikamma	The site falls within a designated SWSA; however, the activity is unlikely to have any significant impact to downstream water sources.
Freshwater Ecosystem Priority Areas (FEPA's)	None	N/A
Regional Hotspots & Regions of Endemism	None	N/A
Important Bird Areas (IBA's)	None	N/A
Key Biodiversity Areas (KBA's)	None	N/A
Marine/Coastal areas	None	N/A
RAMSAR sites	None	N/A
Within 32 m of Watercourse	None	N/A
Within 100 m of River	None	N/A
Estuary	None	
Within 500 m of Wetland	The site is situated within 500m of wetlands	The Site Development Plan does accommodate these features including buffers as per the aquatic assessment recommendations.
Forest	None	N/A
Surrounding Land Uses	Surrounding land primarily used for urban dwellings and light industrial with natural undeveloped areas.	Site and surrounding area are a mix of transformed and natural vegetation elements.
Critical Habitat for listed endemic/ protected species	No specific populations of threatened species were identified within the footprint, and the affected footprint is largely disturbed or comprised of secondary vegetation. There are several red listed species in the surrounding area and vegetation units that are known to have limited distributions; however, none were recorded within the footprint.	

2.2.1 National Environmental Screening Tool

The DEA Screening Tool for the site indicates the following:

- Terrestrial Biodiversity is **Very High** (Figure 4).
- Plant species sensitivity is **Medium** (Figure 5).
- Animal Species sensitivity is **High & Medium** (Figure 6).
- Aquatic Sensitivity is **Very High** (Figure 7).

Figure 4: Terrestrial Biodiversity Sensitivity

Figure 5: Plant Species Sensitivity

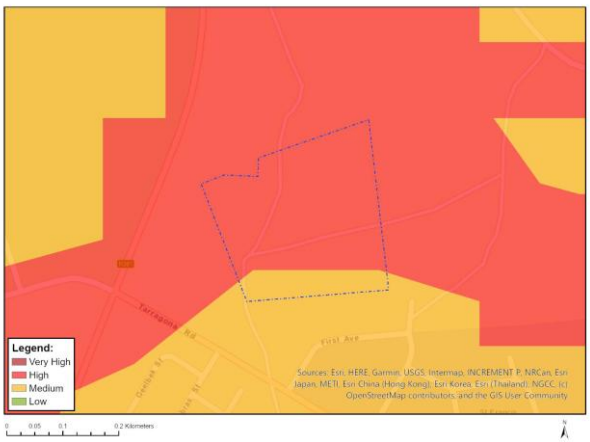

Figure 6: Animal Species Sensitivity

Figure 7: Aquatic Sensitivity

Table 2: Summary of National Environmental Screening Tool designations.

Terrestrial Sensitivity	**Feature(s) in proximity**
Very High	CBA 2, CBA 1 & SWSA (SW): Tsitsikamma
High	None
Medium	None
Low	None
Plant Sensitivity	**Feature(s) in proximity**
Very High	None
High	None
Medium	*Aspalathus recurvispina, Lebeckia gracilis, Hyobanche robusta, Erica chloroloma, Erica glandulosa subsp. Fourcadei, Centella tridentata var. hermanniifolia, Rapanea gilliana, Syncarpha sordescens, Agathosma stenopetala, Cotyledon adscendens, Capeochloa cincta subsp. Sericea, Erica glumiflora,* Sensitive species 588, 657, 1192, 1032, 78, 308 & 448
Low	Present
Animal Sensitivity	**Feature(s) in proximity**
Very High	None
High	*Circus ranivorus* & *Bradypterus sylvaticus* (birds)
Medium	*Neotis denhami, Eupodotis senegalensis* & *Stephanoaetus coronatus* (birds), Sensitive species 8 (mammal) & *Aneuryphymus montanus* (insect)
Low	None
Aquatic Sensitivity	**Feature(s) in proximity**
Very High	ESA 1 & SWSA (SW): Tsitsikamma
High	None

Medium	None
Low	None

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

- The terrestrial biodiversity theme is Very High due to the site being within a designated Critically Biodiversity Area 1 & 2and Strategic Water Source Area (Outeniqua).
- Several flora (plant) species regarded as being of concern are flagged as potentially being present (Medium sensitivity), none of which were found to be present during the site visit and unlikely to be present or persist in the seed bank due to the condition of the site.
- Several fauna (animal) species regarded as being of concern are flagged as potentially being present (Medium sensitivity, none of which are confirmed present and also unlikely to be present within the small site, which would not serve as suitable habitat for any viable population.
- The aquatic sensitivity is Very High due to falling within a designated Strategic Water Source Areas (Tsitsikamma) as well as a portion overlapping with designated Aquatic ESA 1.

The proposed offset receiving site is similar in terms of sensitivities. This review includes a physical screening in order to verify the findings of the original assessment as well as for ther proposed offset receiving sites and is supplemented by information contained in the original assessment report. It has also screened for other possible species or sensitivities that are not identified in the screening tool, or were perhaps not identified in the original assessment, or where there are changes or revisions to the respective planning tools. Not all features are directly affected, but being in proximity, the risks associated with the activity will be investigated further and addressed in the report.

2.2.2 Vegetation of Southern Africa & Red Listed Ecosystems

As per Figure 8, the site and offset site fall within the expected distribution range of St Francis Dune Thicket, which has a Least Concern conservation status (Red List of Ecosystems, RLE, 2022). Less than 40 % of this vegetation unit has been transformed, predominantly for urban development along the coast.

St. Francis Dune Thicket (AT57) is a mosaic of small low (1-3m) thicket bushclumps in a matrix of low asteraceous fynbos (Grobler *et.al.* 2018). The bushclumps, dominated by small trees and woody shrubs, are best developed in fire-protected dune slacks, and the fynbos shrubland occurs on upper dune slopes and crests. It is largely restricted to coastal stretches of flat to moderately undulating coastal dunes, from near Tsitsikamma River Mouth in the west to the Sundays River Mouth in the east. The vegetation found on site was found to be typical of the unit, generally corresponding to the low asteraceous type with small thicket bushclumps. Species composition is typical of the unit and comprises species that have typically widespread distributions and are common even within other natural vegetation units and degraded areas.

The NBA or RLE (Red Listed Ecosystems, 2022) is the primary tool for monitoring and reporting on the state of biodiversity in South Africa and informs policies, strategic objectives, and activities for managing and conserving biodiversity more effectively. Ecosystem protection level is an indicator that tracks how well represented an ecosystem type is in the protected area network. It has been used as a headline indicator in national reporting in South Africa since 2005. The outcome of the most recent National Biodiversity Assessment or Red Listed Ecosystem Status (2022) indicate that St Francis Dune Thicket has a Least Concern conservation status (Table 1), which indicates that more than 60 % of the unit remains, and that ecosystem functioning is not under imminent threat by loss of natural habitat.

Historical coverage (Ha): 4,047
Transformed area (Ha): 963 (24%)

Remaining extent (Ha): 3,084 (76%)
Conservation Target (Ha): 769 (19%)
Protected (Ha): 65 (1.6%)
Percentage of Remaining required to achieve conservation to target: 17.4 % (704 ha)

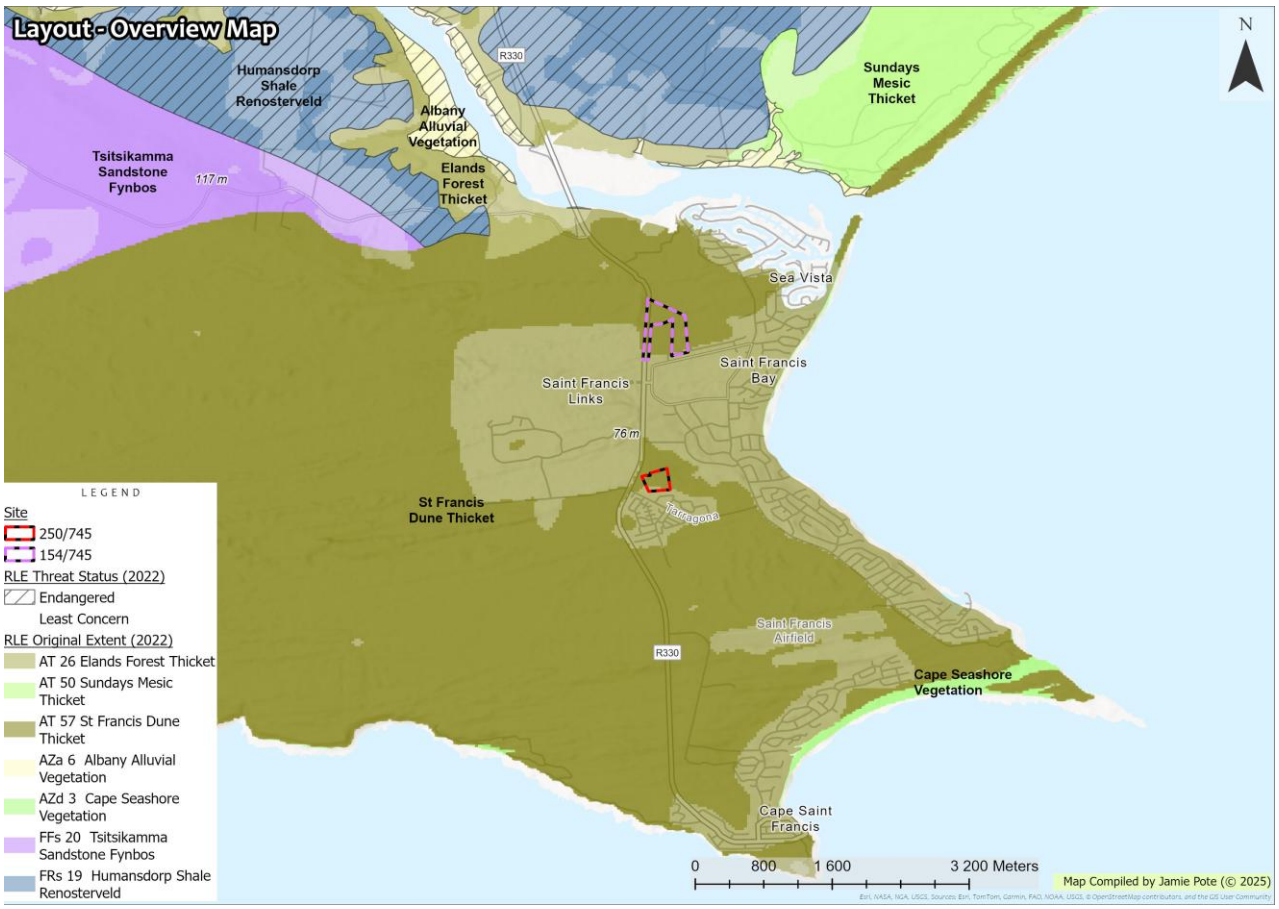

Figure 8: National Vegetation Map & Status (RLE 2022): purple – garden Route Granit Fynbos (red hatch - Critically Endangered), light blue - Groot Brak Dune Strandveld (red hatch - Critically Endangered).

The NBA status has not changed since the original assessment conducted in 2023.

St Francis Dune Thicket (NBA/RLE, 2022)

Type history: STEP map - Algoa Dune Thicket (36 %), Colchester Strandveld (20 %), St. Francis Dune Thicket (38 %); 2012 VEGMAP – AZs 1 Algoa Dune Strandveld (88 %), FFd 11 Southern Cape Dune Fynbos (7 %))

Distribution: This thicket unit occurs in the Eastern Cape Province. In coastal stretches from near the Tsitsikamma River Mouth (west of Oyster Bay) eastward to the Sundays River Mouth.

Vegetation & Landscape Features: Flat to moderately undulating coastal dunes. A mosaic of low (1 - 3 m) thicket, occurring in small bush clumps dominated by small trees and woody shrubs, in a mosaic of low (1 - 2 m) asteraceous fynbos. Thicket clumps are best developed in fire-protected dune slacks, and the fynbos shrubland occurs on upper dune slopes and crests. The fynbos component in the vegetation diminishes from west to east, with *Portulacaria afra* occurring occasionally east of Port Elizabeth.

Geology and Soils: The vegetation type is largely restricted to the Schelm Hoek Formation. The main land types are Ha and Ia.

Climate: Non-seasonal rainfall dominates the region, with MAP between 397 mm and 868 mm. Frost is present for approximately 3 days per year. The mean monthly maximum is 25.21 °C in February and the mean monthly minimum is 8.31 °C in July. Altitude ranges from 0 - 221 masl.

Important Taxa: (d=dominant, e=South African endemic, et=possibly endemic to a vegetation type)

Growth form	Species
Small tree	*Olea capensis*, *Pterocelastrus tricuspidatus* (d), *Sideroxylon inerme* (d), *Tarchonanthus littoralis* (d)
Succulent shrub	*Cotyledon adscendens*, *Carpobrotus acinaciformis* (e), *Cotyledon orbiculata* (e), *Crassula nudicaulis*, *Euphorbia mauritanica*, *Gasteria acinacifolia* (e), *Portulacaria afra*, *Zygophyllum morgsana*, *Aloe africana* (d)
Low shrub	*Coleonema pulchellum* (d), *Erica chloroloma*, (e), *Erica glumiflora* (d), *Erica zeyheriana* (e), *Eriocephalus africanus* var. *paniculatus* (e), *Felicia echinata* (e), *Morella cordifolia* (d), *Muraltia spinosa* (d), *Phylica ericoides* (d), *Syncarpha sordescens* (d)
Tall shrub	*Azima tetracantha* (d), *Carissa bispinosa* (d), *Mystroxylon aethiopicum* subsp. *aethiopicum* (e), *Cassine peragua*, *Cussonia thyrsiflora* (d), *Euclea racemosa* (d), *Grewia occidentalis*, *Gymnosporia buxifolia*, *Gymnosporia capitata* (e), *Lycium cinereum*, *Lycium ferocissimum*, *Maytenus procumbens*, *Metalasia muricata* (d), *Olea exasperata* (d), *Osteospermum moniliferum* (d), *Passerina rigida* (d), *Putterlickia pyracantha* (d), *Robsonodendron maritimum* (e), *Searsia crenata* (d), *Searsia glauca* (e), *Searsia pterota* (e),), *Rapanea gilliana* (d)
Graminoid	*Andropogon eucomus*, *Cymbopogon pospischilii*, *Cynodon dactylon* (d), *Ehrharta calycina*, *Eustachys paspaloides*, *Digitaria eriantha*, *Pentasmeris heptameris*, *Pentameris pallida*, *Restio eleocharis* (d), *Stenotaphrum secundatum*, *Thamnochortus cinereus* (e), *Themeda triandra* (d), *Tristachya leucothrix*, *Imperata cylindrica* (d)
Geophytic herb	*Brunsvigia litoralis* (e)
Herb	*Pelargonium suburbanum* subsp. *suburbanum* (e), *Agathosma stenopetala* (e). *Aspalathus cliffortiifolia* (et), *Aspalathus recurvispina* (et), *Othonna rufibarbis* (et)
Herbaceous climber	*Cynanchum natalitium* (e), *Rhoicissus digitata*, *Solanum africanum* (e)
Woody succulent climber	*Cynanchum viminale* (e)
Woody climber	*Asparagus aethiopicus*

*All taxonomic names are the latest names as they were listed in the Biodiversity Database of South Africa (BODATSA) on the 11 January 2019)

Conservation: Least Concern (NBA/RLE, 2022)

Conservation Target	19 %
Conserved in	Cape Recife Nature Reserve, Sardinia Bay Nature Reserve, Nelson Mandela Bay Metropolitan University Private Nature Reserve, Rebelsrus Private Nature Reserve
Area transformed	14.13 %
Threat activities	Mining, alien invasions by *Acacia cyclops*, urban sprawl, erosion low
Protection Level	Poorly protected

2.2.3 Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) – Terrestrial

The Eastern Cape Biodiversity Conservation Plan – Terrestrial (2019, Figure 9) indicates the site overlapping with designated CBA 1 on the northern half of the site and CBA 2 more or less across the southern half of the site. The proposed offset site overlaps with designated CBA 1 across the southern ~two thirds of the site and CBA2 across the northern ~one third of the site.

The ECBCP status has not changes since the original assessment conducted in 2023.

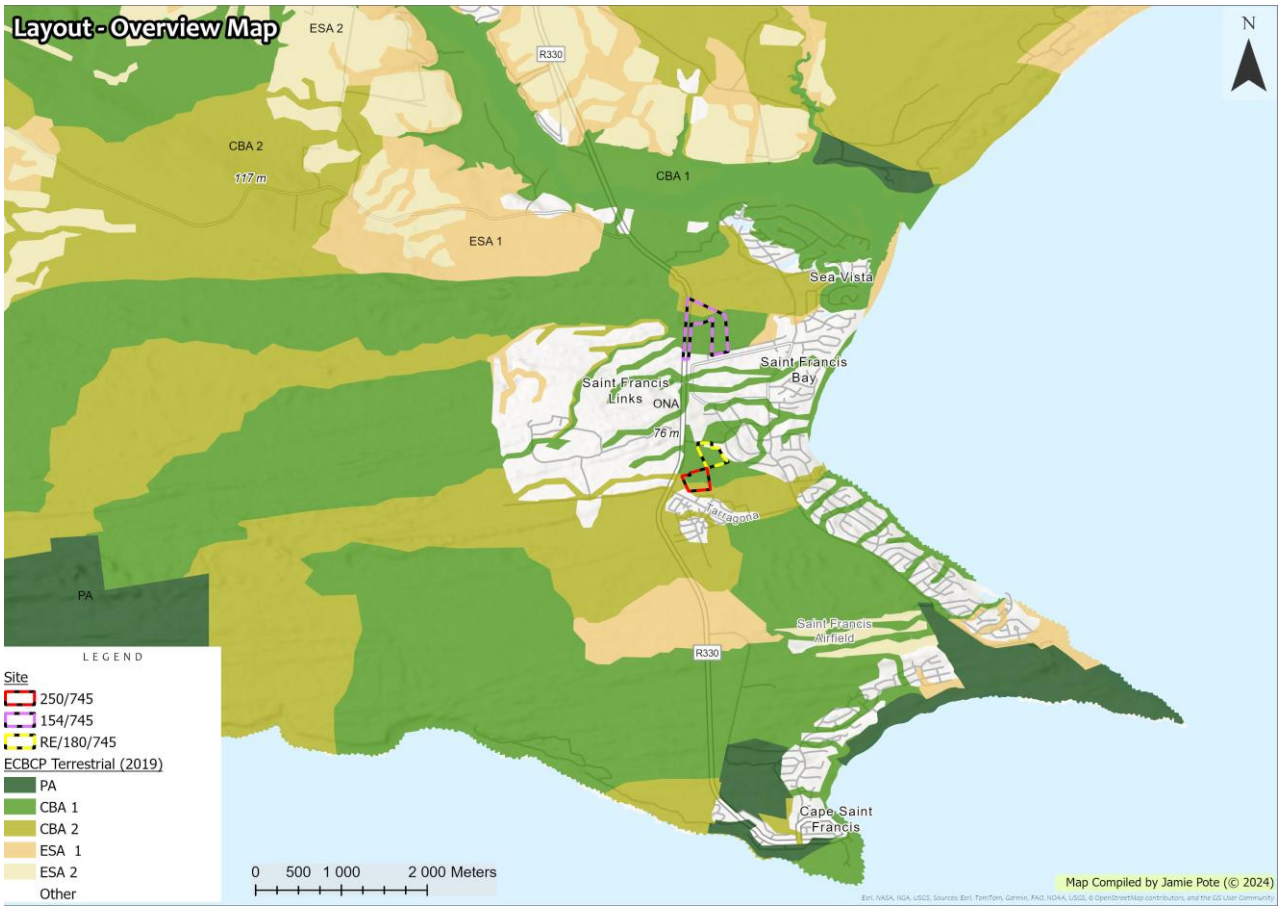

Figure 9: Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) – Terrestrial.

Figure 10: Remaining extent (pink shading) of St Francis Dune Thicket (red outline).

Figure 11: Protected Area (PA), Critical Biodiversity Area (CBA) and Ecological Support Area (ESA) designation of remining extent St Francis Dune Thicket. Note that CBA and ESA designations cover almost the entire remining coverage of the vegetation unit and significantly exceed conservation targets.

Further to the above, it should be noted that almost the entire remaining coverage (Figure 10) of **St Francis Dune Thicket** is designated as PA, CBA 1 & 2 or ESA 1 & 2 (Figure 11). The CBA 1 & CBA 2 designations for the remaining extent also significantly exceeds the conservation target for the unit (19%). The vegetation unit also has a Least Concern conservation status with more than 60 % remining (actual is ~76 %) with low levels of transformation. It can thus be deduced that the site, which represents 0.17 % of the actual remining coverage of the vegetation unit, it not required to meet conservation targets.

It should thus be, at most, designated as ESA (in order to preserve local and/or landscape connectivity). However, it is also noted that the site is within an urban area with localised fragmentation, whereas remaining natural areas having the vegetation unit in the broader surrounding areas, are significantly less fragmented. Transformation tends to be confined to the coastal villages and towns within the coverage, as well as high levels of alien invasion.

It can thus **be concluded that the site does not contribute significantly to the overall conservation and/or connectivity of the vegetation unit**. Since it is adjacent to an urban area, where natural fire processes are not feasible, it is likely that the vegetation would continuously become moribund (accumulate excessive biomass, common to Fynbos type vegetation), which will not only pose a fire risk but also likely result in a decrease in the ecological function and species composition of the vegetation over time. The ECBCP recommendations for sites located within a terrestrial CBA1 and CBA2 are that the biodiversity be maintained in near natural state with minimal loss of ecosystem integrity. According to Berliner, *et al.* (2007), no transformation of natural habitat should be permitted. It should be noted that the vegetation unit is not under threat and ECBCP designated CBA & ESA for the specific vegetation units far exceeds the conservation targets and the site is situated adjacent to an important and growth urban area, where growth os required to accommodate socio-economic needs of the resident population.

The species of conservation concern that are present, while noted to have an elevated status, are also present in the broader area, as acknowledges by SRK (2023) report and not under imminent threat.

2.2.4 Protected areas

The site does not overlap with any designated Protected Area, NPAES designated area, Important Bird Area (IBA) and/or any associated buffers (Figure 12), nor is it in proximity to any such areas. The proposed activity will thus not have any direct or indirect impact on any protected area. Several local nature reserves are present that represent some of the vegetation unit including Cape Recife Nature Reserve, Orma Booysen Flora Reserve, Sand River Private Nature Reserve & Kromme River Nature Reserve. The site is approximately 1.8 km away from the Sand River Nature Reserve and 3.5 km from Irma Booysen Nature Reserve The site is also not within any designated NPAES areas. The proposed offset site is located adjacent to the Sand River Private Nature Reserve. The protected areas in the surrounding area have not changed since the original assessment conducted in 2023.

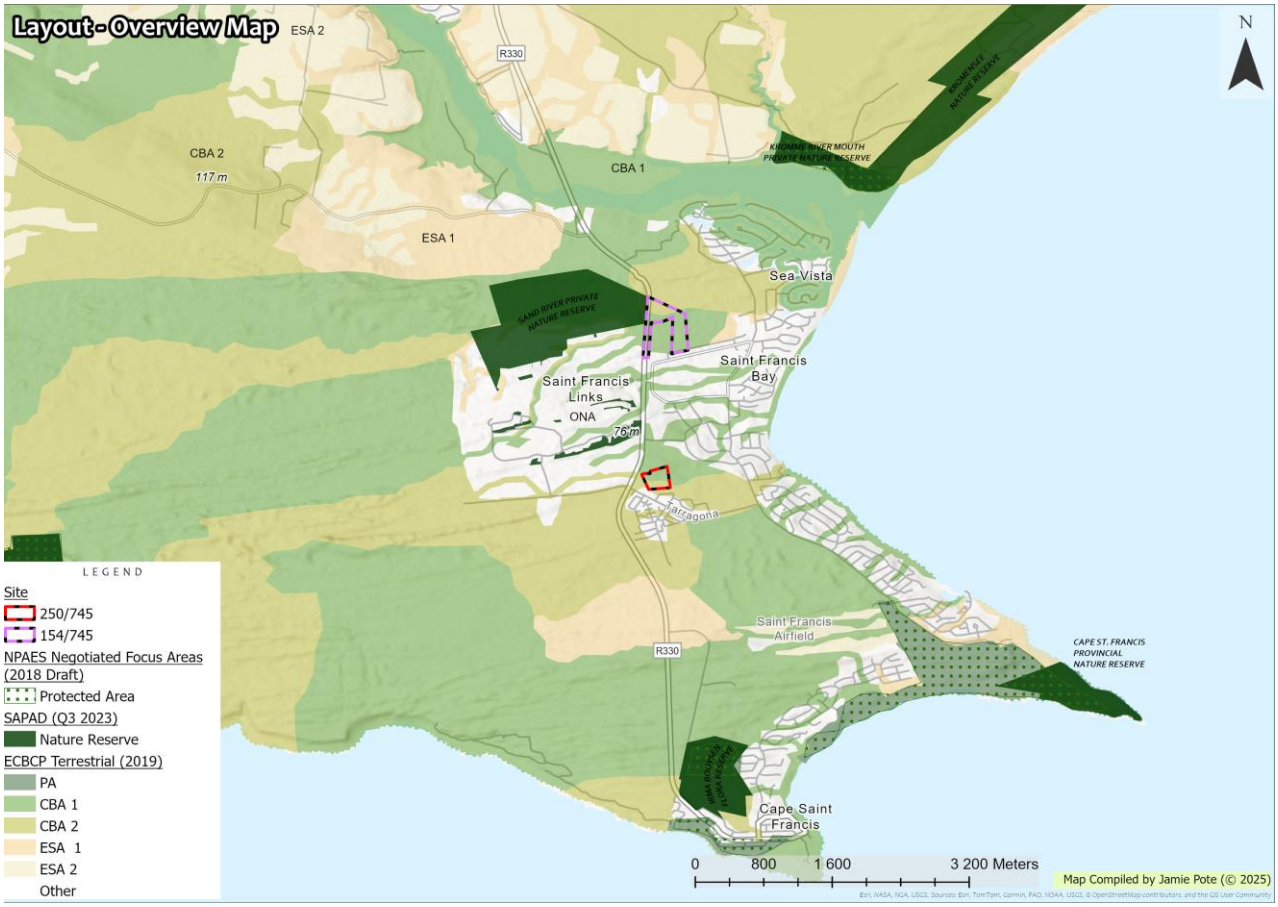

Figure 12: Protected Areas.

2.2.5 Regional Planning: Garden Route Biodiversity Sector Plan (GRBSP)

The site falls within the Garden Route Biodiversity Sector Plan (GRBSP) which is a regional conservation plan. This plan identifies St. Francis Strandveld as being the represented vegetation and it is described as a dune thicket mosaic with sand fynbos, as occurring in the vicinity of the site. This corresponds to the national vegetation map description, as expected. St. Francis Strandveld is described as consisting of patches of low Dune Thicket in dune slacks that contain a mix of resprouting woody species, that are found in a matrix of strandveld vegetation which is dominated by stunted mix of Fynbos type species. The vegetation type is known to being adapted to periodic fire but not considered to be fire dependent.

Four sub-units are distinguished, namely an *Imperata cylindrica-Rapanea gilliana-Erica fourcadei community*, consolidated patches of Dune Thicket (which could be rather considered as a coastal forest mosaic), limestone ridges with unique fynbos assemblages, and *Ischyrolepis eleocharis-Passerina vulgaris* shrubland on calcareous sands. The GRBSP also identifies the site as being within a Critical Biodiversity Area 1. The Management Objective is to maintain natural land, rehabilitate degraded areas to natural or near natural conditions, and for no further degradation. The GRBSP has no legal status and is generally regarded as being superseded by the ECBCP but does add value in terms of understanding local context.

3 Biodiversity Risk Identification and Assessment

3.1 Baseline Biodiversity Description: The Site

The site is an undeveloped erf and while no baseline information is available regarding the historical condition of the site, analysis of historical aerial imagery as well as on-site observations suggest that the site has undergone several stages of dense alien invasion, fire and clearing in the recent past (since ~2003). The findings of this assessment more or less concur with the original findings as per SRK (2023), as described below. Site photos of the respective habitats are provided in *Figure 13* to *Figure 22*.

The site is situated adjacent to an existing light industrial area and within 1 km of low-cost housing, as well as more affluent residential areas. A major municipal water pipeline servitude passes through the eastern side of the site with a water reservoir on a high point on the northern boundary. This and other pathways through the site also provide well use throughfares for pedestrian traffic. There is a large amount of rubble on site, indicating historical as well as recent and persistent illegal dumping, and livestock grazing is also clearly evident (cattle and goats). The wetland areas, some of which may be associated with leaks from the nearby pipeline, but outside the scope of this assessment, are visible and significantly polluted with various forms of refuse and are ecologically dead.

The vegetation on the southern section of the site has been brush cut (mowed), which has likely to some extent promoted growth of a low dune fynbos vegetation. Dense stands of Alien Invasive Plants (AIPs) including primarily Rooikranz (*Acacia cyclops*) and Port Jackson Willow (*Acacia saligna*) occurs in medium densities to very high density where brush cutting has not occurred recently. Based on observations it would appear that the site has a long history of disturbance including ongoing alien invasion, fire, refuse and rubble dumping and ad hoc clearing of alien trees.

While SRK (2003) indicated that it is not clear if the area is exposed to periodic fires, as required by a dune thicket-fynbos mosaic, analysis of historical aerial imagery does indicate periodic fire in the alien invaded areas, which does pose a risk to neighbouring property also. Such fires can be destructive and can also have a negative ecological impact on adjacent natural vegetation as well as the obvious fire risk to infrastructure. Illegal dumped materials can further add a pollution risk due to presence of hazardous materials.

Development impacts the burning frequency in different ways where sites in close proximity to urban areas usually only experience fire infrequently to prevent the threat of fire to the surrounding development or burns too regularly as a result of illegal fires to increase the quality of grazing or negligence. Proximity to the development would also result in the loss of many fauna-related ecological processes, such as grazing, pollination and dispersal, but smaller fauna, including insects and birds, would largely persist on site. Where brush cutting hasn't occurred, the vegetation looks moribund or overburnt.

Grazing, a minor process in coastal fynbos, would continue as a result of domestic herbivory. Due to the proximity of the site (a designated CBA) to developed urban areas, where fire would not be an acceptable management practice, it is likely that the fire that promotes a healthy vegetation would be unacceptable. Periodic brush cutting does to some extent assist in removal of moribund vegetation and will maintain the dune fynbos component associated with Dune thicket, it will not have the same ecological influences as fire.

Figure 13: Mowed or brush cut Dune Fynbos/Thicket mozaic within proposed footprint.

Figure 14: Mowed or brush cut Dune Fynbos/Thicket mozaic within proposed footprint.

Figure 15: Mowed or brush cut Dune Fynbos/Thicket mozaic within proposed footprint.

Figure 16: Mowed or brush cut Dune Fynbos/Thicket mozaic within proposed footprint.

Figure 17: Small wetland area with Typha capensis (Bulrush) and dumped waste.

Figure 18: Significant accumulated dumped waste including hazardous Materials in wetland area.

Figure 19: Dune Thicket mozaic with alien infestation.

Figure 20: Transformed areas dominated by grasses, with alien species and rubble

Figure 21: Pipeline servitude vegetated with kikuyu and Cynodon dactylon grasses.

Figure 22: Dune Thicket mozaic with alien infestation.

SRK (2003) concluded that i*rrespective of these current disturbances, the vegetation is in good condition, maintaining a relatively high species diversity for a site exposed to many threats*, which is to some extent correct but the portion that is in good condition is a small area (less than 1 Ha and is also significantly disturbed ito dumped refuse and such. The southern portion of the site is dominated by fynbos shrubs, many of which are endemic to coastal vegetation, while localised does have a relatively broad distribution along the coastal belt to the east and west. Thicket shrubs, including *Rhamnus prunoides* and *Searsia* spp., are found on the flats, whereas thicket shrubs and trees (*Sideroxylon inerme*) are found on the dune ridge that crosses the site in an east-west direction along the northern side of the site.

The vegetation communities observed on site during the site visit in November 2024 more or less concur with the original findings (SRK, 2023, Figure 23) and have not been remapped. *Rapanea gilliana* specimens observed by Weatherall-Thomas are recorded as red dots. The density of individuals was found to be significantly denser that was previously mapped and may be as a result of more recent recruitment and or growth of small individuals that were not identifiable during the previous initial assessment. Weatherall-Thomas did note resprouting and that survey was conducted after a recent brush-cut even, so it is likely that the outcome of that resprouting is what is now visible. The resprouting is where the mowing will have removed visible aerial parts of the plant, which is now regrowing.

As summarised from the above descriptions, according to the National Vegetation Map by Mucina and Rutherford (2018), the proposed site falls within *St. Francis Dune Thicket,* listed as *Least Concern*

(conservation target of 19%) (Table 5-1). The site visits conducted on 10 February 2023 confirmed that the vegetation on the development footprint is consistent with this description.

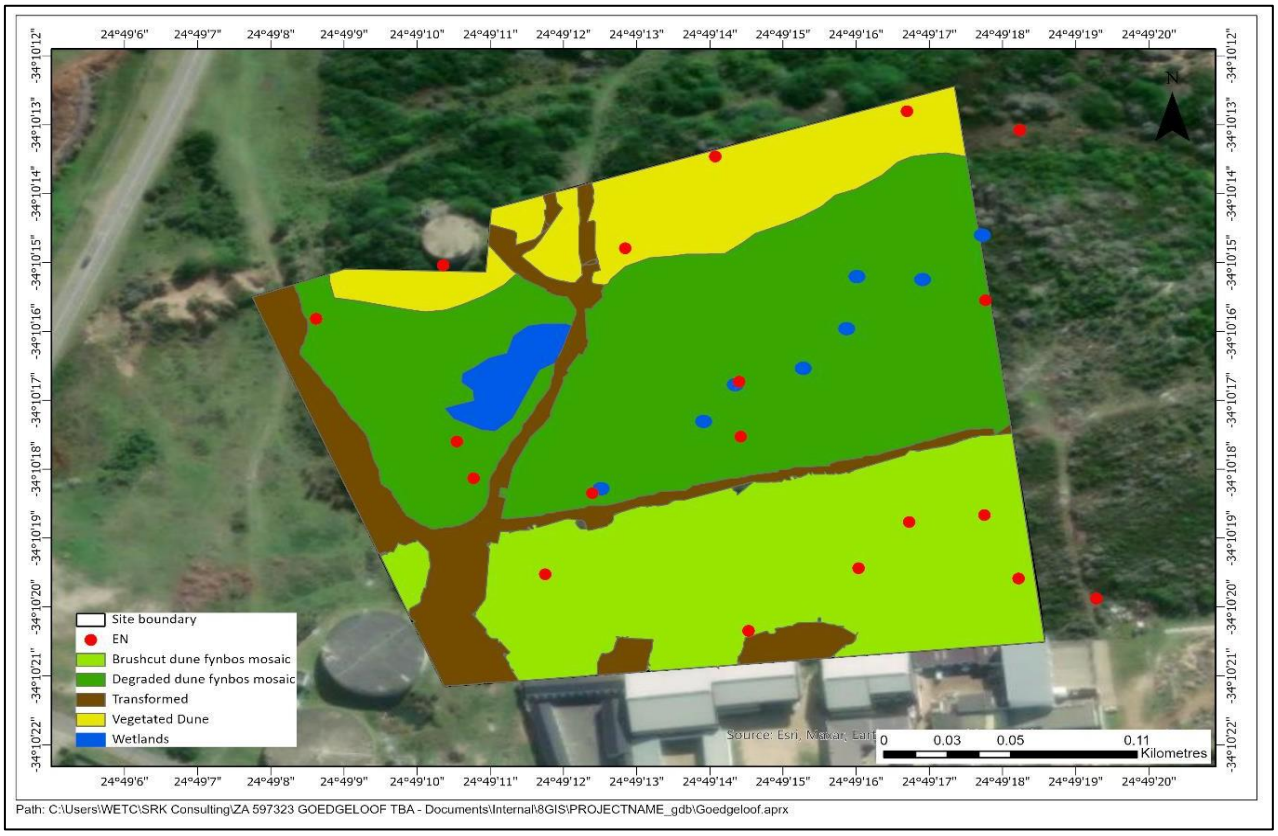

Figure 23: Vegetation habitat types recorded on the site, as per SRK (2023).

The Coastal Dune Thicket vegetation present on the site is dominated by coastal fynbos shrubs and dwarf shrubs, including *Euclea racemosa, Felicia echinata, Helichrysum cymosum, Osteospermum moniliferum, Metalasia muricata, Morella cordifolia, M. quercifolia, Rapanea gilliana, Senecio oederiifolius and Syncarpha argentea.* Herbs include *Chaenostoma campanulatum, Gazania krebsiana, Pelargonium grossularioides* and *Gymnosporia capitatum*, as well as the geophyte *Hypoxis villosa* and the common creeping succulent *Carpobrotus deliciosus*. Grasses and graminoids include *Cynodon dactylon, Imperata cylindrica* and *Restio eleocharis*. Several small and tall shrubs include *Searsia* spp., *Rhamnus prinoides* and *Sideroxylon inerme* are also present, usually as small clumps within the dune fynbos mozaic.

The St. Francis Dune Thicket community occurs as three different sub-communities on site, as identified by SRK (2023):

- **Brush cut coastal fynbos mosaic** comprising fynbos that had been brush cut, but remains dominated by resprouting fynbos and thicket species, including *Rapanea gilliana*. It generally occurs on the shallow calcrete soils on the southern side of the site. Small patches of non-brush cut thicket-fynbos mosaic occurs within this area as well.
- **Degraded dune fynbos mosaic** in the centre of the site on deeper aeolian sands, although shallow calcrete outcrops and channels occur. The vegetation is dominated by *Metalasia muricata* and woody thicket species, generally in a moribund state due to lack of fire.
- **Vegetated dune community** on the dune that traverses the site on the northern side of the site. It contains many of the same species as the coastal fynbos mosaic but has a considerably higher cover of woody thicket species, including *Cassine peragua, Olea exasperata, Gymnosporia buxifolia, Psydrax*

obovata, Pterocelastrus tricuspidatus, Searsia spp. and *Sideroxylon inerme*, Open spaces are dominated by *Restio eleocharis* and *Metalasia muricata*.

- **Wetlands** scatted within the vegetation that do occur as discrete units but often grade into the surrounding vegetation. These wetlands are dominated by the reed *Typha capensis*, but other sedges and grasses, as well as herbs such as *Apium graveolens*, are common. A large wetland occurs in the east of the site, at the base of the reservoir.

The communities as described above by SRK (2023) were confirmed during this assessment. Observations made during the site assessment do question whether or not these wetlands are natural features or as a result of leaks associated with the water pipeline and reservoir and perhaps stormwater runoff from the roads adjacent to the site. In any event they are functional as wetlands, although serious pollution was evident as a result of waste dumping and also from the site being used extensively as an ablution facility. Aquatic features are however outside the scope of this reporting.

The vegetation communities represented within the site are not unique and are fairly common and typical of the vegetation unit and are well represented within the coverage or remining extent of the unit as outlined in Section 2.2.3: Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) – Terrestrial, with extensive relatively unmodified and unfragmented areas still remaining. **The proposed development of the reduced footprint will result in the loss of a portion of vegetation on the site, the southern more or less third of the site, but will retain the northern more or less two thirds. The portion that will be lost corresponds to the brush cut dune fynbos indicated in Figure 23.**

3.1.1 Present Ecological State

The site is generally in a natural to near natural condition, but with transformed areas and degradation in the form of dumped waste and rubble as well as alien invasion which is low where intact patches remain but moderate and localised high in patches.

3.1.2 Historical Land Use Change

A series of historical aerial imagery are provided below (Figure 24 to Figure 28), clearly shows that the site has undergone a series of historical invasion, clearing and fire events.

Figure 24: Historical Aerial Photo (~06-2003): Note dense alien invasion and/or dune thicket.

Figure 25: Historical Aerial Photo (~10-2009): Note loss of alien invasion/dune thicket due to either manual clearing of fire.

Figure 26: Historical Aerial Photo (~09-2013): Note regeneration of alien invaded vegetation and/or dune thicket as well as alien vegetation removal and/or brush cutting.

Figure 27: Historical Aerial Photo (~07-2020): Note regeneration of alien invaded vegetation and/or dune thicket.

Figure 28: Historical Aerial Photo (01-2025). Note brush cut dune fynbos vegetation on southern portion of the site, with dense alien invasion with sporadic small Dune Thicket clumps covering the northern part of the site.

3.1.3 Flora & Fauna

Several endemic and range restricted species included species of conservation concern are present within the broader vegetation unit and local area. Several species are known from the surrounding area, and several are flagged as per the National Environmental Screening Tool as indicated below.

Red Listed, Endemic and Protected Flora

The site falls within the general distribution range of several endemic species and other species with a highly localised distribution, some of which are Critically Endangered, Endangered, Vulnerable or Rare. Some of these species are also only from a single or a few populations.

As indicated in Table 3, the study undertaken by SRK (2023) confirmed the presence of one Endangered species (*Rapanea gilliana*) and also surmised that two other species (Endangered Hyobanche robusta and Vulnerable Sensitive species 588) had a medium likelihood of occurrence but were not found present at the time of the site visit in early 2023. This could have been due to the site having been recently brush cut for Sensitive species 588 and also possibly due to seasonal reasons for *Hyobanche robusta.* All other species were deemed to have a low likelihood of occurrence and none were found. In this study, where the site visit was undertaken in November 2024, both of these species were confirmed to be present. Several individuals of Sensitive species 588 & *Hyobanche robusta* were confirmed present in the brush-cut area and are potentially also present in the degraded dune thicket areas outside of the site footprint, although not confirmed. All of these confirmed species do have known populations and a distribution that extends outside of the site, and none are under imminent threat.

As per SRK (2023), *Rapanea gilliana, or dwarf Cape Beech, is an Endangered species that occurs in dune fynbos and fynbos mosaics between Sedgefield in the Western Cape and Port Alfred in the Eastern Cape. It grows in shallow to deep coastal sands and is tolerant of fire (Victor 2006). It is relatively tolerant of disturbance, including brush cutting, as it has the ability to resprout, but will not tolerate transformation. The species has an EOO of 2940 km² and an Area of Occupancy of 10.95 km2 (SANBI 2020). The population consists of approximately 15 small severely fragmented subpopulations (Victor 2006). Current threats are habitat loss as a result of coastal development, alien plant invasions and industrial development in the Coega Special Economic Zone. Where it is found, including the development site, it can be one of the dominant species.*

It was estimated in the original assessment that there are between 50-100 individuals on site, which is in agreement with this assessment, although the estimate based on the November 2024 site visit suggests that there are in excess of 200 individuals. Since the site visit conducted by SRK (2023) was undertaken shortly after the site being brush cut, it is likely that further resprouting and regeneration has occurred *thereafter.*

The SANBI guidelines for Endangered species (Criterion B, C, D) are that no further loss of habitat should be permitted as the likelihood is high that the species will go extinct if current pressures continue (Raimondo *et al.* 2009). *R. gilliana* remains common in the surrounding intact dune fynbos and occurs in surrounding protected areas. SRK (2023) notes that "*as the site is located between residential and industrial development exposed to multiple threats, the species is unlikely to persist without intervention*" This assessment concurs with that finding and notes that the ongoing degradation, including dumping of refuse and rubble is likely to result in ongoing deterioration of the site.

The two other threatened species that were considered to have a MEDIUM possibility of occurring on site by the SRK (2023) assessment, were confirmed present during this assessment. *Hyobanche robusta* occurs in deep coastal sands and only emerges from below ground during its flowering season in July to November. Three individuals were recorded during this site visit in the bush curt area although it is anticipated that more may be present in less accessible areas in the norther portion of the site. At least 15 – 20 individuals of Sensitive species 588 were also confirmed during this assessment and appear to be locally common in the area. The recent brush cutting as noted in the SRK (2023) report was likely the cause of it not being recorded previously.

Table 3: Flora Species of Special Concern

SPECIES NAME	FAMILY	STATUS	OCCURRENCE PROBABILITY	COMMENT/OCCURRENCE
Agathosma stenopetala	Rutaceae	NEST (M), Vu [B1ab(iii)]	LOW	Somewhat widespread distribution. No habitat (Tertiary sands) or nearby populations in vicinity of the site. Not recorded on site.
Aspalathus recurvispina	Fabaceae	NEST (M), CR [B1ab(iii) +2ab(iii); C2a(ii)]	LOW	Somewhat widespread distribution. No habitat on site (Coastal fynbos below 100 m), as only recorded near to the coast. Not recorded on site.
Capeochloa cincta subsp. sericea	Poaceae	NEST (M), Vu [1ab(i,iii,iv,v)]	LOW	Somewhat widespread distribution. No habitat on site (Coastal dune, in sandy seeps underlain by rock shelf). Not recorded on site.
Centella tridentata var. hermanniifolia	Apiaceae	NEST (M), Rare	LOW	Somewhat widespread distribution. No habitat on site (Coastal flats and lower mountain slopes). Not recorded on site.
Cotyledon adscendens	Crassulaceae	NEST (M), En [vB1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)]	LOW	Somewhat widespread distribution. Thicket vegetation behind coastal dunes within 1 km of the sea Not recorded on site.
Erica chloroloma	Ericaceae	NEST (M), Vu [B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)]	LOW	Somewhat widespread distribution. No habitat on site (Coastal dune fynbos), as only recorded nearer to the coast Not recorded on site.
Erica glandulosa subsp. fourcadei	Ericaceae	NEST (M), Vu [B1ab(ii,iii,iv,v)]	LOW	Somewhat widespread distribution in Coastal fynbos. Not recorded on site.
Erica glumiflora	Ericaceae	NEST (M), Vu [B1ab(i,ii,iii,iv,v)]	LOW	Somewhat widespread distribution. No habitat on site (Sandy coastal flats and dunes and low coastal hills.), only recorded near to the coast Not recorded on site.
Hyobanche robusta	Orobanchaceae	NEST (M), En [B1ab(ii,iii,v)]	MEDIUM (SRK (2023)	Somewhat widespread distribution. Potential habitat on the dune that transects the site (found in deep sand dune

			CONFIRMED (Pote, 2024)	systems). SRK confirmed medium likelihood during initial assessment. Confirmed to be present during this assessment (several individuals).
Hypoxis villosa	Hypoxidaceae	PNCO	CONFIRMED	Present, PNCO permits required.
Lebeckia gracilis	Fabaceae	NEST (M), En [A2bc; B1ab(ii,iii,iv,v)]	LOW	Somewhat widespread distribution. Coastal fynbos in deep, sandy soil below 300 m. Limited deep sands on site. Not recorded on site.
Rapanea gilliana	Myrsinaceae	NEST (M), En [B1ab(ii,iii,iv,v)]	CONFIRMED (SRK, 2023) CONFIRMED (Pote, 2024)	Somewhat widespread coastal distribution. Present and somewhat common on site. More common in the brush cut area but likely result of brush cut activities which have reduced alien invasion. The species in present in the invaded areas in the northern part of the site, outside of the proposed footprint, but less abundant. This might be a factor of the alien invasion, which tends to proliferate in the fynbos mozaic areas and will shade out *Rapanea gilliana*.
Sensitive species 1032		NEST (M), Vu [C2a(i)]	LOW	Somewhat widespread distribution including a population around St Francis. Not recorded on site but found in surrounding area. Not recorded on site.
Sensitive species 1192		NEST (H, M), En [A2c; B2ab(i,ii,iii,iv,v)]	LOW	Localised distribution Port Elizabeth extending to Thyspunt, often in coastal dunes. Moist, sometimes brackish soils, in dune slacks immediately inland from the shoreline. Likely too far from the coast, no brackish soils on site. Not recorded on site.
Sensitive species 308		NEST (M), Vu [B1ab(iii,v)+2ab(iii,v)]	LOW	Localised distribution Natures Valley to Storms River. Suitable habitat not present (sandy soil among rocks near the seashore). Not recorded on site.
Sensitive species 448		NEST (M), Vu [B1ab(i,ii,iii,iv,v)]	LOW	Somewhat widespread distribution. Sandy loam, clay or moderately fertile soils, mostly confined to the coastal plain. Not recorded on site.
Sensitive species 588		NEST (M), Vu [B1ab(ii,iii,v)]	MEDIUM (SRK (2023) CONFIRMED (Pote, 2024)	Somewhat widespread distribution. SRK (2023) noted that recent brush cutting may have removed aboveground growth for a time. SRK confirmed medium likelihood during initial assessment, and absence many have been due to brush cutting and/seasons. Confirmed to be present during this assessment (several individuals, fairly common).
Sensitive species 657	Amaryllidaceae	NEST (M), EN [B2ab(iii,v)]	LOW	Somewhat widespread distribution. Coastal Sands between Great Brak River to Gqeberha (Port Elizabeth). Not recorded on site.
Sensitive species 78	Asteraceae	NEST (M), Vu [B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)]	LOW	Localised distribution, found in tertiary sands in coastal habitats and in transition soils between tertiary sands and shale between Oyster Bay and Addo Not recorded on site.
Sideroxylon inerme	Sapotaceae	NFA		Several individuals, mostly in gardens outside of road verge and servitude. NFA permits would be required to prune, trim or remove.
Syncarpha (Acranthemum) sordescens	Asteraceae	NEST (M), Vu [B1ab(ii,iii,iv,v)]	LOW	Localised distribution Seaview to Port Alfred Thyspunt, Dunes and sandy slopes. Not recorded on site.
Carpobrotus deliciosus	Aizoaceae	PNCO	CONFIRMED	Present, PNCO permits required.
Scadoxus puniceus	Amaryllidaceae	PNCO	CONFIRMED	Present, PNCO permits required.
Gomphocarpus sp		PNCO	CONFIRMED	Present, PNCO permits required.
Bonatea speciosa	Orchidaceae	PNCO	CONFIRMED	Present, PNCO permits required.
Eulophia speciosa	Orchidaceae	PNCO	CONFIRMED	Present, PNCO permits required.
Agathosma apiculata	Rutaceae	PNCO	CONFIRMED	Present, PNCO permits required.

PNCO (Provincial Nature Conservation Ordinance) permits will be required, as well as ToPS permits for the threatened or protected species. NFA (National Forests Act) permits would also be required for destruction of some small Milkwood trees (*Sideroxylon inerme*) that persist in the site development area. require removal at any stage.

Red Listed and Protected Fauna

As per Table 4, no Endangered or Critically fauna species were found to be present nor are known to be present in close proximity to the affected area or are likely to be directly affected by the proposed activity. The site falls within the general distribution range of a single faunal SCC (excluding birds) as indicated in Table 4 below, however none are confirmed to be present. Since the project footprint is relatively small, is situated directly adjacent to urban and disturbed areas and also surrounded by extensive outlying areas of natural habitat, any disturbance or displacement associated with increased activity or habitat destruction as a direct result of the activity is unlikely to pose a significant negative impact faunal species and in particular this species of special concern significantly above current baseline levels. The single flagged insect species is unlikely to occur due to absence of suitable habitat.

Table 4: Fauna Species of Special Concern (SCC)

SCIENTIFIC NAME	COMMON NAME	STATUS[3]	COMMENT/PRESENCE
Mammals			
Sensitive species 8		VU, NEST (M)	Unlikely to be affected by the proposed temporary activity in a transformed and secondary vegetated footprint. Individuals are present in the vicinity including within the developed areas. Trenches should be inspected on a daily basis and during rainy periods when trenches may fill with water.
Birds			
Bradypterus sylvaticus		NEST (H)	Unlikely to be affected by the proposed temporary activity in a transformed and secondary vegetated footprint.
Circus maurus		NEST (H)	
Circus ranivorus	African Marsh Harrier	EN, NEST (H)	
Eupodotis senegalensis		NEST (H)	
Hydroprogne caspia	Caspian Tern	VU, NEST (H)	
Neotis denhami	Denhams Bustard	VU, NEST (H)	
Stephanoaetus coronatus		NEST (H)	
Reptiles			
None			
Amphibians			
None			
Invertebrates			
Aneuryphymus montanus	Yellow-winged Agile Grasshopper	VU, NEST (M)	Unlikely to be affected by the proposed temporary activity in a transformed and secondary vegetated footprint.

No fauna PNCO permits are anticipated to be required.

Alien Invasive Species

On 18 September 2020, the Minister of Environmental Affairs published the Alien and Invasive Species Regulations ("the Regulations") which came into effect on the 18 October 2020 in a bid to curb the negative effects of IAPs. The Regulations call on landowners and sellers of land alike to assist the Department of Environmental Affairs to conserve our indigenous fauna and flora and to foster sustainable use of our land. Non-adherence to the Regulations by a landowner or a seller of land

3 **PNCO** - Provincial Nature Conservation Ordinance (1974); ToPS – Threatened or Protected Species

can result in a criminal offence punishable by a fine of up to R 5 million (R 10 million in case of a second offence) and/or a period of imprisonment of up to 10 years.

Category 1a and 1b listed invasive species must be controlled and eradicated. Category 2 plants may only be grown if a permit is obtained, and the property owner ensures that the invasive species do not spread beyond his or her property. The growing of Category 3 species is subject to various exemptions and prohibitions. Some invasive plants are categorised differently in different provinces. *For example*: the Spanish Broom plant is categorised as a category 1b (harmful) invasive plant in Eastern Cape and Western Cape, but it is a category 3 (less harmful) invasive plant in the other seven provinces.

Invasive alien plants have a significant negative impact on the environment by causing direct habitat destruction, increasing the risk and intensity of wildfires, and reducing surface and sub-surface water. Landowners are under legal obligation to control alien plants occurring on their properties. Alien Invasive Plants require removal according to the Conservation of Agricultural Resources Act 43 of 1983 (CARA) and the National Environmental Management: Biodiversity Act (10 of 2004; NEMBA): Alien and Invasive Species Lists (GN R598 and GN R599 of 2014). Alien control programs are long-term management projects and a clearing plan, which includes follow up actions for rehabilitation of the cleared area, is essential. This will save time, money, and significant effort. Collective management and planning with neighbours allow for more cost-effective clearing and maintenance considering aliens seeds as easily dispersed across boundaries by wind or water courses. All clearing actions should be monitored and documented to keep track of which areas are due for follow-up clearing. A general rule of thumb is to first target lightly infested areas before tackling densely invaded areas and prioritize sensitive areas such as riverbanks and wetlands. Alien grasses are among the worst invaders in lowland ecosystems adjacent to farms but are often the most difficult to detect and control.

The findings of this assessment are in agreement with the findings of the original SRK (2023) assessment, where the most abundant alien invasive plant species include the trees, *Acacia cyclops, Acacia saligna* and *Cestrum laevigatum*, all classified as Category 1b, as well as the less common *Ricinus communis, which is* Category 2. Several other common weed species were noted during this assessment although none are deemed invasive. A suitable weed and alien invasive plant management strategy will be required for the project including a long term weed and alien plant management plan for the retained open space areas to improve and ensure ecological longevity of the retained area as a somewhat functional ecological linkage.

3.1.4 Terrestrial Vegetation Sensitivity Assessment

The **Site Ecological Importance (SEI)** findings of this assessment do broadly speaking concur with the original assessment (SRK, 2023), although the site is deemed to have a medium to high sensitivity rather than a high sensitivity, due to the levels of historical and present ongoing degradation and proximity to an urban area, where ecological value (either to meet conservation targets or to serve as an ecological corridor for landscape connectivity is marginal in comparison to much more extensive areas in the broader area that is associated with the represented vegetation unit.

It is further noted that conservation of a species within a confined and isolated area may not necessarily prove to be a valuable exercise, in particular when the species has a known much broader distribution, and the specific site and/or activity is unlikely to pose a significant threat to the survival or persistence of the species as a whole. This would be applicable to all three of the confirmed species of conservation concern that are confirmed to be present.

3.2 Impact Assessment

Several potential impacts were identified in the SRK (2023) assessment including:

1. the loss of indigenous vegetation
2. loss of protected plant species
3. proliferation of alien invasive species
4. risk of vegetation degradation due to anthropogenic disturbance

Mitigation measures are proposed to lower the significance of these impacts, which include an offset for the loss of Rapanea gilliana habitat.

The proposed development was assessed by SRK (2023) to have a very high negative impact on dune fynbos on site, due to the presence of a sub-population of the Endangered *Rapanea gilliana*, that will not tolerate the level of transformation expected (*within the development footprint*). SRK (2023) also confirms that "*the species remains reasonably common in the area and offset areas in less threatened areas containing viable populations as well are present*". The Species Environmental Assessment Guidelines (SANBI 2022) recommends that no destructive development should occur on a site similar to this. However, it was the recommendation of the specialist that the development could go ahead if all management measures, including offset areas, are implemented and included in the EMPr. The specialist recommended an offset area of at least 1:1 in extent. Based on the revised layout, which only utilises a portion of approximately a third of the site, where the rest will be retained and are confirmed to have the species present, the retained area is nearly double the size of the development area (i.e. 1:2). It is thus the conclusion of this report, that the proposed reduced footprint will be feasible, and the retained open space area will serve adequate as an offset area to accommodate the proposed development. Management actions pertaining to the offset area must include a short-term alien invasion management plan as well as a long-term alien invasive plant management strategy as well as measures to address degradation including the removal of all refuse and waste that has been dumped, as well as measures to prevent further dumping within the open space or offset area (i.e. fencing). A flora search and rescue must also be conducted before any vegetation clearing commences to ensure that the species of concern are relocated into the designated open space (offset) area.

3.3 Biodiversity Offset Site

The biodiversity offset site is an undeveloped farm portion and while no baseline information is available regarding the historical condition of the site, analysis of historical aerial imagery as well as on-site observations suggest that the site has also undergone several stages of dense alien invasion, fire and clearing in the recent past (since ~2003). Site photos of the respective habitats are provided in *Figure 30* to *Figure 37*.

The western band of the site has an overhead powerline traversing in a north-south direction parallel to the tar road and has thus been subject to historical vegetation removal and brush-cutting with some alien invasion and secondary thicket regrowth elements, but primarily a disturbed dune fynbos vegetation, similar to what occurs on the southern portion of the site. The vegetation mowing has likely promoted growth of a low dune fynbos vegetation to some extent. The northern portion is comprised of a densely invaded area (Rooikrantz), with some dune thicket elements and notably a few large, scattered remnant Milkwood trees. A sewer or bulk water line runs in an east west direction and wetland elements indicate possibly long-term leaks on the pipeline or possibly dune slack wetlands. Dense stands of Alien Invasive Plants (AIPs) including primarily Rooikranz (*Acacia cyclops*) and Port Jackson Willow (*Acacia saligna*) occurs in medium densities to very high density where brush cutting has not occurred recently.

Figure 29: Vegetation habitat types recorded on the offset site (2025).

Figure 30: Mowed or brush cut Dune Fynbos/Thicket mozaic within offset site.

Figure 31: Mowed or brush cut Dune Fynbos/Thicket mozaic within offset site.

Figure 32: Near-natural Dune Fynbos/Thicket mozaic within offset site.

Figure 33: Near-natural Dune Fynbos Fynbos/Thicket mozaic within offset site.

Figure 34: Near-natural Dune Fynbos/Thicket mozaic within offset site with scattered Rooikrantz.

Figure 35: Near-natural Dune Fynbos/Thicket mozaic within offset site with scattered Rooikrantz.

Figure 36: Near-natural Dune Fynbos.

Figure 37: Near-natural Dune Fynbos/Thicket mozaic adjacent to mowed area.

The eastern area is comprised of a dune thicket and fynbos mosaic with some light alien invasion (Rooikrantz) as well as some areas (approximately 40 – 50 % that has been mowed periodically and is thus primarily grassy with herbaceous elements. The dune fynbos within this area would be considered to be in near-natural state and is notably more intact and diverse compared to the site. The species *Rapanea gilliana* is abundant within the offset site, as well as Sensitive species 588. While unconfirmed, it is also likely that *Hyobanche robusta* is present. Over and above these species, several other Species are also present on the offset site including *Agathosma stenopetala, Agathosma apiculata*. It is thus confirmed that

not only does the offset site have the representative species from the site, but additional species and there is dune thicket fynbos that is in a far better condition than what occurs on the site.

It can thus be concluded that a portion of the offset site could be used as a 1:1 offset for the site but also has habitat and species that is notably superior in habitat quality, ecological connectivity and species composition to the site. A mixed development-offset option might also be a consideration which would likely be more sustainable in the long term than conservation-offset only or could be used as an offset receiving site for other projects having similar offset requirements to the site. In addition, the site abuts the sand river on the north side and the Sand River Nature reserve is on the west side of the site, so long term-connectivity to the surrounding landscape is much more likely to be sustained in the future compared to the site, which is already almost entirely surrounded (i.e. isolated) by urban development.

4 Findings, Outcomes and Recommendations

The overall findings of this assessment/review for the amin site can be summarised as follows:

1. The vegetation unit is not under threat, and although not currently well conserved, the respective Bioregional Plans have designated almost the entire remining extent as either CBA or ESA, which far exceeds the conservation targets for the unit.
2. The site, due to its locality is likely to be subject to ongoing degradation including ongoing alien plant proliferation, illegal waste and rubble dumping and use by pedestrians as an ablution facility, without a specific management plan being implemented. The proposed development will provide an opportunity to accommodate a specific management action on the portion that will be retained as open space or offset arear, which will be in a far more secure form, as a condition of authorisation with a specific EMPr for implementation, than in the current form where the development will provide the economic incentive that would be required to implement a useful and viable conservation action. .
3. The specific site is situated within an urban area and is bounded by transformed/developed areas. The specific site falls within a narrow east-west corridor that passes through this urban area and thus has limited value as both an ecological corridor and also in terms of conservation targets for the vegetation unit. Sensitive species 588 and Hyobanche robusta are likely to be relatively easily relocated, although Hyobanche robusta is only visible in around spring, so timing is essential. *Rapanea* is likely to be more challenging but not necessarily impossible. It is a small tree mostly under 0.5 m in hight, occurs in loose sandy soil and generally occurs sporadically in small clusters of individuals. The recommended method would be to dig a fairly large area around the roots, possibly adding water and then wrapping the root ball and associated sand in a biodegradable fabric. These can then be transferred to the replanting area, using suitable equipment and replanted into pre-dug holes. Digging is likely to require a combination of hand tools and small excavator/TLB or similar equipment than can be used without causing significant peripheral harm to the terrestrial vegetation.

The overall findings of this biodiversity offset assessment for the biodiversity offset site, conclude that it would be viable for a portion of the site (equivalent in area) to serve as the 1:1 offset site as per SRK (2023) with the concurrent implementation of an alien vegetation management plan. The findings of the review contained within this report also concur with the original findings of the SRK report.

5 Appendices

5.1 Appendix A: References

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5.2 Appendix B: Abbreviations & Glossary

5.2.1 Abbreviations

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

5.2.2 Glossary

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

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

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

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

Keystone Species	Species whose influence on ecosystem function and diversity are disproportionate to their numerical abundance. Although all species interact, the interactions of some species are more profound and far-reaching than others, such that their elimination from an ecosystem often triggers cascades of direct and indirect changes on more than a single trophic level, leading eventually to losses of habitats and extirpation of other species in the food web.
Landscape	An area of land that contains a mosaic of ecosystems, including human-dominated ecosystems (Millennium Ecosystem Assessment).
Landscape Approach	Dealing with large-scale processes in an integrated and multidisciplinary manner, combining natural resources management with environmental and livelihood considerations (FAO).
Landscape connectivity	The degree to which the landscape facilitates or impedes movement among resource patches.
Least threatened / Least Concern (LC)	These ecosystems have lost only a small proportion (more than 80 % remains) of their original natural habitat and are largely intact (although they may be degraded to varying degrees, for example by invasive alien species, overgrazing, or overharvesting from the wild). A taxon (species) is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category (*IUCN*).
Matrix	The "*background ecological system*" of a landscape with a high degree of connectivity.
Natural Forest (Indigenous Forest)	The definition of "*natural forest*" in the National Forests Act of 1998 (NFA) Section 2(1)(xx) is as follows: 'A natural forest means a group of indigenous trees. • whose crowns are largely contiguous. • or which have been declared by the Minister to be a natural forest under section 7(2)? This definition should be read in conjunction with Section 2(1)(x) which states that 'Forest' includes: • A natural forest, a woodland, and a plantation • The forest-produce in it; and • The ecosystems which it makes up. The legal definition must be supported by a technical definition, as demonstrated by a court case in the Umzimkulu magisterial district, relating to the illegal felling of Yellowwood (Podocarpus latifolius) and other species in the Gonqogonqo forest. From scientific definitions (also see Appendix B) we can define natural forest as: • A generally multi-layered vegetation unit • Dominated by trees that are largely evergreen or semi-deciduous. • The combined tree strata have overlapping crowns, and crown cover is >75% • Grasses in the herbaceous stratum (if present) are generally rare. • Fire does not normally play a major role in forest function and dynamics except at the fringes. • The species of all plant growth forms must be typical of natural forest (check for indicator species) • The forest must be one of the national forest types
Near Threatened (NT)	A taxon (species) is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable

	now, but is close to qualifying for or is likely to qualify for a threatened category in the near future (*IUCN*).
Patch	A term fundamental to landscape ecology, is defined as a relatively homogeneous area that differs from its surroundings. Patches are the basic unit of the landscape that change and fluctuate, a process called patch dynamics. Patches have a definite shape and spatial configuration and can be described compositionally by internal variables such as number of trees, number of tree species, height of trees, or other similar measurements.
Protected Area	A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.
Range restricted species	Species with a geographically restricted area of distribution. Note: Within the IFC PS6, restricted range refers to a limited extent of occurrence (EOO): For terrestrial vertebrates and plants, restricted-range species are defined as those species that have an EOO less than 50,000 square kilometres (km2).
Refugia	A location which supports an isolated or relict population of a once more widespread species. This isolation can be due to climatic changes, geography, or human activities such as deforestation and overhunting.
Rehabilitation	Measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised. Rehabilitation emphasizes the reparation of ecosystem processes, productivity and services, whereas the goals of restoration also include the re-establishment of the pre-existing biotic integrity in terms of species composition and community structure (BBOP).
Resilience	The capacity of a natural system to recover from disturbance (OECD).
Restoration	The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. An ecosystem has recovered when it contains sufficient biotic and abiotic resources to continue its development without further assistance or subsidy. It would sustain itself structurally and functionally, demonstrate resilience to normal ranges of environmental stress and disturbance, and interact with contiguous ecosystems in terms of biotic and abiotic flows and cultural interactions (IFC).
Riparian	Pertaining to, situated on or associated with the banks of a watercourse, usually a river or stream.
Riparian Habitat	Includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.
River Corridors	River corridors perform several ecological functions such as modulating stream flow, storing water, removing harmful materials from water, and providing habitat for aquatic and terrestrial plants and animals. These corridors also have vegetation and soil characteristics distinctly different from surrounding uplands and support higher levels of species diversity, species densities, and rates of biological productivity than most other landscape elements. Rivers provide for migration and exchange between inland and coastal biotas.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED).
Terrestrial	Occurring on, or inhabiting, land.
Threatened Species	Umbrella term for any species categorised as Critically Endangered, Endangered or Vulnerable by the IUCN Red List of Threatened Species (*IUCN*). Any species that is likely to become extinct within the foreseeable future throughout all or part of

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

5.3 Appendix C: Declaration, Specialist Profile and Registration

Province of the EASTERN CAPE
ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS & TOURISM

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST IN TERMS OF REGULATIONS 12 AND 13 OF THE AMENDMENTS TO THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 AS AMENDED.

	(For official use only)
File Reference Number:	
NEAS Reference Number:	
Date Received:	

Application for environmental authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amendments to the Environmental Impact Assessment Regulations, 2014. This form is valid as of 6 January 2021.

PROJECT TITLE

PROPOSED DEVELOPMENT OF GOEDGELOF 250-745

SPECIALIST [1]	Mr Jamie Pote		
Contact person:	Mr Jamie Pote		
Postal address:	Postnet Suite 57, Private Bag X13130, Humewood		
Postal code:	6013	Cell:	
Telephone:	-	Fax:	-
E-mail:	jamiepote@live.co.za		
Professional affiliation(s) (if any)	SACNASP (115233), IAIAsa (5045)		

Project Consultant:	Eco-Route Environmental Consultancy		
Contact person:	Joclyn Marshall/		
Postal address:	PO. Box 1252 Sedgefield		
Postal code:	6573	Cell:	072 126 6393
Telephone: E-mail:	joclyn@ecoroute.co.za	Fax:	

Version 1 October 01 2022

4.2 The SPECIALIST

I, **Mr Jamie Pote**, declare that –

General declaration:

- I act as the independent Specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the assessments for which I am a specialist, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation **8** of the regulations when preparing the application and the Specialist report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from a Specialist in terms of the Regulations; and
- I realise that a false declaration is an offence and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Amendments to Environmental Impact Assessment Regulations, 2014 as amended.
- ~~I have a vested interest in the proposed activity proceeding, such vested interest being~~:

Signature of the Specialist:

N/A

Name of company:

26/07/2025

Date:

Signature of the Commissioner of Oaths:

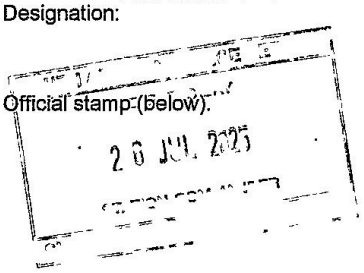
2025-07-26

Date:

CST

Designation:

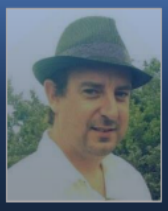
Official stamp (below):



[1] Curriculum Vitae (CV) attached

Annexure 1

CV



Jamie Pote

SENIOR ECOLOGIST AND ENVIRONMENTAL SCIENTIST

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Jamiepote
Bluesky-SA

EDUCATION

Bachelor of Science
Rhodes University
2001 (Botany & Environmental Science)

Bachelor of Science (Honours)
Rhodes University
2002 (Botany)

Professional Natural Scientist
SACNASP
2016

SERVICES

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

ABOUT ME

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

EXPERIENCE AND CLIENTS

Key Sectors

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

Key Projects

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

SACNASP
South African Council for Natural Scientific Professions

herewith certifies that

Jamie Robert Claude Pote

Registration Number: 115233

is a registered scientist

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

Ecological Science (Professional Natural Scientist)

Effective **20 July 2016** Expires **31 March 2026**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

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

PROJECT EXPERIENCE

PERFORMANCE STANDARD BIODIVERSITY AND CRITICAL HABITAT ASSESSMENTS (IFC PS6)

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

TERRESTRIAL BIODIVERSITY ASSESSMENTS AND COMPLIANCE STATEMENTS

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

ENERGY PROJECTS (WIND FARM AND PHOTOVOLTAIC INFRASTRUCTURE)

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

SPECIALISED ECOLOGICAL REPORTS AND REVIEWS

- Rebels Vlei Riparian delineation 2021

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

ROAD AND RAILWAY INFRASTRUCTURE PROJECTS

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

MINING PROJECTS

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

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

<u>POWERLINE INFRASTRUCTURE PROJECTS</u>

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

<u>PIPELINE INFRASTRUCTURE PROJECTS</u>

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

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

GENERAL INFRASTRUCTURE DEVELOPMENT PROJECTS

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

HOUSING DEVELOPMENT PROJECTS

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

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

AGRICULTURAL PROJECTS

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

GOLF ESTATE AND RESORT DEVELOPMENT PROJECTS

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

MIXED USE DEVELOPMENT PROJECTS

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

BUSINESS AND INDUSTRIAL DEVELOPMENT PROJECTS

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

ECO-ESTATE DEVELOPMENT PROJECTS

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

FLORA AND FAUNA RELOCATION PLANS, PERMITS AND IMPLEMENTATION

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

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

ENVIRONMENTAL MANAGEMENT PLANS

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

BASIC ASSESSMENT APPLICATION PROJECTS (DEDEAT)

- Basic Assessment Application for Parsonsvlei Erf 984 & 1134 Parsonsvlei 2020
- Construction of Deviation and Rehabilitation of Bridge along DR02481 road 2020
- Basic Assessment Application for Vermaak Boerdery Hydro Turbine (Cookhouse) 2020
- Basic Assessment Application for Walmer Erf 11667 Bidfood Warehousing Development 2020
- Basic Assessment Application for Portion 87 of the Farm Little Chelsea No 10 2020
- Basic Assessment Application for Nelson Mandela University Access Road, NMB 2019
- Basic Assessment, WULA and Borrow Pit/Quarry Mining Application, Clarkebury Rd, Idutywa 2019

- Basic Assessment Application for Erf 599 Walmer Mixed Use Development, Nelson Mandela Bay 2019
- Basic Assessment Application for Cookhouse Bridge rehabilitation and temporary deviation 2019
- Basic Assessment Application for Erf 14 Kabega, NMBM 2017
- Basic Assessment Application for Hankey Housing, Kouga District Municipality 2017
- Basic Assessment Application for Fairwest Rental Housing, Nelson Mandela Bay 2017
- Basic Assessment Application for Citrus expansion on Hitgeheim Farm, Sunland, Eastern Cape 2015

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

MINING PERMIT/ENVIRONMENTAL MANAGEMENT PROGRAMME APPLICATIONS (DMR)

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

ENVIRONMENTAL COMPLIANCE AUDITING

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

ENVIRONMENTAL MANAGEMENT, AUDITING, COMPLIANCE AND MONITORING PROJECTS

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

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

ENVIRONMENTAL SCREENING PROJECTS

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

SECTION 24G APPLICATIONS

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

CONFERENCES AND PUBLICATIONS

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

OTHER RESEARCH EXPERIENCE

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

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

SCOPE

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

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

These protocols replace the requirements of Appendix 6 of the Environmental Impact Assessment Regulation[4].

The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (https://screening.environment.gov.za/screeningtool). The requirements for terrestrial biodiversity are for landscapes or sites which support various levels of biodiversity. The relevant terrestrial biodiversity data in the screening tool has been provided by the South African National Biodiversity Institute[5].

SITE SENSITIVITY VERIFICATION AND MINIMUM REPORT CONTENT REQUIREMENTS

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

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

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

(a) a desk top analysis, using satellite imagery,

(b) a preliminary on-site inspection; and

(c) any other available and relevant information.

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

(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;

(b) contains a motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and

(c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

TERRESTRIAL BIODIVERSITY SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS

[4] The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act 107 of 1998).

[5] The biodiversity dataset has been provided by the South African National Biodiversity Institute.

TABLE 1:	ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY	REPORT REFERENCE
1	**General Information**	-
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being "*very high sensitivity*" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment.	✓
1.2	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being ***'low sensitivity'*** for terrestrial biodiversity, must submit a Terrestrial Biodiversity Compliance Statement.	✓
1.3	However, where the information gathered from the site sensitivity verification differs from the designation of ***'very high'*** terrestrial biodiversity sensitivity on the screening tool and it is found to be of a '***low***' sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.	✓
1.4	Similarly, where the information gathered from the site sensitivity verification differs from that identified as having a ***'low'*** terrestrial biodiversity sensitivity on the screening tool, a Terrestrial Biodiversity Specialist Assessment must be conducted.	✓
1.5	If any part of the proposed development footprint falls within an area of ***'very high'*** sensitivity, the assessment and reporting requirements prescribed for the ***'very high'*** sensitivity apply to the entire footprint, excluding linear activities for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. Development footprint in the context of this protocol means the area on which the proposed development will take place and includes any are that will be disturbed.	✓
	VERY HIGH SENSITIVITY RATING for terrestrial biodiversity features	
3.1.13	a motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a 'low' terrestrial biodiversity sensitivity and that were not considered appropriate,	✓
	LOW SENSITIVITY RATING – for terrestrial biodiversity features	
4	**Terrestrial Biodiversity Compliance Statement**	✓
4.1	The compliance statement must be prepared by a specialist registered with the SACNASP and having expertise in the field of ecological sciences.	✓
4.2	The compliance statement must:	
4.2.1	be applicable to the preferred site and proposed development footprint;	✓
4.2.2	confirm that the site is of 'low' sensitivity for terrestrial biodiversity; and	✓
4.2.3	indicate whether or not the proposed development will have any impact on the biodiversity feature.	✓
4.3	The compliance statement must contain, as a minimum, the following information:	
4.3.1	the contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	✓
4.3.2	a signed statement of independence by the specialist;	✓
4.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	✓
4.3.4	a baseline profile description of biodiversity and ecosystems of the site;	✓
4.3.5	the methodology used to verify the sensitivities of the terrestrial biodiversity features on the site, including equipment and modeling used, where relevant;	✓
4.3.6	in the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures propped, the land can be returned to the current state within two years of completion of the construction phase;	✓
4.3.7	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;	✓
4.3.8	a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	✓
4.3.9	any conditions to which this statement is subjected.	EAP
4.4	A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	EAP

ANIMAL SPECIES SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS

TABLE 1:	ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY	REPORT REFERENCE
1	**General Information**	
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "*very high*" or "*high*" sensitivity for terrestrial animal species must submit a **Terrestrial Animal Species Specialist Assessment Report.**	✓
1.2	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of "*medium sensitivity*" for terrestrial animal species must submit **either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement,** depending on the outcome of a site inspection undertaken in accordance with paragraph 4.	✓
1.3	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of "*low*" sensitivity for terrestrial animal species must submit a **Terrestrial Animal Species Compliance Statement.**	✓
1.4	Where the information gathered from the site sensitivity verification differs from the screening tool designation of "*very high*" or "*high*", for terrestrial animal species sensitivity and it is found to be of a "*low*" sensitivity, then a **Terrestrial Animal Species Compliance Statement** must be submitted.	✓
1.5	Where the information gathered from the site sensitivity verification differs from the screening tool designation of "*low*" terrestrial animal species sensitivity and it is found to be of a "*very high*" or "*high*" terrestrial animal species sensitivity, a **Terrestrial Animal Species Specialist Assessment** must be conducted.	✓
1.6	If any part of the development falls within an area of confirmed "*very high*" or "*high*" sensitivity, the assessment and reporting requirements prescribed for the "*very high*" or "*high*" sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol means, the area on which the proposed development will take place and includes the area that will be disturbed or impacted.	✓
1.7	The **Terrestrial Animal Species Specialist Assessment** and the **Terrestrial Animal Species Compliance Statement** must be undertaken within the *study area*.	✓
1.8	Where the nature of the activity **is not** expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.	✓
1.9	Where the nature of the activity **is** expected to have an impact on SCC beyond the boundary of the preferred site, the *project areas of influence* (PAOI) must be determined by the specialist in accordance with *Species Environmental Assessment Guideline*[6], and the study area must include the PAOI, as determined.	✓
	VERY HIGH AND HIGH SENSITIVITY RATING for terrestrial animal species	
2	**Terrestrial Animal Species Specialist Assessment**	
	VERY HIGH SENSITIVITY RATING 1. Critical habitat for range-restricted species[7] of conservation concern, that have a global range of less than 10 km^2. 2. SCC listed on the IUCN Red List of Threatened Species[8] or on South Africa's National Red List website[9] as Critically Endangered, Endangered or Vulnerable	✓

[6] Available at https://bgis.sanbi.org/
[7] Species with a geographically restricted area of distribution.
[8] https://www.iucnredlist.org/
[9] This category includes the categories Extremely Rare, Critically Rare and Rare

	according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare. 3. Species aggregations that represent ≥1% of the global population size of a species, over a season, and during one or more key stages of its life cycle. 4. The number of mature individuals that ranks the site among the largest 10 aggregations known for the species. These areas are irreplaceable for SCC.	
	HIGH SENSITIVITY RATING 1. Confirmed habitat for SCC. 2. SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare. These areas are unsuitable for development due to a very likely impact on SCC.	✓
2.2.12	identify any alternative development footprints within the preferred site which would be of "*low*" or "*medium*" sensitivity as identified by the screening tool and verified through the site sensitivity verification.	✓
2.3	The findings of the assessment must be written up in a **Terrestrial Animal Species Specialist Assessment Report**.	✓
3	**Terrestrial Animal Species Specialist Assessment Report**	
3.1.13	a motivation must be provided if there were any development footprints identified as per paragraph 2.2.12 above that were identified as having "*low*" or "*medium*" terrestrial animal species sensitivity and were not considered appropriate.	✓
4	**MEDIUM SENSITIVITY SPECIES OF CONSERVATION CONCERN CONFIRMATION**	
	MEDIUM SENSITIVITY RATING – for terrestrial animal species: 1. Suspected habitat for SCC based either on historical records (prior to 2002) or being a natural area included in a habitat suitability model for this species[10]. 2. SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.	✓
4.6	Where SCC are found on site or have been confirmed to be likely present, a **Terrestrial Animal Species Specialist Assessment** must be submitted in accordance with the requirements specified for "*very high*" and "*high*" sensitivity in this protocol.	✓
4.7	Similarly, where no SCC are found on site during the site inspection or the presence is confirmed to be unlikely, a **Terrestrial Animal Species Compliance Statement** must be submitted.	✓
5	**LOW SENSITIVITY RATING – for terrestrial animal species**	
	Terrestrial Animal Species Compliance Statement 1. Areas where no natural habitat remains. 2. Natural areas where there is no suspected occurrence of SCC.	✓
5.1	The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Zoological Science or Ecological Science).	✓
5.2	The compliance statement must:	✓
5.2.1	be applicable to the study area;	✓
5.2.2	confirm that the study area, is of "*low*" sensitivity for terrestrial animal species; and	✓
5.2.3	indicate whether or not the proposed development will have any impact on SCC.	✓

[10] The methodology by which habitat suitability models have been developed are explained within the Species Environmental Assessment Guideline.

5.3	The compliance statement[11] must contain, as a minimum, the following information:	✓
5.3.1	contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;	✓
5.3.2	a signed statement of independence by the specialist;	✓
5.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	✓
5.3.4	a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;	✓
5.3.5	the mean density of observations/ number of samples sites per unit area[15].	✓
5.3.6	where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	✓
5.3.7	a description of the assumptions made and any uncertainties or gaps in knowledge or data; and	✓
5.3.8	any conditions to which the compliance statement is subjected.	✓
6	A signed copy of the **Terrestrial Animal Species Compliance Statement** must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.	✓

PLANT SPECIES SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS

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

[11] An example of a what is contained in a Compliance Statement for Animal Species Impact Assessment can be found in the Species Environmental Impact Assessment Guideline

1.7	The **Terrestrial Plant Species Specialist Assessment** and the **Terrestrial Plant Species Compliance Statement** must be undertaken within the *study area*.	✓
1.8	Where the nature of the activity **is not** expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.	✓
1.9	Where the nature of the activity **is** expected to have an impact on SCC beyond the boundary of the preferred site, the *project areas of influence* (PAOI) must be determined by the specialist in accordance with *Species Environmental Assessment Guideline*[12], and the study area must include the PAOI, as determined.	✓
	VERY HIGH AND HIGH SENSITIVITY RATING for terrestrial plant species	
2	**Terrestrial Plant Species Specialist Assessment**	
	VERY HIGH SENSITIVITY RATING 1. Critical habitat for range-restricted species[13] of conservation concern, that have a global range of less than 10 km^2. 2. SCC listed on the IUCN Red List of Threatened Species[14] or on South Africa's National Red List website[15] as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare. 3. Species aggregations that represent ≥1% of the global population size of a species, over a season, and during one or more key stages of its life cycle. 4. The number of mature individuals that ranks the site among the largest 10 aggregations known for the species. These areas are irreplaceable for SCC. HIGH SENSITIVITY RATING 1. Confirmed habitat for SCC. 2. SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare. These areas are unsuitable for development due to a very likely impact on SCC.	✓
2.3.12	identify any alternative development footprints within the preferred site which would be of "*low*" or "*medium*" sensitivity as identified by the screening tool and verified through the site sensitivity verification.	✓
2.4	The findings of the assessment must be written up in a **Terrestrial Plant Species Specialist Assessment Report**.	✓
3	**Terrestrial Plant Species Specialist Assessment Report**	✓
3.1.13	a motivation must be provided if there were any development footprints identified as per paragraph 2.3.12 above that were identified as having "*low*" or "*medium*" terrestrial plant species sensitivity and were not considered appropriate.	✓
4	**MEDIUM SENSITIVITY SPECIES OF CONSERVATION CONCERN CONFIRMATION**	
	MEDIUM SENSITIVITY RATING – for terrestrial plant species:	
	1. Suspected habitat for SCC based either on there being records for this species collected in the past, prior to 2002, or being a natural area included in a habitat suitability model[16]. 2. SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable	✓

[12] Available at https://bgis.sanbi.org/
[13] Species with a geographically restricted area of distribution.
[14] https://www.iucnredlist.org/
[15] This category includes the categories Extremely Rare, Critically Rare and Rare
[16] The methodology by which habitat suitability models have been developed are explained within the Species Environmental Assessment Guideline.

	according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.	
4.6	Where SCC are found on site or have been confirmed to be likely present, a **Terrestrial Plant Species Specialist Assessment** must be submitted in accordance with the requirements specified for "*very high*" and "*high*" sensitivity in this protocol.	✓
4.7	Similarly, where no SCC are found on site during the site inspection or the presence is confirmed to be unlikely, a **Terrestrial Plant Species Compliance Statement** must be submitted.	✓
5	**LOW SENSITIVITY RATING – for terrestrial plant species**	
	Terrestrial Plant Species Compliance Statement 1. Areas where no natural habitat remains. 2. Natural areas where there is no suspected occurrence of SCC.	✓
5.1	The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Botanical Science or Ecological Science).	✓
5.2	The compliance statement must:	✓
5.2.1	be applicable to the study area;	✓
5.2.2	confirm that the study area, is of "*low*" sensitivity for terrestrial plant species; and	✓
5.2.3	indicate whether or not the proposed development will have any impact on SCC.	✓
5.3	The compliance statement[17] must contain, as a minimum, the following information:	✓
5.3.1	contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;	✓
5.3.2	a signed statement of independence by the specialist;	✓
5.3.3	a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	✓
5.3.4	a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;	✓
5.3.5	where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	✓
5.3.6	a description of the assumptions made and any uncertainties or gaps in knowledge or data;	✓
5.3.7	the mean density of observations/ number of samples sites per unit area[18]; and	✓
5.3.8	any conditions to which the compliance statement is subjected.	✓
6	A signed copy of the **Terrestrial Plant Species Compliance Statement** must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.	✓

[17] An example of a what is contained in a Compliance Statement for Plant Species Impact Assessment can be found in the Species Environmental Impact Assessment Guideline
[18] Refer to the Species Environmental Assessment Guideline

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