

Annexure 3 - 3: Terrestrial biodiversity, fauna and flora Assessment



Terrestrial Biodiversity Assess: 24G

Tregaron Citrus

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Tregaron Citrus

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Date of report: **04/08/2026**

Draft Report

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1 Introduction & Background

1.1 Background

Portions 10 (189 ha) and 14 (128 ha) of farm Tregaron No 92 located approximately 6.5 km north of the town of Sunland in ward 8 of the Sundays River Local Municipality. The project proponent, Hume Meat, proposes to conduct a Section 24 G application for rectification of unauthorised activities.

Mr Jamie Pote has been appointed as a Biodiversity Specialist in order to undertake a Terrestrial Biodiversity Assessment (including flora and fauna), as the clearing of the site will require the removal of indigenous vegetation and furthermore the National Web-based Environmental Screening Tool indicates various sensitivities (refer to Section 2.2.1)

1.2 Purpose of Report

1.2.1 Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes

The report will be compiled to fulfil the requirement for a Section 24G application for rectification of an unauthorised activity.

The principles that guide this process include protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources which are fundamental to sustainable development.

1.3 Project Description

1.3.1 Activity Location and Description

Agricultural activities are in place on Portions 10 (189 ha) and 14 (128 ha) of farm Tregaron No 92 located approximately 6.5 km north of the town of Sunland in ward 8 of the Sundays River Local Municipality, Eastern Cape (Figure 1 & Figure 2). The combined footprint is an estimated 317 ha, of which approximately 124.5 ha is currently in place. Approximate central coordinates: 33° 27.102'S; 25° 35.758'E. Water is currently sourced directly from the Lower SRVM canal. Electricity reticulation is in place. Access to the site is in place from the R336.

Existing and expanded footprints

1989 – 2006: The current dwellings and dam (4.5 ha) and approximately 38 ha of cultivated farming (mostly citrus) were in place at the time of purchase. Water rights were in place; water is sourced directly from the SRVM canal. Electricity reticulation was in place; access to the site was in place from the R336. Clearing of land subsequent to that (2006 onwards) is as follows (Figure 3):

2006 – 2010: Cultivated land was expanded by approximately 7.5 ha

2010 – 2014: Additional Infrastructure was put in place Cultivated land was expanded by approximately 36 ha

2014 – 2017: Cultivated land was expanded by approximately 8.5 ha

2017 – 2025: Cultivated land was expanded by approximately 30 ha

Total expansion area: 82 ha

Total current farmed area: 124.5 ha

Remaining natural area: 192.5 ha

The total area cleared since pre 2006 to date is thus approximately 82 Ha (Figure 3).

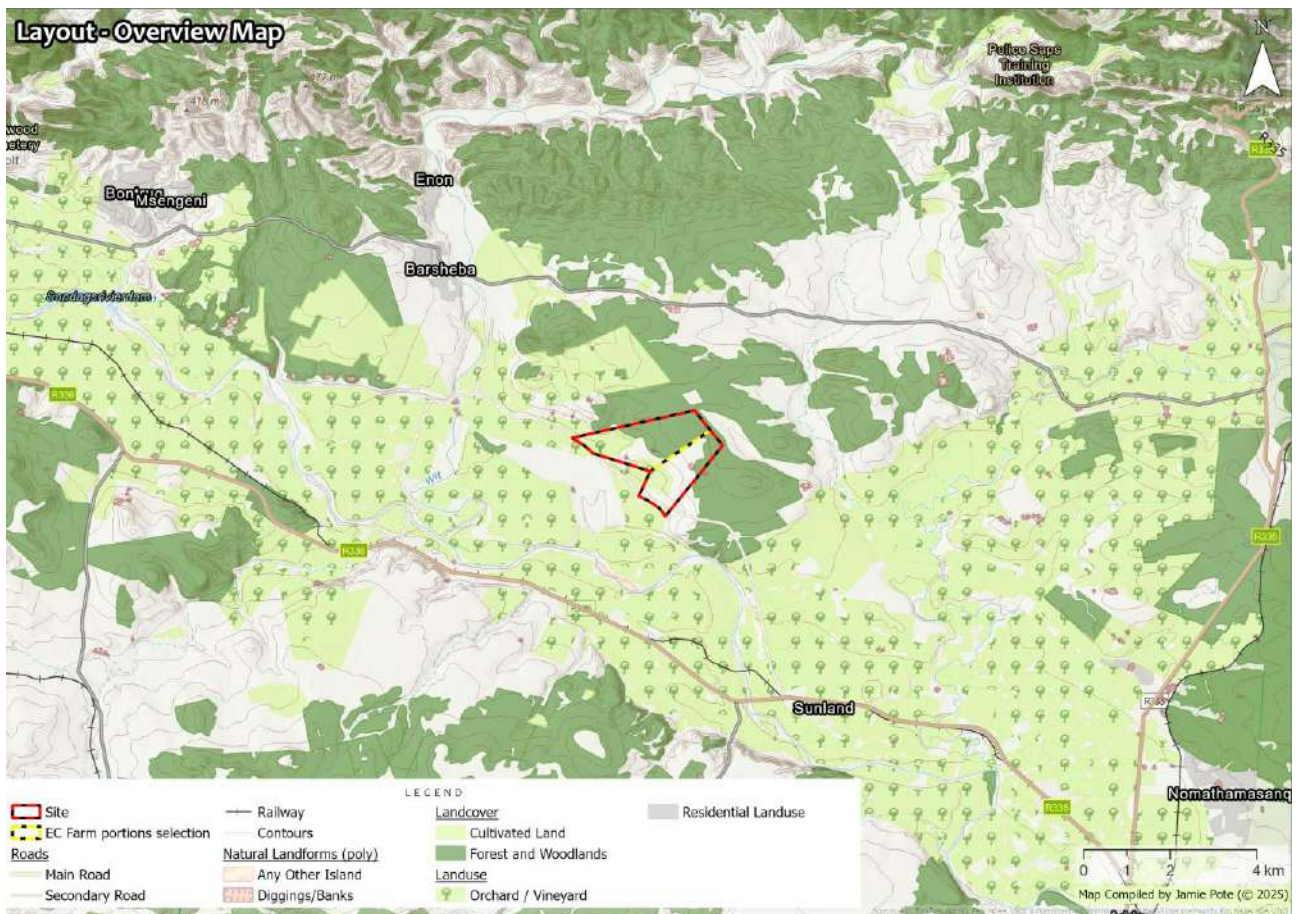


Figure 1: Site Location.

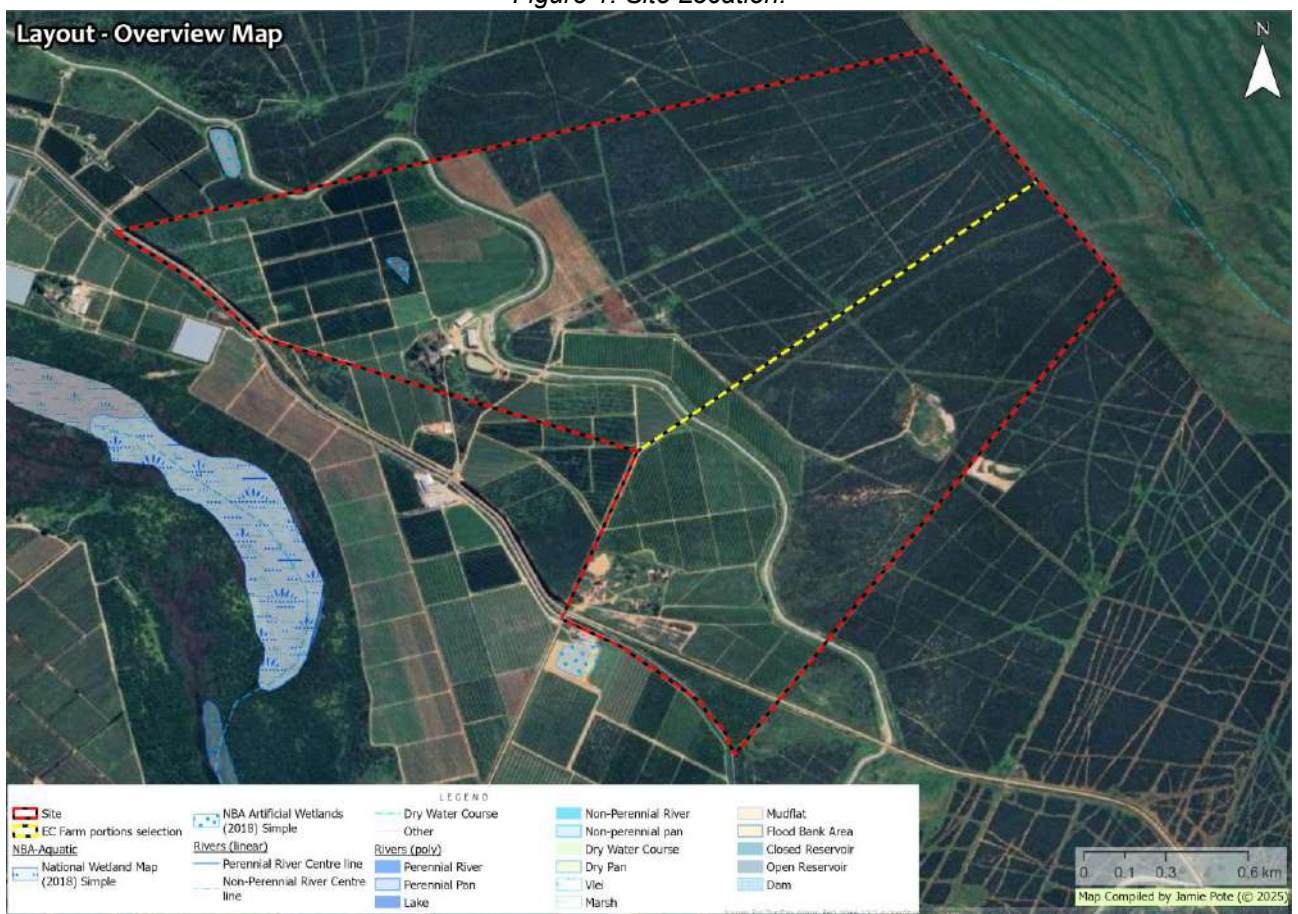


Figure 2: Aerial Photo of site.

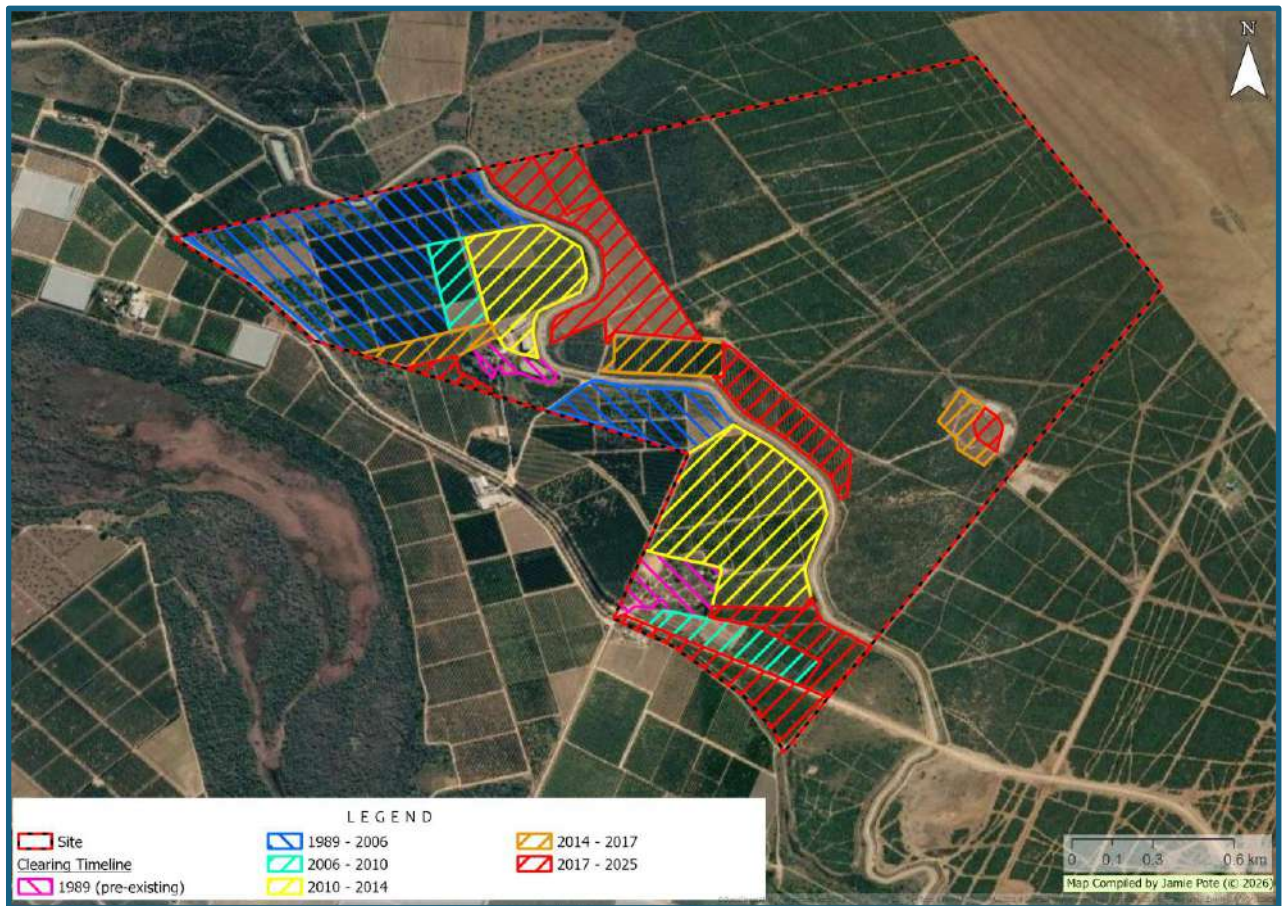


Figure 3: Vegetation clearing between 1989 - 2025

1.4 Methodology and Approach

The proposed methodology and approach for the Section 24G reporting is outlined below:

- Conduct a comprehensive desktop study and identify potential risks relating to vegetation and flora of the site and surrounding area, for a Terrestrial Biodiversity Assessment Report. This will include the relevant Regional Planning and legislated frameworks, which will also be represented in a series of associated maps.
- Conduct a detailed site visit to assess the following:
 - Detailed field survey of vegetation, flora and habitats present.
- Preliminary species list, highlighting species that are potentially of conservation concern, threatened, Red Data species and species requiring permits for destruction/relocation in terms of NEMBA and the Provincial Nature Conservation Ordinance No. 19 of 1974. Note: Since the area under assessment is already transformed, inferences must be made from surrounding intact vegetation and/or remnant pockets.
- Mapping of the various habitat units and assessment of habitat integrity, ecological sensitivity, levels of degradation and transformation, alien invasion and species of special concern, the outcome being a detailed sensitivity map ranked into high, medium, or low classes.
- Reporting will be comprised of a preliminary summary, with identification of anticipated impacts and risks for the Section 24 G report, a draft detailed Assessment Report (for public review and comment) and a Final Assessment Report for submission. The draft and final detailed reports will address the following:
 - Indicate any assumptions made and gaps in available information. Assessment of all the vegetation types and habitat units within the relevant Regional Planning Frameworks.

- Species list highlighting the various species of special concern categories (endemic, threatened, Red Data species and other protected species that may have been affected by the activity.
- Description and assessment of the habitat units and site sensitivities ranked into high, medium, or low classes based on sensitivity and conservation importance. A standard methodology has been developed based on other projects in the specific area.
- Assessment of likely impacts resulting from the activity.
- Outline any remediation measures that might be required.

1.4.1 Data sources and references

A comprehensive list of references, including data sources is provided in Section 6.1. Data sources that were utilised for this report include the following:

- National (DEA) Web Based Screening Tool – to generate the sites potential environmental sensitivity.
- National Vegetation Map 2024 (NVM, 2024), Mucina & Rutherford (2006) and National Biodiversity Assessment (NBA/RLE, 2025) – description of vegetation types, species (including endemic) and vegetation unit conservation status.
- National and Regional Legislation including Provincial Nature Conservation Ordinance (P.N.C.O). NEM:BA Threatened or Protected Species (ToPS).
- Botanical Database of Southern Africa (BODATSA) and New Plants of Southern Africa (POSA) – lists of plant species and potential species of concern found in the general area (SANBI.)
- International Union for Conservation of Nature (IUCN) - Red List of Threatened Species.
- Animal Demography Unit Virtual Museum (VM) – potential faunal species.
- Global Biodiversity Information Facility (GBIF) – potential faunal species.
- Southern African Bird Atlas Project 2 (SABAP2) – for bird species records.
- National Red Books and Lists - mammals, reptiles, frogs, dragonflies & butterflies.
- National Freshwater Ecosystem Priority Areas assessment (NFEPA, 2011) - important catchments.
- National Protected Areas Expansion Strategy (NPAES, 2018) and South Africa Protected Area database (2020) – protected area information.
- Sub-Tropical Ecosystem Planning (STEP, 2002) – bioregional plan.
- Eastern Cape Biodiversity Conservation plan (ECBCP, 2019) – critical biodiversity areas.
- SANBI BGIS – All other biodiversity GIS datasets.
- Aerial Imagery – Google Earth, Esri, Chief Surveyor General (<http://csg.dla.gov.za>).
- Cadastral and other topographical country data - Chief Surveyor General (<http://csg.dla.gov.za>).
- Other sources include peer-reviewed journals, regional and local assessments, and studies in the general location of the project and its area of influence, landscape prioritization schemes (Key Biodiversity Areas), systematic conservation planning assessments and plans (as above), and any pertinent masters and doctoral theses, amongst others.

1.4.2 Assumptions, Uncertainties and Gaps in Knowledge

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

- No assessment will be made of aquatic aspects relating to any wetlands, pans and rivers/seeps and/or estuaries outside of the scope of a terrestrial biodiversity 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, since the assessment area is already cleared of natural vegetation, inferences must be made of intact/remnant vegetation in the surrounding area, which has limitations. As far as possible, site collected data has been supplemented with desktop and database-centred distribution data.

2 Policy & Legislation

2.1 Legislation Framework

In terms of NEMA EIA Regulations (07 April 2014, as amended), the following specific listing notices have bearing on activities subsequent to 2014¹:

Listing Notice 1 (GNR):

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

The proposed clearing of natural vegetation has exceeded clearance of 1 Ha but also exceed 20 Ha of indigenous vegetation (see Listing Notice 2).

Listing Notice 2 (GNR):

Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for—
(i) the undertaking of a linear activity.

The proposed clearing of natural vegetation has exceeded clearance of 20 Ha.

Listing Notice 3 (GNR):

Listing Notice 3 Activity 4: The development of a road wider than 4 metres with a reserve less than 13,5 metres.
a. Eastern Cape
i. Outside urban areas
(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.
(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.

New internal access roads were created that would trigger this listed activity. Portions of the site are within 10 km of the nearest boundary of the Addo Elephant National Park (AENP), and Endangered vegetation is affected., hence this activity will likely be triggered.

Listing Notice 3 Activity 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
ii. Within critical biodiversity areas identified in bioregional plans.

The area under assessment is located outside of an urban area, in the Eastern Cape and portions of the site have been designated Terrestrial CBA, thus this activity will have been triggered.

In terms of historical listed activities, the following are applicable to clearing activities before 2014 (EAP Service, 2026):

A. ECA EIA Contraventions: Between 08 September 1997 end of day 09 May 2002

Activities unlawfully commenced with on or after 08 September 1997 and before end 09 May 2002: EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989, as amended.

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

No expansion of agricultural areas took place between the year the farm was purchased (1989) and 2002.

B. ECA EIA Contraventions: Between 10 May 2002 and before end of day 02 July 2006

Activities unlawfully commenced on or after 10 May 2002 and before end 02 July 2006: EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989, as amended.

No expansion of agricultural areas took place between the year the farm was purchased (1989) and June 2006.

C. NEMA EIA Contraventions: Between 03 July 2006 and before end of day 01 August 2010

Activities unlawfully commenced in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998, as amended on or after 03 July 2006 and before end of day 01 August 2010.

Activity 12 of GNR 386: *The transformation / removal of indigenous vegetation of 3 hectares or more or of any size where the transformation or removal would occur within a critically endangered / endangered ecosystem listed in terms of Section 52 of the NEM: Biodiversity Act (Act 10 of 2004)*

Cultivated land was expanded by approximately 7.5 ha. The vegetation is mapped as Albany Alluvial vegetation in terms of the National Vegetation Map, 2006 -2009 (VEGMAP, 2006 - 2009). In terms of section 52 of NEMBA (Activity (a)(i)), Albany Alluvial Vegetation had an Endangered status, at that time (NBA, 2006 & 2009). The report below has ground truthed the actual extent of Albany Alluvial Vegetation and the areas cleared should be adjusted accordingly.

D. NEMA EIA Contraventions: On or after 02 August 2010 until 7 December 2014

Activities unlawfully commenced with in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998, as amended on or after 02 August 2010 until 7 December 2014.

Activity 8 of GNR 544: The construction of agri-industrial infrastructure outside industrial complexes where the development footprint covers an area of 2000 square meters or more.

Activity 12 of GNR 546: The clearance of an area of 300 square metres / 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes of indigenous vegetation within any a critically endangered / endangered ecosystem / critical biodiversity area...

Activity 13 of GNR 546: The clearance of an area of 300 square metres / 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes of indigenous vegetation within any a critically endangered / endangered ecosystem / critical biodiversity area...

Activity 14 of GNR 546: The clearance of an area of 5 hectare or more of vegetation where 75% or more of the vegetative cover constitutes of indigenous vegetation.

Additional Infrastructure was constructed and cultivated land was expanded by approximately 36 ha. The vegetation is mapped as Albany Alluvial vegetation in terms of the National Vegetation Map, 2009 - 2012 (VEGMAP, 2009 - 2012). In terms of section 52 of NEMBA (Activity (a)(i)), Albany Alluvial Vegetation had an Endangered status, at that time (NBA, 2009 & 2012). The report below has ground truthed the actual extent of Albany Alluvial Vegetation and the areas cleared should be adjusted accordingly.

E. NEMA EIA Contraventions: On or after 8 December 2014 up to 6 April 2017

Activities unlawfully commenced in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998, as amended on or after 8 December 2014 to 7 April 2017:

Activity 15 of GNR 984: The clearance of an area of 20 hectares or more of indigenous vegetation...

Activity 12 of GNR 985: 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 or undertaken in accordance with a maintenance management plan.

Cultivated land was expanded by approximately 8.5 ha. The vegetation is mapped as Albany Alluvial vegetation in terms of the National Vegetation Map, 2012 (VEGMAP, 2012). In terms of section 52 of NEMBA (Activity (a)(i)), Albany Alluvial Vegetation had an Endangered status, at that time (NBA, 2012). The report below has ground truthed the actual extent of Albany Alluvial Vegetation and the areas cleared should be adjusted accordingly.

NEMA EIA Contraventions: On or after 6 April 2017

Activities unlawfully commenced in terms of the EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998, as amended on or after 7 April 2017:

Activity 15 of GNR 984: The clearance of an area of 20 hectares or more of indigenous vegetation...

Activity 12 of GNR 985: 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 or undertaken in accordance with a maintenance management plan.

Cultivated land was expanded by approximately 33 ha. A portion of this vegetation is mapped as Albany Alluvial vegetation in terms of the National Vegetation Map, 2018 & 2024 (NVM, 2018 & 2024). In terms of section 52 of NEMBA (Activity (a)(i)), Albany Alluvial Vegetation had an Endangered status, at that time (RLE, 2018 & 2024). The report below has ground truthed the actual extent of Albany Alluvial Vegetation and the areas cleared should be adjusted accordingly.

No further clearing has been undertaken on the site subsequent to 2025.

It is the intention of the landowner to apply to the competent authority for the regularization of unlawful commencement or continuation of listed activities in terms of Section 24G of the NEMA. The competent authority for this application is the Eastern Cape Department of Economic Development and Environmental Affairs (DEDEAT). Humeat cc appointed EAP Services to carry out the required S24 G application and compile the rectification assessment report. An application is proposed to be submitted in terms of Section 24G of the NEMA. This report forms part of that application process.

2.2 Systematic Planning Frameworks

A screening of Systematic Planning Framework for the region was undertaken, that included the following features:

- Critically Endangered, Endangered and Vulnerable Ecosystems
- Critical Biodiversity & Ecological Support Areas
- River, Estuarine and Wetland Freshwater Ecosystem Priority Areas (FEPAs) and buffers
- Protected Areas (and buffers) and NPAES
- Critical Habitat for listed endemic or protected species.

2.2.1 National Environmental Screening Tool: Site Sensitivity Verification

The National web-based Environmental Screening Tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended, whereby a Screening Report is required to accompany any application for Environmental Authorisation. The National Environmental Screening Tool indicates the following, which have relevance to this report:

- Terrestrial Biodiversity - Low and Very High (Figure 4).
- Plant Species sensitivity - Medium (Figure 5).
- Animal Species sensitivity - Medium and High (Figure 6).
- Aquatic Sensitivity - Low and Very High (Figure 7).

The key biodiversity features that are indicative of this sensitivity, which will be assessed further in this report, include the following:

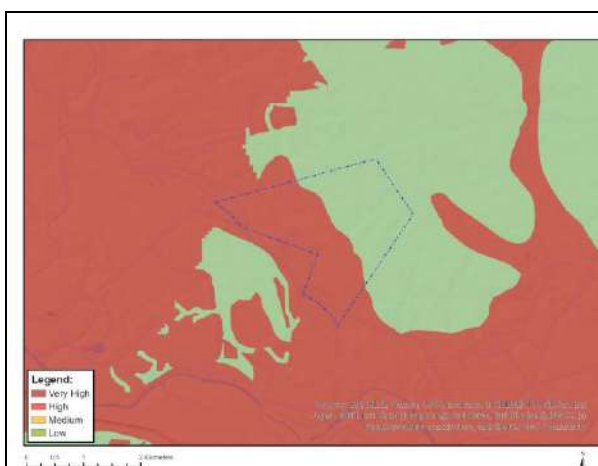


Figure 4: Terrestrial Biodiversity Sensitivity.

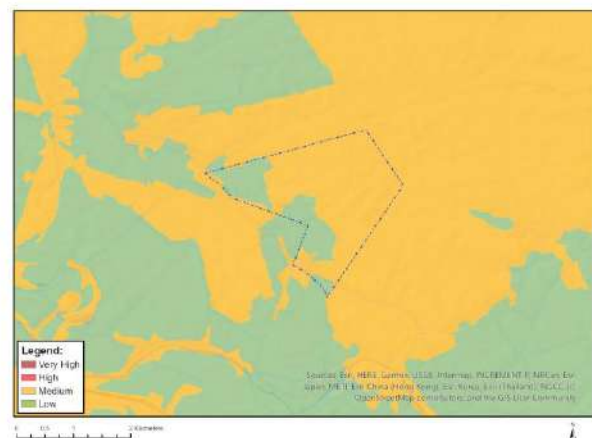


Figure 5: Plant Species Sensitivity.

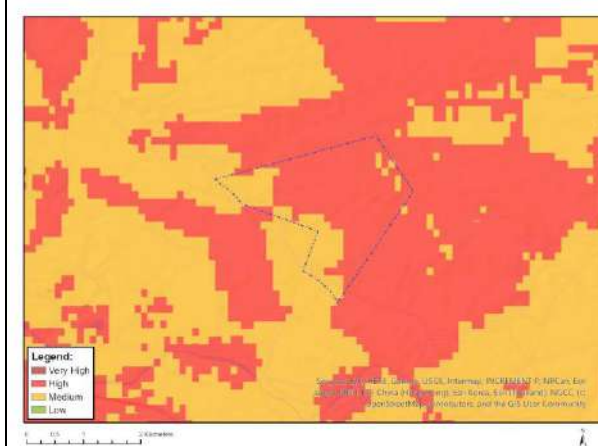


Figure 6: Animal Species Sensitivity.

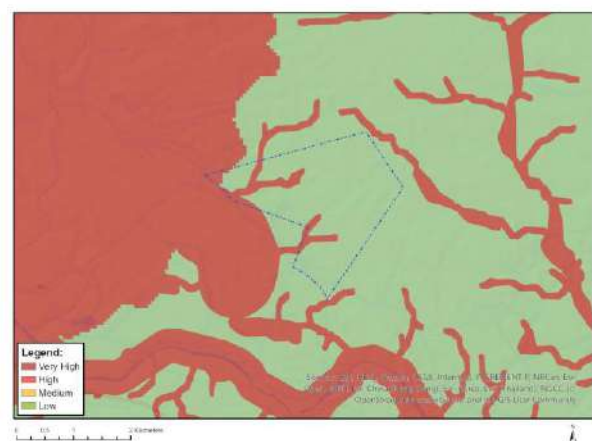


Figure 7: Aquatic Sensitivity.

Terrestrial Sensitivity	Feature(s) in proximity
Very High	ESA 2, FEPA Sub-catchment & Albany Alluvial Vegetation (Endangered)
High	None
Medium	None
Low	Present
Plant Sensitivity	Feature(s) in proximity
Very High	None
High	None

Medium	Selago zeyheri, Duvalia pillansii, Sensitive species, Justicia orchioides subsp. orchioides, Asparagus spinescens, Sensitive species 1252, 1268, 91, 1248 & 19.
Low	Present
Animal Sensitivity	Feature(s) in proximity
Very High	None
High	Circus maurus (bird)
Medium	Stephanoaetus coronatus, Afrotis afra (birds); Aneuryphymus montanus (insect); Sensitive species 5 & 8 (mammals)
Low	Present
Aquatic Sensitivity	Feature(s) in proximity
Very High	ESA 1, FEPA Sub-catchment
High	None
Medium	None
Low	Present

The following is deduced from the DFFE [National Environmental Screening Tool](#):

- As apparent from the National Environmental Screening Tool, the terrestrial biodiversity theme for the site is Very-High associated with ESA 2 designated area and Endangered vegetation unit, Albany Alluvial Vegetation.
- Several flora (plant) species regarded as being of concern are flagged and will be assessed in the report. Note, since the habitat is already transformed, inferences must be made from surrounding intact or remnant habitat, which does present an element of uncertainty.
- Several fauna (animal) species regarded as being of concern are flagged and will be assessed in the report. Note, since the habitat is already transformed, inferences must be made from surrounding intact or remnant habitat, which does present an element of uncertainty.
- The designated high aquatic sensitivity is associated primarily with catchments and thus of limited terrestrial importance. Refer to separate aquatic assessment for comprehensive reporting.

The site assessment will physically screen for the presence of any species as listed in the National Environmental Screening Tool, as well as other possible species or sensitivities that are not identified in the screening tool. Not all features are directly affected, but being in proximity, the risks associated with the activity will be investigated further and addressed in the assessment report.

2.2.2 National Vegetation Map & Red Listed Ecosystems (2025)

Two vegetation units (Figure 8) are primarily affected by the proposed project (National Vegetation Map, 2024). The site is located entirely within [Sundays Valley Thicket](#) and [Albany Alluvial Vegetation](#), having a [Least Concern](#) and [Critically Endangered](#) Conservation Status respectively as per the National Biodiversity Assessment Red Listed Ecosystems (NBA/RLE, 2025).

Albany Alluvial Vegetation is a river-associated, alluvial subtype within the broader Albany Thicket biome. It occurs on fertile alluvial soils along Eastern Cape river systems (e.g., Fish, Sundays, Gamtoos). These alluvial patches are extremely limited in extent and disproportionately targeted for agriculture cultivation and grazing—making them among the most threatened thicket subtypes. It is primarily associated with old floodplains. Based on site observations, the National Vegetation Map extent exceeds what was likely the actual coverage of Albany Alluvial Vegetation. An adjustment map is provided later in the report. Conversely the coverage of Sundays Valley Thicket was likely more than what is reflection in the National Vegetation Map.

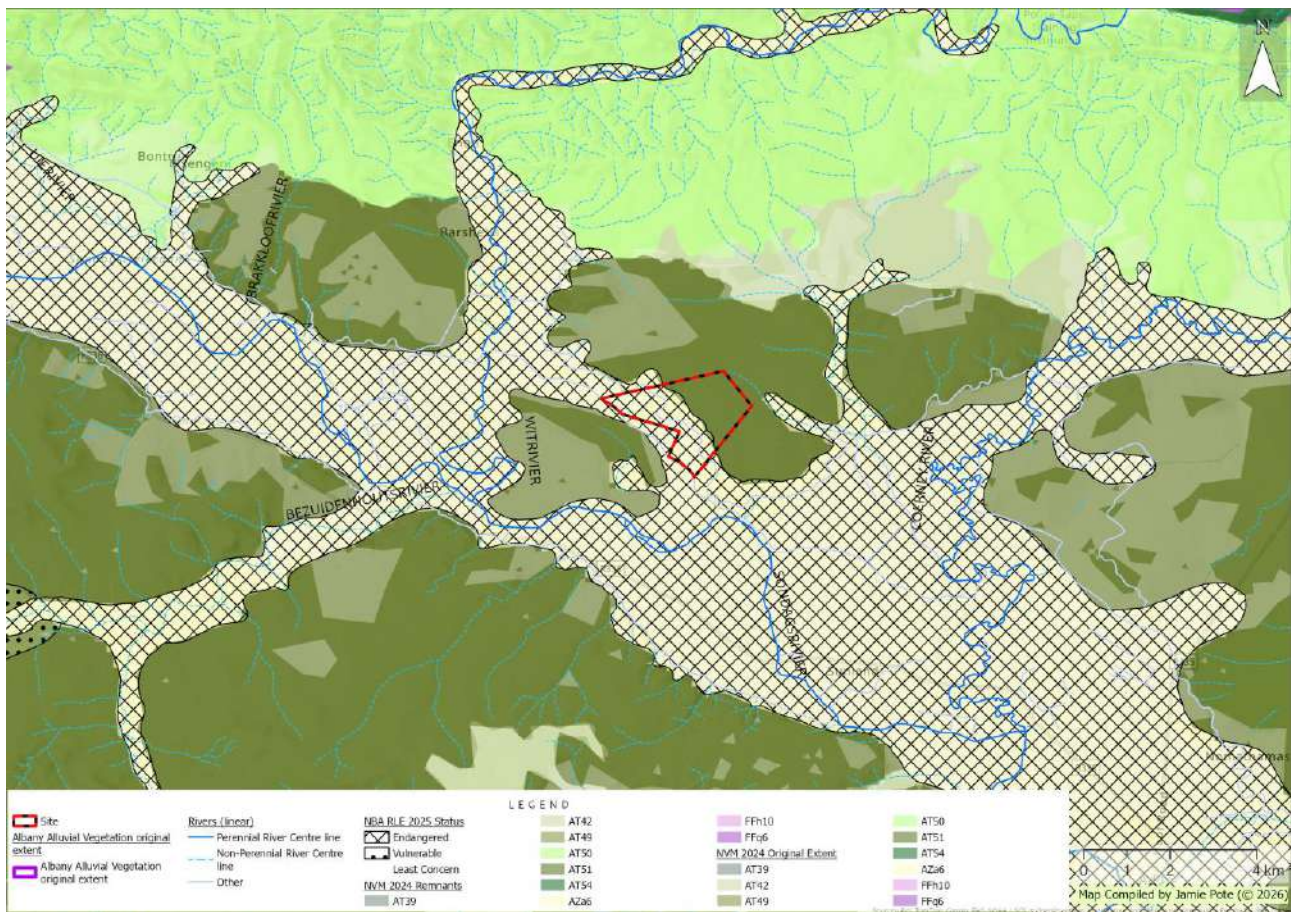


Figure 8: Vegetation and Conservation Status as per National Vegetation Map (NVM, 2024) and NBA/RLE (NBA/RLE, 2025).

Sundays Valley Thicket (AT 51)

Type history: STEP map - Gamtoos Thicket (16 %), Sundays Thicket (82 %); 2012 VEGMAP – AT 4 Gamtoos Thicket (17 %), AT 6 Sundays Thicket (83 %)

Distribution: This vegetation type occurs in the Eastern Cape Province. Primarily in the lower Sundays River Valley, from near Kleinpoort in the west toward Paterson and Colchester in the east. Also centred around Uitenhage in the lower Coega and Swartkops River Valleys, and in the middle reaches of the Gamtoos River Valley and some smaller rivers to the west (e.g., Kabeljous River), south of the Baviaanskloof Mountains.

Vegetation & Landscape Features: The vegetation type occurs on undulating plains, low foothills, and mountain slopes. Medium-sized to tall (3 - 5 m) dense thicket in which the woody tree and shrub component, and the succulent component, are well developed, with many spinescent species. There are no distinct strata in the vegetation as the lower and upper canopy species intertwine, often with a wide variety of lianas linking the understorey with the canopy. Emergents are uncommon, but *Euphorbia grandidens*, *E. triangularis*, and occasionally *Cussonia gamtoosensis* and *C. spicata* emerge above the canopy. The abundance of *Portulacaria afra* and other succulent shrubs (e.g., *Aloe speciosa*, *Euphorbia caerulescens*) increases in more arid sites, while local soil conditions also influence composition of the vegetation -there is thus considerable structural heterogeneity within this vegetation unit.

Geology and Soils: The vegetation type typically occurs on the Kirkwood Formations, Sundays River and Enon Formations, in deep loamy-clayey soils. The main land types are Fc, Ae and Ag.

Climate: Non-seasonal rainfall dominates the region, with MAP between 210 mm and 631 mm. Frost is present between 2 and 13 days per year. The mean monthly maximum is 28.09 °C in February and the mean monthly minimum is 6.23 °C in July. Altitude ranges from 2 - 673 masl.

Important Taxa² (d=dominant, e=South African endemic, et=possibly endemic to a vegetation type)

- **Succulent shrubs**- *Portulacaria afra* (d), *Euphorbia caerulescens* (d), *Adromischus cristatus* var. *cristatus* (e), *Adromischus sphenophyllus*, *Bulbine frutescens*, *Cotyledon orbiculata*, *Cotyledon velutina* (e), *Crassula capitella* subsp. *capitella* (e), *Crassula capitella* subsp. *thyrsiflora* (e), *Crassula cordata* (e), *Crassula cultrata* (e), *Crassula mesembryanthemoides* (e), *Crassula ovata* (e), *Crassula perfoliata* var. *coccinea* (e), *Crassula rogersii* (e), *Delosperma echinatum* (e), *Delosperma uniflorum* (e), *Euphorbia mauritanica*, *Exomis microphylla* (e), *Gasteria bicolor*, *Kalanchoe rotundifolia*, *Lampranthus productus* (e), *Mestoklema tuberosum* (e), *Pachypodium bispinosum* (e), *Pachypodium succulentum* (e), *Pelargonium carnosum*, *Mesembryanthemum articulatum*, *Roepera foetida*, *Rhigozum obovatum* (d).
- **Small trees**- *Euclea undulata* (d), *Pappea capensis* (d), *Schotia afra* (d), *Cussonia gamtoosensis* (e), *Cussonia spicata*, *Encephalartos lehmannii* (e), *Ptaeroxylon obliquum*, *Sideroxylon inerme*.
- **Succulent herbs**- *Curio radicans* (d), *Crassula expansa*, *Crassula spathulata* (e).
- **Succulent trees**- *Aloe africana* (d, e), *Aloe ferox*, *Aloe speciosa* (d), *Euphorbia grandidens*.
- **Geophytic herbs**- *Sansevieria hyacinthoides* (d), *Sansevieria aethiopica*, *Cyanella lutea*, *Cyrtanthus loddigesianus* (e), *Drimia altissima*, *Drimia anomala* (e), *Drimia intricata*, *Freesia corymbosa* (e), *Hypoxis argentea*, *Oxalis smithiana*, *Trachyandra affinis* (e), *Tritonia securigera* (e).
- **Herbs**- *Abutilon sonneratianum*, *Aizoon glinoides* (e), *Arctotheca calendula*, *Commelina benghalensis*, *Cyanotis speciosa*, *Emex australis*, *Gazania krebsiana*, *Hibiscus pusillus*, *Hypoestes aristata*, *Lepidium africanum*, *Lotononis glabra* (e), *Plectranthus madagascariensis*, *Stachys aethiopica*.
- **Low shrubs**- *Asparagus crassifolius* (e), *Asparagus striatus* (e), *Asparagus subulatus* (e), *Barleria obtusa*, *Chascanum cuneifolium* (e), *Chrysocoma ciliata*, *Felicia muricata*, *Hermannia althaeoides* (e), *Justicia cuneata*, *Justicia orchioidea* (e), *Lantana rugosa*, *Leonotis pentadentata*, *Limeum aethiopicum*, *Osteospermum imbricatum* (e), *Rhoiacarpus capensis* (e), *Senecio linifolius*, *Solanum tomentosum* (e).
- **Semi-parasitic shrubs**- *Colpoos compressum*.
- **Epiphytic parasitic shrubs**- *Viscum rotundifolium*.
- **Graminoids**- *Cynodon dactylon* (d), *Eragrostis obtusa* (d), *Panicum maximum* (d), *Eragrostis curvula*, *Eustachys paspaloides*, *Panicum deustum*, *Sporobolus fimbriatus*, *Stipa dregeana*, *Themeda triandra*.
- **Tall shrubs**- *Azima tetracantha*, *Brachylaena ilicifolia*, *Cadaba aphylla*, *Capparis sepiaria* var. *citrifolia*, *Carissa bispinosa*, *Ehretia rigida*, *Gymnosporia capitata* (e), *Gymnosporia polyacantha* (e), *Maerua cafra*, *Mystroxydon aethiopicum*, *Nymania capensis*, *Plumbago auriculata*, *Putterlickia pyracantha* (e), *Searsia longispina* (e), *Scutia myrtina*.
- **Herbaceous climbers**- *Pelargonium peltatum* (d, e), *Cissampelos capensis*, *Cynanchum ellipticum*, *Cyphostemma quinatum*, *Jasminum angulare*, *Kedrostis capensis*, *Rhoicissus digitata*, *Rhoicissus tridentata*.
- **Woody succulent climbers**- *Cynanchum viminalis*, *Crassula perforata*.
- **Woody climbers**- *Asparagus aethiopicus*, *Asparagus asparagoides*, *Asparagus multiflorus* (e), *Asparagus volubilis* (e).

Conservation: Least Concern (NBA, 2022)

- **Conservation Target:** 19 %.
- **Conserved in** Addo Elephant National Park, Cape Floral Region Protected Areas: Baviaanskloof.
- **Area transformed** 11.86 %.
- **Threat activities** Cultivation, urban sprawl, Erosion is low to medium.
- **Protection Level** Moderately Protected.

Albany Alluvial Vegetation (Aza 6)

Including Stream-bank Bush (Story 1952). Riverine Bush (Martin & Noel 1960). Baviaans Doringveld, Gamtoos Doringveld & Sundays Doringveld (Vlok & Euston-Brown 2002, Vlok et al. 2003).

Distribution Eastern Cape Province: Between East London and Cape St Francis on wide floodplains (usually close to the coast where the topography becomes flatter) of the large rivers such as the Sundays, Zwartkops, Coega, Gamtoos, Baviaanskloof, Great Fish River etc. This alluvial unit is embedded within the Albany Thicket Biome. Altitude ranging from 20–1 000 m.

² All taxonomic names are the latest names as they were listed in the Biodiversity Database of South Africa (BODATSA) on the 11 January 2019).

Vegetation & Landscape Features Two major types of vegetation pattern are observed in these zones, namely riverine thicket and thornveld (*Acacia natalitia*). The riverine thicket tends to occur in the narrow floodplain zones in regions close to the coast or further inland, whereas the thornveld occurs on the wide floodplains further inland.

Geology, Soil & Hydrology Underlain by Jurassic-Cretaceous sediments of the Uitenhage Group. The alluvial zones (recent alluvial deposits of various textures, but usually with high clay content) can become flooded following the west-east passage of frontal systems in autumn and winter or during intensive local storms in summer. 1a land type.

Climate Characterised by undifferentiated, year-round precipitation regime, with only two slight peaks in March and November. The overall MAP is 350 mm (range 300–717 mm). Warm-temperate climate (overall MAT 18°C; range 15.7–18.3°C). The river valleys are often hotter than the surrounding landscape (due to exposed steep slopes), whereas riverine zones closer to the coast enjoy an ameliorated climate due to its proximity to the sea. See also climate diagram for AZa 6 Albany Alluvial Vegetation (Figure 13.2).

Important Taxa (^BBrackish habitats):

Riparian thickets:

- **Small Trees:** *Acacia natalitia* (d), *Salix mucronata* subsp. *mucronata* (d), *Schotia afra* var. *afra* (d), *Acacia caffra*, *Rhus longispina*.
- **Succulent Trees:** *Aloe africana*, *A. ferox*.
- **Tall Shrubs:** *Azima tetraacantha*, *Cadaba aphylla*.
- **Low Shrubs:** *Pentzia incana* (d), *Asparagus striatus*, *A. suaveolens*, *Carissa haematocarpa*.
- **Succulent Shrubs:** *Amphiglossa callunoides*, *Lycium cinereum*.
- **Graminoids:** *Sporobolus nitens* (d), *Digitaria eriantha*, *Eragrostis curvula*, *E. obtusa*.

Reed beds:

- **Megagraminoids:** *Cyperus papyrus* (d), *Phragmites australis* (d).

Flooded grasslands & herblands:

- **Succulent Shrubs:** *Cotyledon campanulata*^B, *Glottiphyllum longum*^B, *Malephora lutea*^B, *M. uitenhagensis*^B.
- **Semiparasitic Shrub:** *Thesium junceum*^B.
- **Succulent Herbs:** *Haworthia sordida* var. *sordida*^B, *Orbea pulchella*^B.
- **Herb:** *Rorippa fluviatilis* var. *fluviatilis*.
- **Graminoid:** *Cynodon dactylon*^B (d).

Conservation Endangered. Target 31%. Only about 6% statutorily conserved in the Greater Addo Elephant National Park, Baviaanskloof Wilderness Area, Loerie Dam, Springs, Swartkops Valley and Yellowwoods Nature Reserves and the Double Drift Reserve Complex. About 2% enjoys protection in eight private conservation areas. More than half of the area has been transformed for cultivation, urban development, road building and plantations. Alien invaders include *Acacia saligna*, *Nerium oleander* and *Eucalyptus* species.

Remarks Vlok & Euston-Brown (2002) consider this vegetation as important temporary habitats and migration corridors for larger herbivores such as elephant (in the past), rhinoceros, eland and kudu.

References Story (1952), Martin & Noel (1960), Jessop & Jacot Guillarmod (1969), Jacot Guillarmod (1973), Acocks (1976), Cowling & McKenzie (1979), Vlok & Euston-Brown (2002), Vlok et al. (2003).

Implications:

- The activity has resulted in the loss of Least Concern Sundays Valley Thicket and Endangered Albany Alluvial Vegetation.

2.2.3 Historical VEGMAP & NBA designations

The national Vegetation Map (historically called Vegetation of southern Africa) delineations and the Red Listed Ecosystem (previously National Biodiversity Assessment) status are revised from time to time. Specifically, there have been revisions of the Thicket delineations and naming based on refined information. For the specific site, the spatial delineation and naming of the two represented units have

not changed. The conservation status changes for the two units since inception of the National Vegetation Map in 2006 (previously Vegetation Map of southern Africa), including revisions are indicated in Table 1.

Table 1: Status changes of represented vegetation units since 2006.

PERIOD	ALBANY ALLUVIAL VEGETATION (HA)	SUNDAYS VALLEY THICKET (AT 51) ³
2006 – 2009	Endangered	Least Threatened (AT 6) ⁴
2009 – 2012	Endangered	Least Concern (AT 6)
2012 – 2018	Endangered	Least Concern (AT 6)
2018 – 2024	Endangered	Least Concern (AT 51)
2024 - present	Endangered	Least Concern (AT51)

2.2.4 Eastern Cape Biodiversity Conservation Plan (ECBCP, Ver 2, 2019): Terrestrial

A complete revision of the first version of the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019) was undertaken. Some of the reasons for this include, an updated land cover map, changes to Provincial borders, a large body of environmental and biodiversity data that has been generated over the past 10 years; and the development of approximately 29 other environmental and biodiversity plans for parts of the province that require integration. In addition, significant strides have been made with respect to defining and mapping biodiversity pattern and biodiversity processes, which have been standardised to ensure a level of consistency throughout the country (SANBI, 2017). Intention to adopt the ECBCP (2019) as a systematic conservation plan, by the competent authority has been gazetted (Provincial Notice 173 of 2020, 19 October 2020). The EC BCP planning domain excludes Nelson Mandela Bay, which has a separate applicable Bioregional Plan.

The ECBCP (2019), being the most recent conservation planning iteration, which incorporates the most recent conservation planning theories, is a Systematic Biodiversity Plan which the competent authority (DEDEAT) will adopt and serves to replace ECBCP (2007) in its entirety. It also aligns more closely with the findings of the Addo Biodiversity Sector Plan (2014), which refined the original ECBCP (2007) to some extent, based on more recently available and finer scale datasets, as well as incorporating more recent and refined systematic conservation concepts.

The ECBCP (2019) identifies Critical Biodiversity Areas in which certain activities will require environmental authorisation in terms of Listing Notice 3 of the NEMA Environmental Impact Assessment Regulations of April 2017. The ECBCP 2019 also describes land-use management guidelines relevant to Critical Biodiversity Areas and Ecological Support Areas.

The site falls within the EC BCP planning domain (Figure 9) and all undeveloped areas are designated ESA 1, with transformed areas including orchards designated ESA 2. The ESA designations are primarily related to maintaining landscape level connectivity. EC BCP CBA designations are primarily required for meeting conservation target for the represented vegetation units, none of which are present.

³ The National Vegetation Map revision of 2018 included a complete revision and delineation of the Thicket Biome, and subsequently the Sundays Thicket (AT 6) on site became Sundays Valley Thicket (AT 51).

⁴ The conservation status *Least Concern* was previously *Least Threatened*.

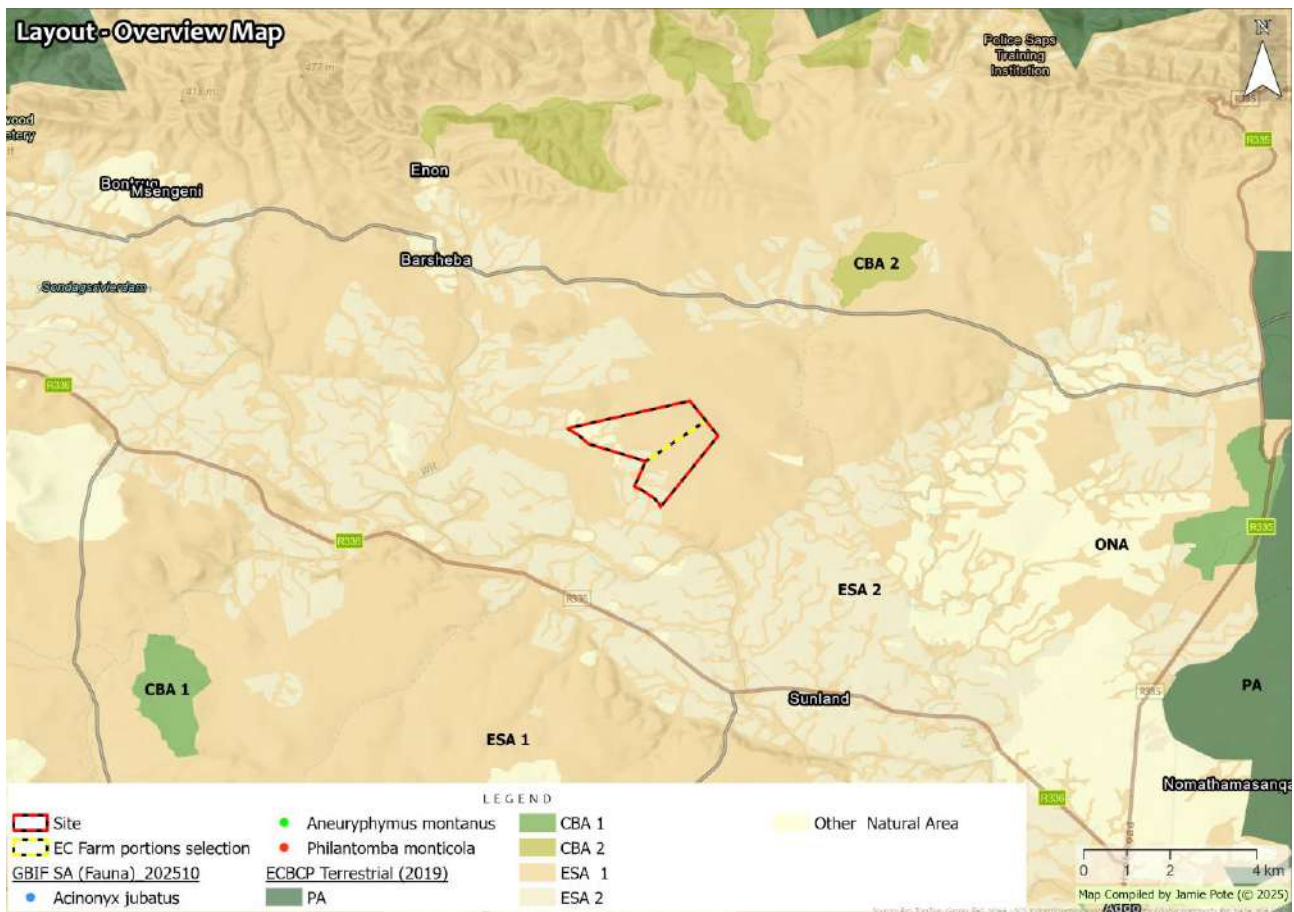


Figure 9: Eastern Cape Biodiversity Conservation Plan (2019) designation.

The Eastern Cape Biodiversity Conservation Plan (ECBCP 2019) was developed in line with the principles and methods gazetted in the National Environmental Management: Biodiversity Act No 291 of 2009, “Guideline regarding the determination of Bioregions and the Preparation of and publication of Bioregional Plans”. The management objectives required to achieve the desired state, as described by the ECBCP (2019) are indicated in Table 6. 2. NOTE: Listing Notice 3 (12) ii. refers to Critical Biodiversity Areas of a Bioregional Plan. The ECBCP 2019 is not a Bioregional Plan, but a systematic biodiversity plan, and therefore does not constitute a listed area in terms of this activity.

Table 2: Linking CBA categories to management objectives.

CBA Map Category	Desired State	Land management objective
Protected Areas	Natural	Protected Areas are managed through Protected Area Management Plans and are therefore not managed through the ECBCP2019.
Ecological Support Area 1	Functional	Maintain ecological function within the localised and broader landscape. A functional state in this context means that the area must be maintained in a semi-natural state such that ecological function and ecosystem services are maintained. For areas classified as ESA1, the following objectives apply: - These areas are not required to meet biodiversity targets, but they still perform essential roles in terms of connectivity, ecosystem service delivery and climate change resilience. - These systems may vary in condition and maintaining function is the main objective, therefore: - Ecosystems still in natural, near natural state should be maintained. - Ecosystems that are moderately disturbed/degraded should be restored.
Ecological Support Area 2	Functional	Maintain current land use with no intensification. For areas classified as ESA2, the following objectives apply: These areas have already been subjected to severe and/or irreversible modification.

CBA Map Category	Desired State	Land management objective
		- These areas are not required to meet biodiversity targets, but they may still perform some function with respect to connectivity, ecosystem service delivery and climate change resilience. - Objective is to maintain remaining function, therefore: - Areas should not undergo any further deterioration in ecological function. - Opportunities to change land use practices to improve ecological function (i.e., cultivation agriculture to livestock grazing agriculture) are desirable in ESA2 areas.
Other Natural Areas and No Natural Habitat Remaining	Production	No desired state or management objective is provided for ONA or NNAR.

Description of land use types and activities

A range of various land use types and activities associated with the Eastern Cape are described below. These have been derived from SPLUMA land use categories, municipal zoning scheme definitions and predominant land uses, and practices present in the Eastern Cape. Each category has been expressly linked to corresponding SPLUMA land use category for the purposes of facilitating the integration of the CBA map land use guidelines into other spatial planning products such as Spatial Development Frameworks. These land uses are described in more detail in Table 3 below (*See Other urban influences*).

The entire site overlaps with designed ESA 1 and ESA 2. The land uses are not deemed compatible with the recommended land uses of the EC BCP. It is probable the activity will have resulted in some disruptions to ecological connectivity and/or corridors; however, it is noted that the site is within a lower order corridor, being associated with a minor watercourse rather than floodplains around a major watercourse (i.e. the Sundays River). Furthermore, considering the significant agricultural development in the broader surrounding Sundays River Valley, the cumulative impact associated with this specific site is negligible (see Figure 13). It is noted that while the broader floodplain area (~Albany Alluvial Vegetation) has largely been lost to agriculture, a narrow more or less contiguous band of vegetation still remains along the banks of the Sundays and other rivers.

Table 3: Description of Land Use Types and Activities.

Environmental Conservation
Environmental Conservation is where land uses are primarily involved with conservation activities. These include: - Conservation management activities in formal protected areas and informal conservation areas managed for biodiversity (wildlife conservation and recreational/educational tourism). - Low-intensity eco-tourism activities (such as hiking trails). Subject to appropriate controls, planning and management, these land use activities can be accommodated in CBAs and ESAs. It is the preferred land use in CBAs and ESAs. This land use zone corresponds to the SPLUMA scheduled land use purpose 'conservation'. This land use activity provides for the following: - Protection of the natural environment and natural processes for their cultural, historic, scientific, scenic, biodiversity, habitat or economic. Sustainable delivery of ecosystem services to the community.
Tourism
The Tourism and Accommodation land use covers broad range of tourist and recreational facility types, inclusive of tourism, recreation, and accommodation facilities. Tourism and Accommodation is divided into two sub-categories depending on the level of intensity of development and types of activities involved: <u>Low impact tourism, recreation, and accommodation</u> This includes low impact facilities that include camp sites and "rondavels" or traditional homestead structures, hiking trails, ablutions, gift/coffee shops, cultural centres. Sustainable rural tourism, rural businesses and communities that provide for the rural recreational and leisure needs of urban and rural dwellers, could be allowed in CBAs and ESAs provided that the

development is in keeping with the management objective of the CBA or ESA and is subject to the appropriate biodiversity-related controls being in place.

The SPLUMA land use purpose for this activity would be 'Residential' but would have an equivalent classification in a municipal zoning scheme of 'Low density Special/Resort Zone'.

High-impact tourism facilities

This includes developments such as lodges, hotels, large resorts, golf courses and estates.

High-impact tourism and accommodation facilities should only be considered in ESA2 or ONA's. In all cases, the current state of ESA 2 areas must be maintained (e.g., pineapple field converted to golf-course would maintain connectivity in the landscape). The location of infrastructure must be placed outside of natural areas (CBAs and ESAs), must be clustered and be located adjacent to existing urban development.

The SPLUMA land use purpose for this activity would be 'Residential' but would have an equivalent classification in a municipal zoning scheme of 'Special/Resort Zone'.

Agriculture

A range of agricultural activities have been considered in this land use type, including:

- Extensive game and livestock farming (where 'extensive' means low stocking rates over large areas, with minimal additional food supplementation).
- Intensive livestock and game ranching.
- Agricultural infrastructure, including agri-industrial facilities, agri-villages, buildings, houses, sheds, and intensive animal production facilities (e.g., feedlots); and
- Arable land, including cultivation of irrigated and dryland crops, woodlots, orchards, and multi-cropping systems.

This land use zone corresponds to the SPLUMA scheduled 'agricultural' land use purpose.

Many agricultural activities may impact on, and are largely incompatible with, biodiversity conservation objectives. If poorly managed, they may accelerate degradation by causing habitat loss, soil erosion and hydrological changes. Associated impacts vary from moderate to severe depletion of natural biota and disturbance of ecosystem function. However, agriculture may also contribute to the overall functionality of a landscape by maintaining connectivity necessary for the movement and foraging of animals.

Extensive Game and Livestock Farming

Extensive Livestock and Game farming is the utilisation of large areas of natural (unimproved) rangelands with the commercial objective of producing livestock or game animals (excluding feedlots and game breeding farms). This land use is considered to be compatible with biodiversity objectives of some CBAs and ESAs, under certain conditions, including:

- A biodiversity and veld condition assessment should underpin the calculation of carrying capacity.
- Game and livestock stocking rates should not exceed the recommended carrying capacity. Overgrazing, which results in a loss or degradation of an ecosystem, is in conflict with NEMA principals and is governed by Section 28 of NEMA which regulates the 'Duty of care and remediation of environmental damage'.
- Give preference to stocking game species that fall within their natural distribution range in the province.
- Sensitive habitats and species-rich areas should be set-aside for the purposes of biodiversity conservation.
- Ecologically and economically sustainable management is applied.

Intensive Game Breeding

Game breeding involves the subdivision of grazing veld into small camps (less than 100 ha) using fencing that does not allow free movement of naturally occurring wildlife (e.g., small mammals, reptiles, etc.).

Game breeding involves supplemental feeding of animals allowing stocking rates in excess of recommended carrying capacities and is considered a form of feedlot production. The forms of fencing used create impenetrable barriers to wildlife movement in the landscape.

Game breeding should not be permitted in CBAs or ESAs as is not considered compatible with the land management objectives for these categories.

Feedlots and agri-processing

Feedlots and agri-processing facilities are intensive farming operations which involve high animal densities and almost exclusive supplemented feeding and include piggeries, broiler houses, dairies, aquaculture, and livestock feedlots. These facilities produce waste streams that require treatment and disposal and should be operated in line with authorisation conditions. Since pollution may be felt beyond the direct footprint of the land use activity itself, this land use activity may impact on ecosystem functionality.

Feedlots and agri-processing activities are not compatible with land management objectives for CBAs. They may be considered within Terrestrial ESAs (i.e., ESA 2 areas with imposed restrictions) but should not be considered in aquatic ESAs associated with CBA rivers.

Cultivation

A number of different types of cultivation have been aggregated into this land use type and is fundamentally used to describe any earth-turning activity or a replacement of natural vegetation, including:

- Irrigated crop cultivation
- Dryland crop cultivation (e.g., orchards, pastures, groves, plantation forestry)

Cultivation is not considered compatible with the land management objectives of CBAs and ESA1.

Open Space

Open space areas, either public or private, are sites easily accessible for recreational purposes and activities for local and designated communities. These include parks, botanical gardens, and other open spaces as well as corridor linkages between open areas for passive recreational purposes.

This land use may correspond to either of SPLUMA's scheduled land use purposes under 'Public' or 'Community'. The land use could potentially be compatible with the management objectives of CBAs and ESAs if it secures significant areas of natural habitat and manages human activities within them

Roads and railways

Roads and railways include all existing and future planned linear infrastructure, such as hardened roads and railways. This land use zone corresponds to the SPLUMA scheduled 'Transport' land use purpose. These land uses are not consistent with the land management objectives of CBAs and ESAs. In cases where technical options are limited, these activities may only take place in CBAs and ESAs under specific conditions of authorisation and contingent on biodiversity offsets.

Other utilities

'Other utilities' describes a range of services such as water and sewage treatment works, associated pipeline reticulation, and other linear infrastructure including canals and power lines. Utility land uses generally fall within the 'Government' land use purpose of SPLUMA where it is defined as "use of land by national, provincial or municipal government to give effect to its governance role." This may, in some cases, be extended to parastatal companies such as water service boards and Eskom. In the case of renewable energy on private land, municipal zoning schemes are used. The different types of utilities have been discussed separately below.

Power lines, substations and pipelines can be compatible with the management objective of CBAs, and ESAs provided that appropriate design (above-ground pipelines, below-ground power lines, etc) and routing is informed by expert specialist studies, and that strict conditions, such as limited vegetation clearing, bird collision and electrocution avoidance are enforced.

Implications:

- The proposed site only intersects with ECBP (2019) designated ESA 1 & 2 areas, no CBA present or affected.
- The entire site overlaps with designed ESA 1 & 2.
- It is not anticipated at this stage that the activity will have resulted in residual impacts that would require considerations of a biodiversity offset. Furthermore, the clearing of vegetation (including the Endangered Albany Alluvial Vegetation), was undertaken before publication of the gazetted Biodiversity Offset Guidelines (23 June 2023).

2.2.5 Sub-Tropical Ecosystem Planning (STEP, 2006)

The Sub-Tropical Ecosystem Plan, which was undertaken in the early 2000's served to conduct a comprehensive conservation planning exercise in the Subtropical Thicket Biome, which occurs within the Eastern and Western Cape provinces. Much of the principles have been refined and incorporated into more recent Systematic Plans and is generally regarded as being superseded by the more recent plans. The findings of STEP (2006) are however relevant to vegetation clearing that undertaken during the earlier time period (post 2006).

STEP (2006) identified two vegetation units (Figure 10) as being affected by the proposed activity, **Sundays Spekboom Thicket** (now Sundays Valley Thicket) and **Sundays Doringveld** (now Albany Alluvial Vegetation). At the time of STEP (2006), both **Sundays Spekboom Thicket** and **Sundays Doringveld** were designated a *Vulnerable* status.

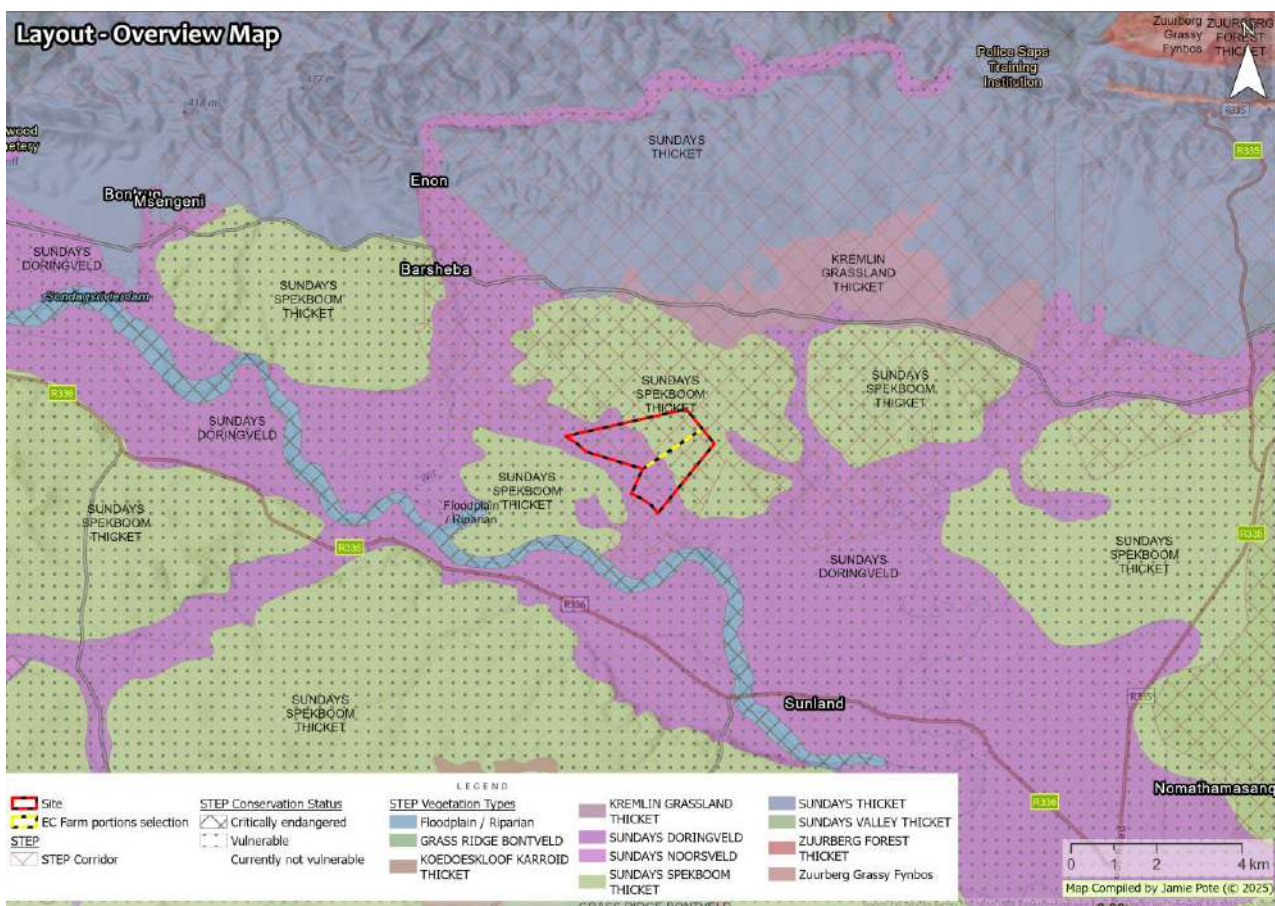


Figure 10: Sub-Tropical Ecosystem Planning vegetation units and status (STEP, 2007).

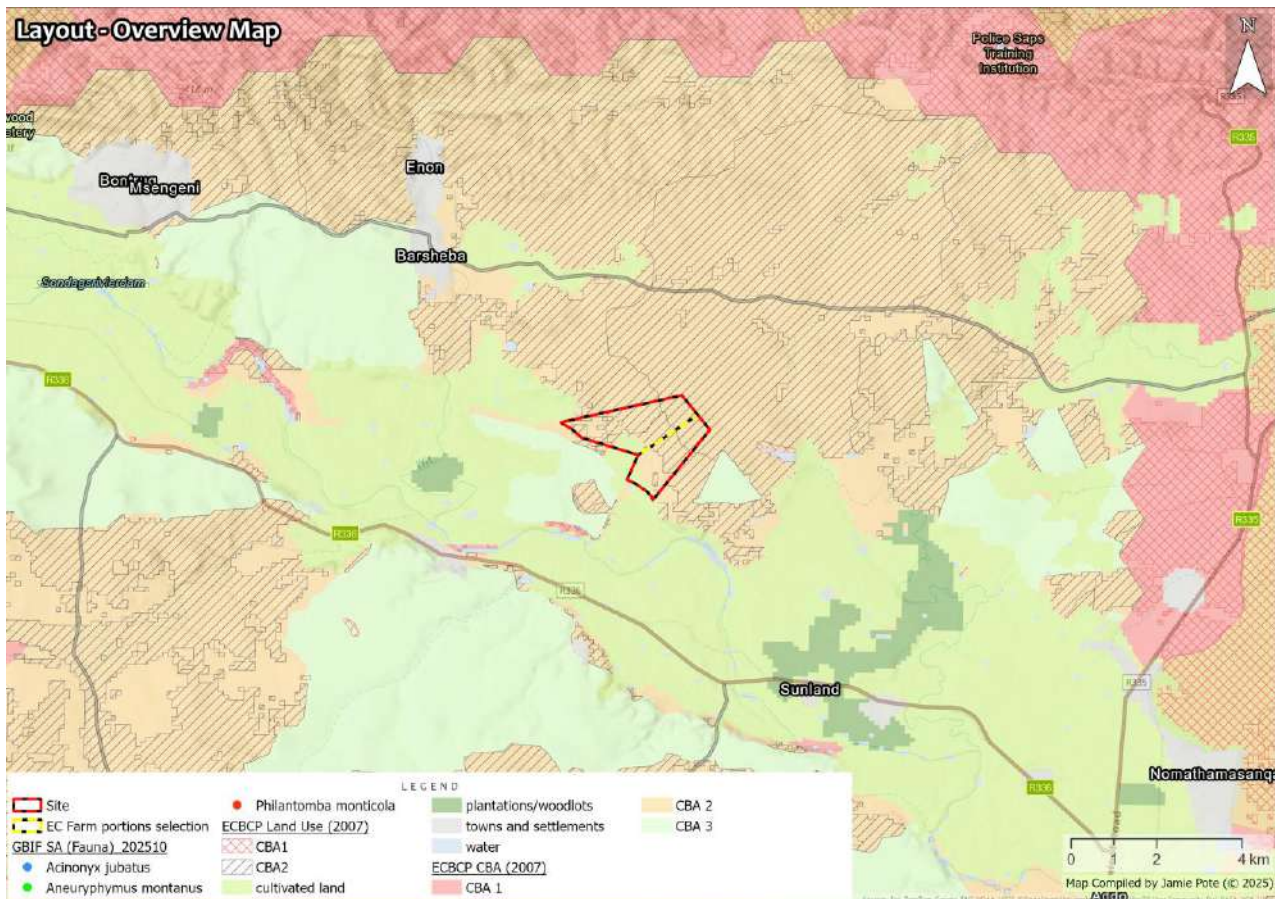


Figure 11: Eastern Cape Biodiversity Conservation Plan (2007) designation.

2.2.6 Eastern Cape Biodiversity Conservation Plan (ECBCP, Ver 1, 2007): Terrestrial

The ECBCP (2007) as per Figure 11, was the first iteration of the Eastern Cape Biodiversity Conservation Plan and identifies Critical Biodiversity Areas only (CBA 1, CBA 2 & CBA 3). Much of the ECBCP (2007, is based on outcomes of STEP (2006) as well as earlier versions of the Vegetation Map of Southern Africa (2006). Most of the site was designated CBA 2 and a small strip of CBA 3. The activity did not result in the loss of any designated CBA 1.

2.2.7 Addo Biodiversity Sector Plan: Sundays River Valley (Addo BSP, 2012)

The Sundays River Valley Municipality Biodiversity Sector Plan (Addo BSP, 2012) serves to guide biodiversity related assessments. The Addo BSP was published in 2012 and serves as a major refinement of the original ECBCP (2007), incorporating more recent datasets as well as more refined conservation planning, but it was not adopted as a Bioregional Plan by the competent authority. It still serves as a valuable tool to support land-use planning and decision-making in Critical Biodiversity Areas and Ecological Support Areas for sustainable development. A refined and updated Sundays River Valley planning domain was developed through integrating existing and new data. The principal inputs were the existing ECBCP (2007), the *Freshwater Ecosystems Priority Areas* (Nel, et al., 2011) and a new land cover layer developed specifically for the project (Skowno and Brown, 2012).

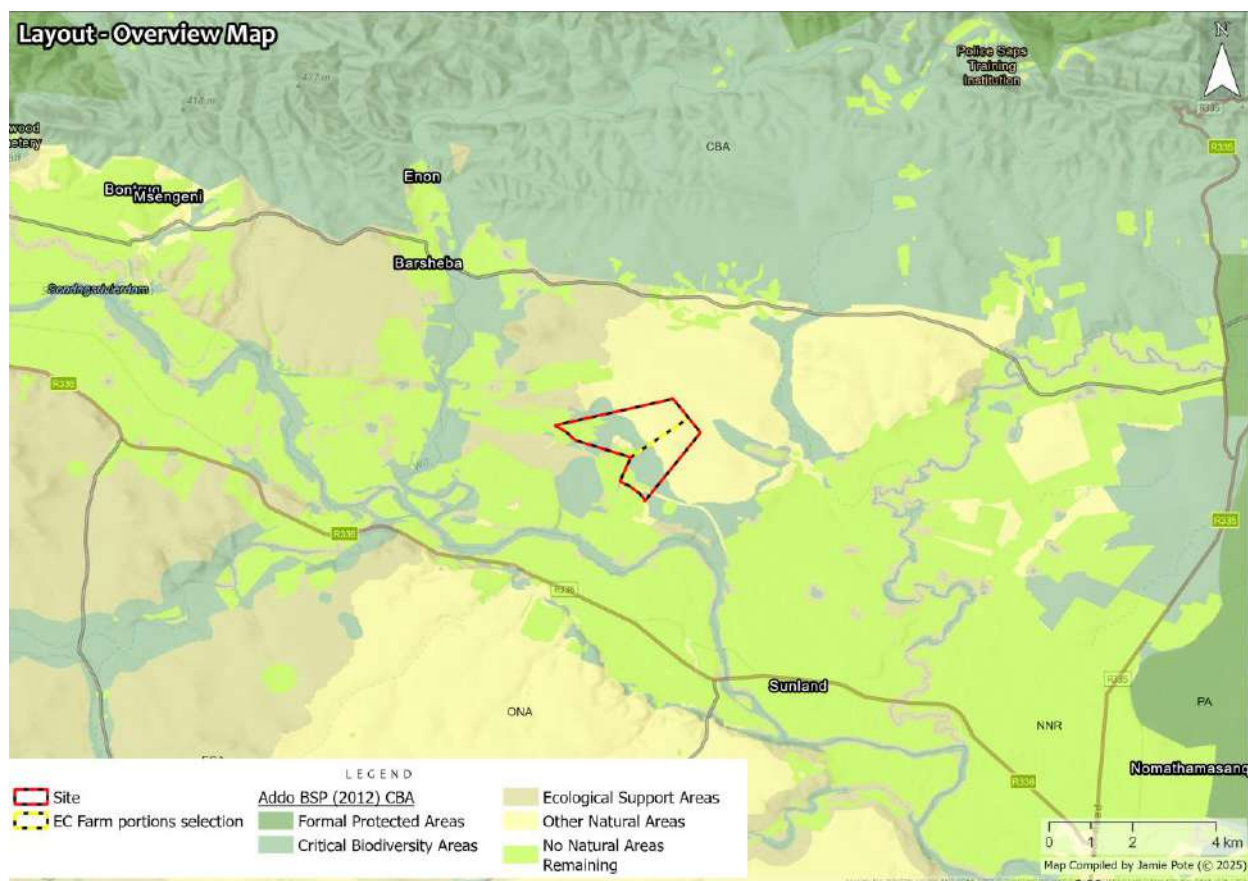


Figure 12: Addo Biodiversity Sector Plan: Sundays River Valley (2012) designation.

Other input layers included, Addo Elephant National Park interface zones (SANParks pers com), Baviaanskloof Mega Reserve biodiversity assessment CBAs (Skowno, 2007), NPAES focal areas (Jackelman, et al., 2008), MPAH (Maputaland-Pondoland-Albany Hotspot) Priority Areas (Holness, 2011) and National Climate Change Resilience Layers.

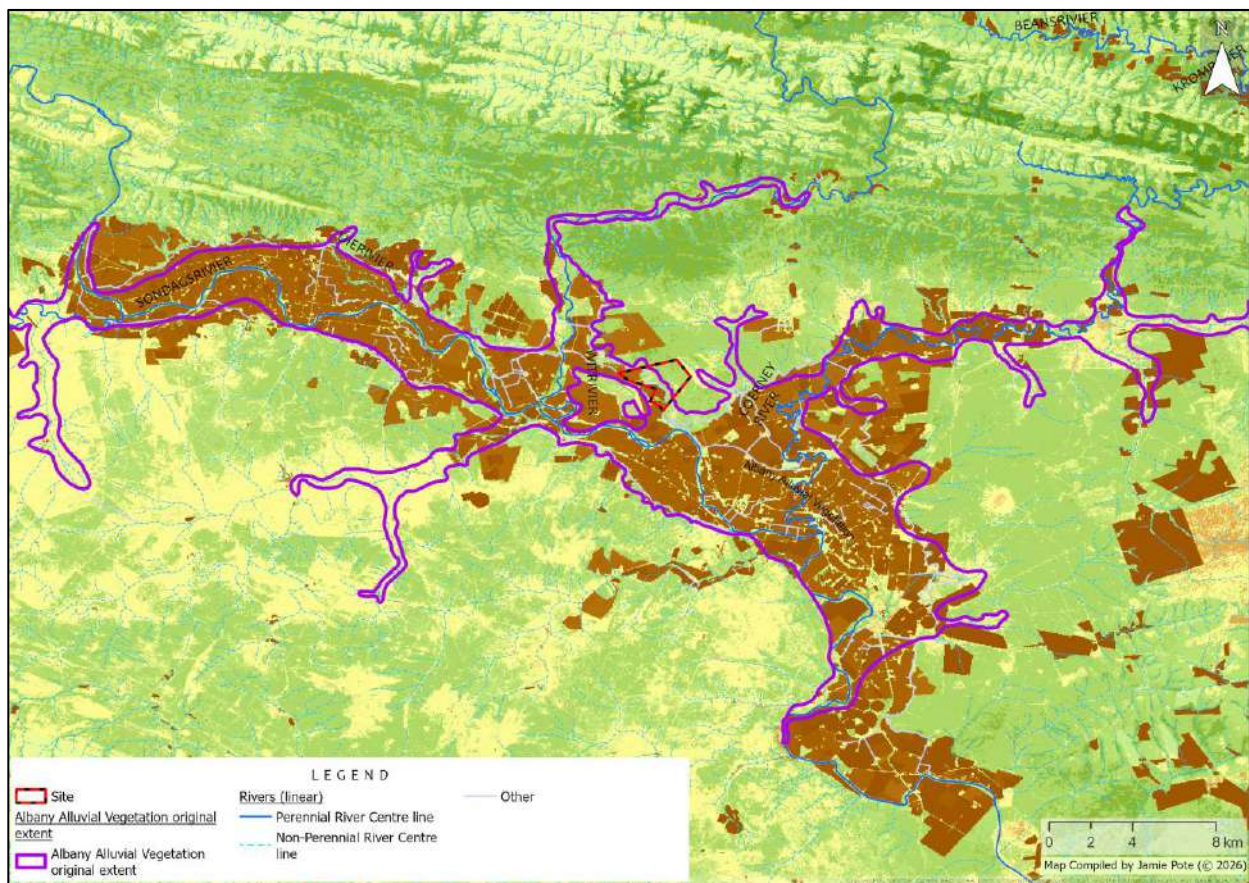


Figure 13: Landsat imagery of agricultural clearing in the broader Sundays River Valley. Brown indicative of extensive cleared agricultural lands/orchards within Albany Alluvial Vegetation extent (purple boundary).

While the Addo BSP of 2012 is not a formal bioregional plan, but it does form the basis of more recent bioregional plans and is included in this reporting for historical context for the period around 2012 onwards. The Sundays River Valley BSP (Addo BSP, 2012) designates the north-eastern half of the site (~Sundays Valley Thicket) as Other Natural Area (ONA) with a band of Critical Biodiversity area, more or less aligned with the canal corridor through the site with some Sundays Valley Thicket on the north side and what would potentially have been remnant Albany Alluvial Vegetation on the south side. The patches of transformed areas at that time were designated No Natural Area Remaining (NNAR).

2.2.8 Other Biodiversity Sector Plans

The site is outside of the planning domain of any other Biodiversity Sector Plans or Systematic Conservation Plans.

2.2.9 Protected Areas

The South Africa Protected Areas Database (SAPAD) database, a comprehensive database of various protected area categories, is updated on a quarterly basis, and provides a comprehensive source of all national and private nature reserves, world heritage sites and other formal legally protected conservation areas situated within South Africa.

When projects are in legally protected and internationally recognized areas, clients should ensure that project activities are consistent with any national land use, resource use, and management criteria (including Protected Area Management Plans, National Biodiversity Strategy and Action Plans (NBSAP's), or similar documents).



Figure 14: Protected Areas in vicinity.

The Addo Elephant National Park is situated 9.7 km to the north and 10.3 km to the east (Figure 14). Since the habitat on site is comparative with the Addo Elephant National Park, it is feasible that certain faunal species (birds and mammals), from the park may be transient to the site. However, it should be noted that the Sundays River and associated agricultural development along the river, as well as surfaced roads and a lot of fencing (both stock and game fencing) is likely to pose an ecological barrier.

Neither these protected areas nor any ecological processes directly associated with them are likely to have been significantly affected by the clearing of vegetation, above baseline levels when considering the extensive clearing in the broader Sundays River Valley area, the cumulative impact of which would be significant as a whole.

No RAMSAR sites are affected or situated in proximity to the site and although the Addo Elephant Martine Protected Area is an extension of the Addo Elephant National Park, it is situated over 40 km to the south-east and will not be affected directly or indirectly.

Implications:

- The activity will unlikely have any significant direct or cumulative impact on any protected environment but due to proximity to the Addo Elephant National Park, it is feasible that the site may be within foraging range of certain highly mobile bird and mammal species that are present in the Park (or vice versa), although game fencing in the surrounding area, surfaced and unsurfaced roads and extensive agricultural development along the Sundays River will likely significantly restrict faunal movement, specifically less mobile species.

2.2.10 Key Biodiversity Areas

Important Bird Areas

Important Bird and Biodiversity Areas (IBA's) are sites of international significance for the conservation of the world's birds and other biodiversity. They also provide essential benefits to people, such as food, materials, water, climate regulation and flood attenuation, as well as opportunities for recreation and spiritual fulfilment. By conserving IBA's, we look after all the ecosystem goods and services they provide, which means in effect that we support a meaningful component of the South African economy (such as water management and agriculture). Since the late 1970s, more than 12 000 IBA's have been identified in virtually all of the world's countries and territories, both on land and at sea. In 1998, 122 South African IBA's were identified and listed in Barnes (1998). This inventory was revised to 112 IBA's in 2015. IBA's have also had considerable and increasing relevance when responses have been developed to several wider environmental issues, such as habitat loss, ecosystem degradation, climate change and the sustainable use of resources. The core aims of the IBA Programme are:

- To identify, monitor and conserve the sites and habitats that support South Africa's priority bird species.
- To develop a network of partners, from grassroots to national level, who collaborate to conserve IBA's.
- To gather new data regularly and monitor IBA's in order to track status and trends across the network and so that up-to-date information can be passed on to decision-makers, enabling them to take appropriate conservation action.
- To confirm periodically that existing IBA's continue to meet the selection criteria and to identify other critical sites that may qualify for recognition as IBA's as new information becomes available.
- To build capacity in the IBA Programme by sourcing funding, and to acquire and develop appropriate skills in staff and volunteers so that these objectives can be implemented at a regional scale.

The extension of the IBA approach to several other wildlife groups has led to the identification of Important Plant Areas, Prime Butterfly Areas, Important Mammal Areas and Key Biodiversity Areas for Freshwater Biodiversity. South Africa is also the first mega diverse country to practically test the Key Biodiversity Areas (KBA's) standards across a full range of species groups and ecosystems but is not yet published.

The site is NOT in close proximity to any Important Bird Area, although the site may be within foraging range of species that are known from the Alexandria Coastal Belt IBA 17 km to the south-east.

Key Biodiversity Areas

The site falls across both the Sundays River Valley Thicket IBA on the north side and the Nelson Mandela Bay Metro North KBA on the south side. It should be noted that the listed species are not necessarily all associated with the habitat represented within the site and could occur only in other areas that fall within the designated KBA boundary. The locally represented species are generally covered under the National Environmental Screening Tool.

Sundays River Valley Thicket KBA

Sunday's River Valley Thicket is a terrestrial site that is unprotected, found in the Eastern Cape, South Africa. Sunday's River valley floor and adjacent thicket covered hills. Medium-sized to tall (3-5m) dense valley thicket in which the woody tree and shrub component, and the succulent component, are well developed, with many spinescent species. There are no distinct strata in the vegetation as the lower and upper canopy species intertwine, often with a wide variety of lianas linking the understorey with the canopy. The abundance of *Portulacaria afra* and other succulent shrubs (e.g. *Aloe speciosa*, *Euphorbia*

caerulescens) increases in more arid sites, while local soil conditions also influence composition of the vegetation - there is thus considerable structural heterogeneity within this vegetation unit. There are portions with riverine thicket and thornveld (*Acacia karroo*). Thornveld occurs on the wide floodplains on alluvia but largely converted to citrus orchards now. On south facing slopes medium-sized to tall (3-5m) mesic thicket dominated by small trees and woody shrubs, with *Cussonia spicata* and *Euphorbia triangularis* emergent above the canopy. Some woody species are shared with Sundays Valley Thicket, but few spinescent or succulent species occur in this thicket unit, and the tree component is better developed.

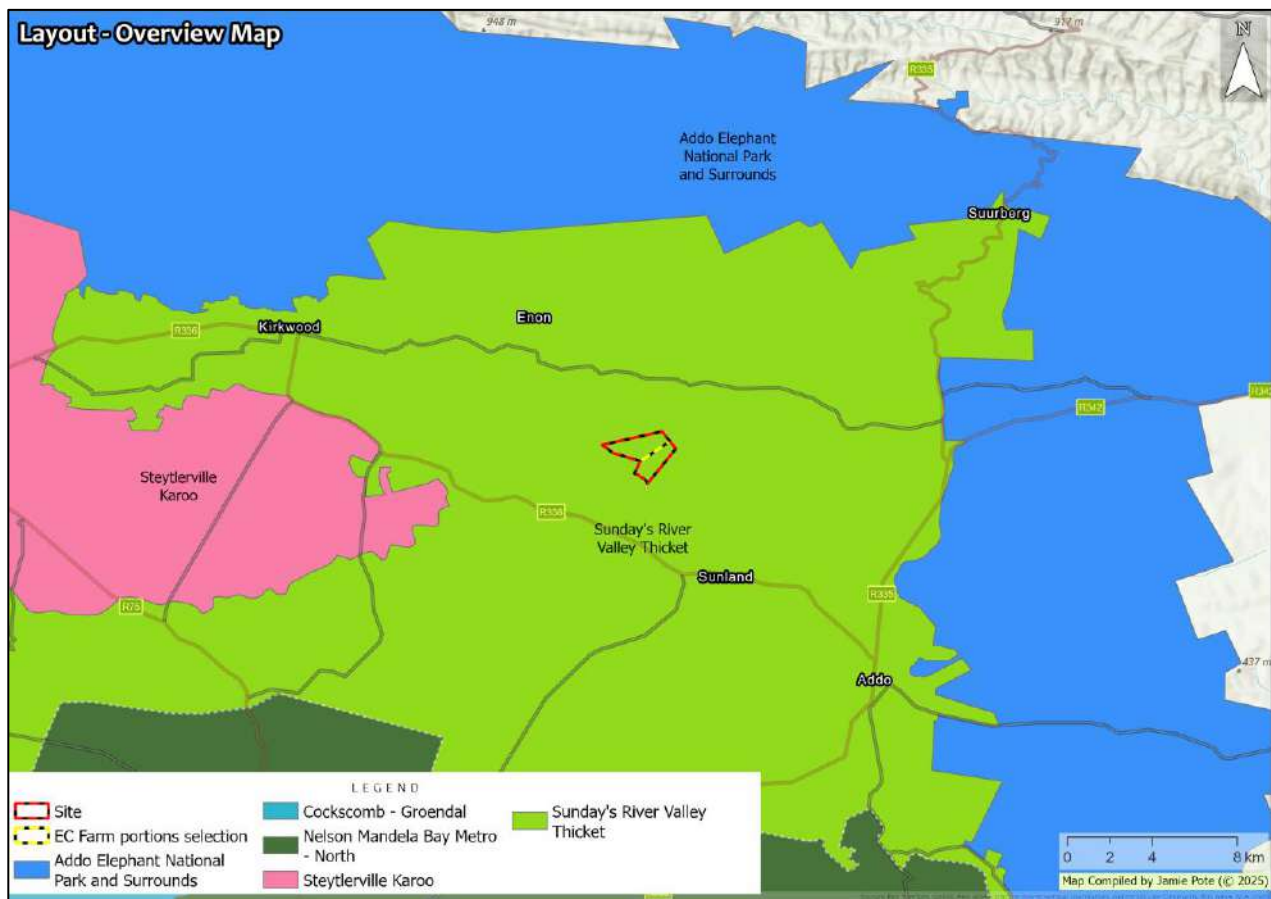


Figure 15: Key Biodiversity Areas in vicinity.

This site qualifies as a Key Biodiversity Area of international significance that meets the thresholds for 3 criteria described in the Global Standard for the Identification of KBAs. Based on current available information, 4 species meet one or more KBA criteria for this site. The KBA trigger species at this site include fish and plants. The site meets criterion A1 due to the presence of significant proportions of the global populations of 3 threatened species. The site regularly holds 1 individual geographically restricted species, therefore meeting criterion B1. An assemblage of co-occurring range-restricted species in the Caryophyllales taxonomic group regularly present within the site meets criterion B2. A quantitative analysis of irreplaceability indicates that the site is 100% irreplaceable for the global persistence of 1 species, therefore meeting criterion E. The site holds significant proportions of the global extent of 1 threatened ecosystem (meeting criterion A2) and 3 geographically restricted ecosystems (meeting criterion B4).

36 other potential trigger species meet minimum population parameter thresholds for the site, but presence and/or minimum reproductive units required to meet KBA criteria cannot be confirmed with

available data. This site is managed primarily by a regional conservation authority responsible for enforcing statutory regulations on land use change in Critical Biodiversity Areas and threatened ecosystems.

There are 51 other potential trigger species that meet minimum population parameter thresholds for the site, but presence and/or minimum reproductive units required to meet KBA criteria cannot be confirmed with available data. This site is managed primarily by a regional conservation authority responsible for enforcing statutory regulations on land use change in Critical Biodiversity Areas and threatened ecosystems.

Implications:

- Development of the site is unlikely to pose any significant risk to bird species known from the nearby IBA due to extensive suitable habitat in surrounding area.
- Site will be screening for presence of flagged species of conservation concern, several of which are confirmed to be present.

2.2.11 Aquatic Resources (Rivers & Wetlands)

Rivers & Wetlands

The non-perennial watercourses within the site are upper tributaries of the Sunday River to the south (Figure 16).

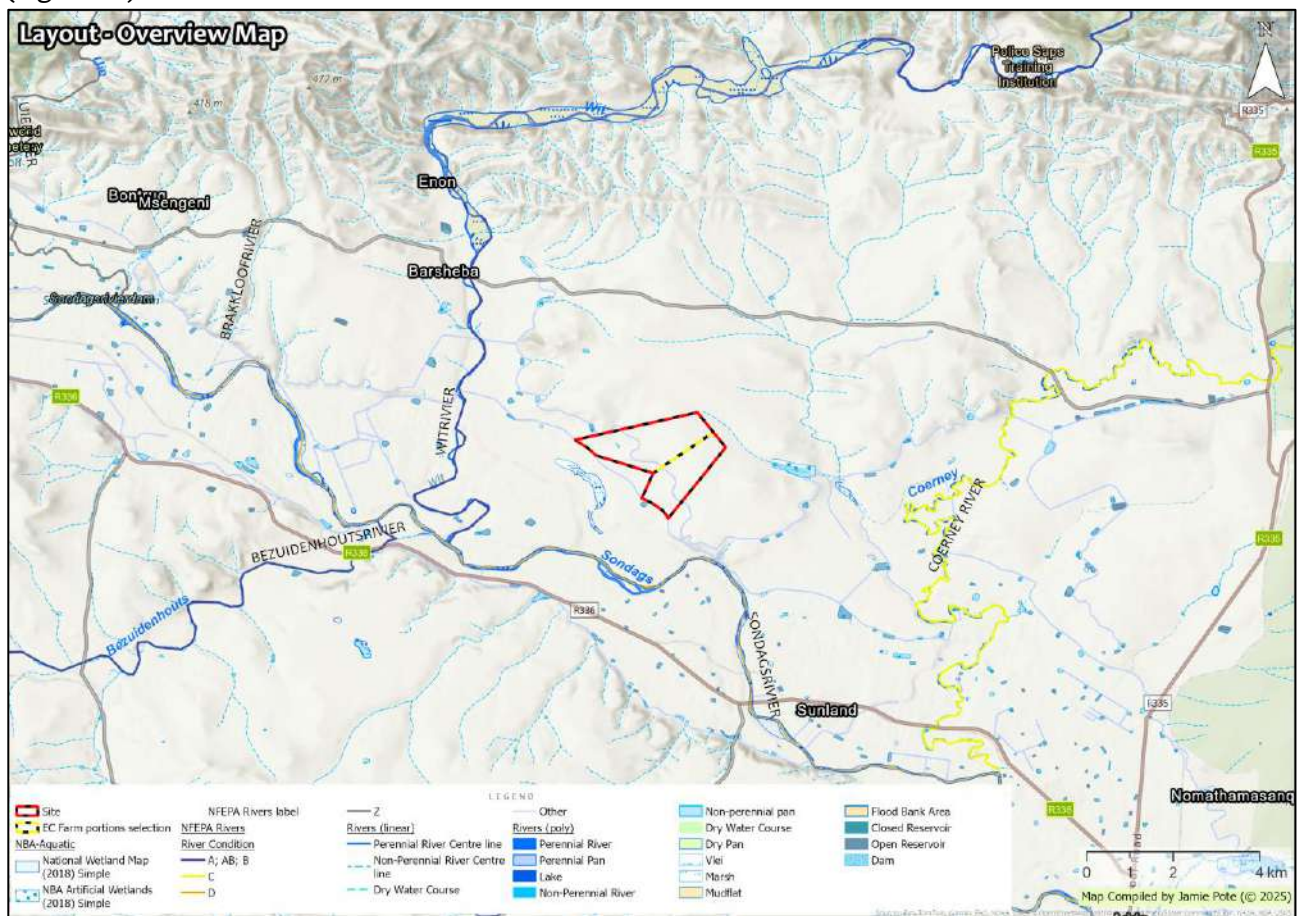


Figure 16: Rivers, Wetlands & Catchments.

Strategic Water Source Areas

Strategic water source areas are those that supply substantial downstream economies and urban centres. These water source areas are vital to the national economy. Strategic water source areas are those that supply substantial downstream economies and urban centres. These water source areas are vital to the national economy. Strategic water source areas can be regarded as natural "water factories", supporting growth and development needs that are often far away. Deterioration of water quality and quantity in these areas can have a disproportionately large negative effect on the functioning of downstream ecosystems and the overall sustainability of growth and development in the regions they support. Appropriate management of these areas, which often occupy only a small fraction of the land surface area, can greatly support downstream sustainability of water quality and quantity.

The site is situated within a designated Strategic Water Source Area (SWSA), and the specific activity may impact downstream water resources. It is noted that the water will be abstracted from the LSRWUA canal under existing water allocations and will hence not alter downstream water flows. Specific aquatic risks are outside the scope of terrestrial assessment, refer to separate Aquatic Assessment.

Freshwater Ecosystem Priority Areas

The National Freshwater Ecosystem Priority Areas (NFEPA) project responds to the high levels of threat prevalent in river, wetland, and estuary ecosystems of South Africa. It provides strategic spatial priorities for conserving the country's freshwater ecosystems and supporting sustainable use of water resources. These strategic spatial priorities are known as Freshwater Ecosystem Priority Areas, or 'FEPAs'.

Terrestrial and aquatic resources are interdependent, with one affecting the other. For example, to ensure the healthy functioning of rivers, wetlands, and estuaries, it is essential to protect mountain catchment areas where the water originates, and to safeguard riverside vegetation because these plants prevent soil erosion, sedimentation, and water pollution (Vromans et al., 2012).

Concerning terrestrial fauna and flora components associated with Freshwater Ecosystem Priority Areas, the site is near aquatic features or aquatic functional zones. The proposed activity may impact downstream flow and water quality due to clearing in an otherwise largely intact catchment for the Coega River, but a significantly modified catchment for the Sundays River. Specific aquatic risks are outside the scope of terrestrial assessment, refer to separate Aquatic Assessment.

Eastern Cape Biodiversity Conservation Plan (ECBCP, Ver 2, 2019): Aquatic

The proposed agricultural development will potentially overlap with designated Aquatic CBA & ESA areas. Respective buffers will likely be implemented; however, the assessment of aquatic risks is outside the scope of terrestrial biodiversity reporting. Refer to separate Aquatic specialist reporting.

2.2.12 Species of Conservation Concern

Several Species of Conservation Concern are indicated as potentially being present within the site and broader area using several online databases⁵ (Maputaland-Pondoland-Albany Hotspot study, SANParks metadata, 2010; National Environmental Screening Tool, 2021 and Plants of Southern Africa, 2021), as indicated in Table 4 & Figure 17 below.

⁵ Includes threatened species mapped by the Maputaland-Pondoland-Albany Hotspot study in 3325AD/BC (SANParks metadata, 2010), the National Environmental Screening Tool.

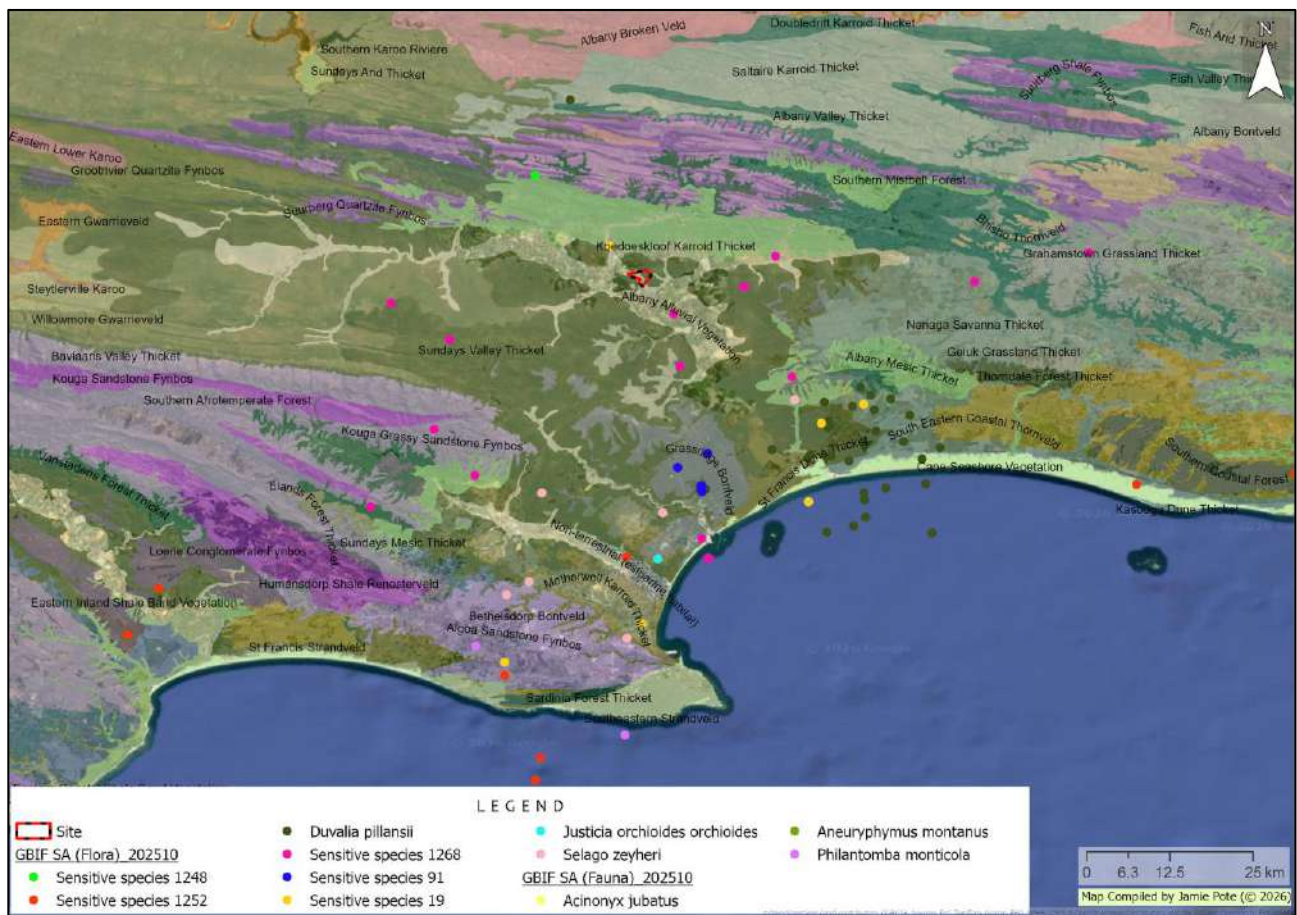


Figure 17: Distribution records of Species of Conservation Concern.

Table 4: Potential Species of Conservation Concern

SCIENTIFIC NAME	FAMILY	STATUS ^{6,7}
FLORA		
<i>Asparagus spinescens</i>	Asparagaceae	NEST (M), Rare. Outside of expected range and habitat.
<i>Drimia elata</i>	Hyacinthaceae	DDT, Not recorded.
<i>Duvalia pillansii</i>	Apocynaceae	NEST (M), Rare. Outside of expected range and habitat.
<i>Justicia orchioides subsp. orchioides</i>	Acanthaceae	NEST (M), VU [B1ab(i,ii,iii,iv,v)]. Outside of expected range and habitat.
<i>Selago zeyheri</i>	Scrophulariaceae	NEST (M), Vu, B1ab(i,ii,iii,iv,v) +2ab(i,ii,iii,iv,v)
Sensitive species 1248		NEST (M), VU [A2ad]. Fairly widespread species. Outside of expected range.
Sensitive species 1252		NEST (M), VU [A2cd]. Fairly widespread species. Outside of expected range.

⁶ Conservation Status as per SANBI Threatened Species Programme (<http://redlist.sanbi.org/index.php>, accessed 20 March 2022).

⁷ IUCN: Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Critically Endangered (CR), Endangered (EN); NEST – National Environmental Screening Tool.

SCIENTIFIC NAME	FAMILY	STATUS ^{6,7}
Sensitive species 1268		NEST (M), EN [A2cd]. Within broader expected range, however being a sought-after species in the wild plants trade, remaining individuals are usually found in isolated hard to reach places and would thus not be expected to have been lost as a result of the clearing activities being investigated.
Sensitive species 19		NEST (M), VU [A2cd+4cd]. In proximity to known range. None observed during initial surveys of the site. Species tends to occur in sporadic clusters across the range, fairly widespread coverage. Risk factor is primarily the medicinal plants trade, being a sought-after species.
Sensitive species 91		NEST (M), EN [B1ab(iii)]. Usually found in Bontveld area and transitional thicket adjacent to Bontveld. Outside of expected range.
FAUNA		
<i>Afrotis afra</i> (Southern Black Korhaan)	Otididae	NEST (H, M), SA: VU; Intl: VU. Activities within the site are unlikely to have had significant impacts on the species as it generally has an extensive range.
<i>Aneuryphymus montanus</i> (Yellow-winged Agile Grasshopper)	Acrididae	NEST (M), VU [B2ab(iii,v)]. Not likely to occur as preferred habitat is absent.
<i>Circellium bacchus</i> (Cape Flightless or Addo Dung Beetle)	Scarabidae	Present in the broader Addo area. Potentially present.
<i>Circus maurus</i> (Black Harrier)	Accipitridae	NEST (H, M), SA: EN; Intl: EN. Activities within the site are unlikely to have had significant impacts on the species as it generally has an extensive range.
Sensitive species 5		NEST (M), SA: VU [C2a(i); D1]; Intl: VU [A2acd+C1]. Area is not considered preferred habitat for the species. Not present.
Sensitive species 8		NEST (M), SA: VU [B2ab(ii,iii,v); C2a(i)]; Intl: LC. Present in the surrounding area. Known to have been introduced onto surrounding game farms & was briefly present in Addo in 2014 and are present in the Daniell Cheetah Project located towards Jansenville, north of the site, but not part of any

SCIENTIFIC NAME	FAMILY	STATUS ^{6,7}
		natural, self-sustaining population.
<i>Stephanoaetus coronatus</i> (Crowned Eagle)	Accipitridae	NEST (M), SA: VU; Intl: NT, Present in the broader Addo area. Activities within the site are unlikely to have had significant impacts on the species as it generally has an extensive range.

Several of these species are known from the area surrounding the site. Realistically speaking, only two flora species (Sensitive species 1268 & Sensitive species 19) are likely to occur in the immediate area or have historically occurred in cleared areas of Sundays Valley Thicket (Figure 17). No Species of Conservation Concern are likely to occur in the Albany Alluvial Vegetation. Of the flagged fauna species, only the birds are likely to be transient visitors, but in light of agricultural activities, transformation and habitat fragmentation in the broader area, as well as extent of available remaining habitat, the nominal losses associated with the site are likely negligible. Similarly for non-avifauna species, some displacement may have occurred but remaining intact and available habitat is still fairly extensive in the broader area, including the extensive Addo Elephant National Park.

3 Site Sensitivity Verification & Description

3.1 Terrestrial Landscape Features (Habitat)

The project area (Figure 18) is generally characterised by a hilly landscape with undulating plains incised by non-perennial watercourses with a combination of dense but fairly arid thicket vegetation cover to the north and a band of Albany Alluvial Vegetation along the southern edge of the site (Figure 18). Underlying geology and soils are key drivers of vegetation communities. Solid Thicket is generally only present in deeper red soils and Alluvial vegetation on deeper sandy to silty alluvial deposits on old floodplains. Sundays Valley Thicket constitutes more than half of the site, with Albany Alluvial Vegetation comprising the remainder, based on projected historical distributions.

This offers habitat for a limited but diverse suite of animal species. Some topological complexity, including slope and aspect, allow for a greater availability of microhabitats for a diverse range of different species. The habitats and microhabitats present on the project site are not unique and are widespread in the general area, but vegetation clearing will have resulted in a permanent localised loss of habitat and permanent displacement of fauna.

3.1.1 Sundays Valley Thicket (solid)

The solid thicket vegetation on site is generally typical of Sundays Valley Thicket, although appears to be a somewhat more arid variety compared to the solid thicket found in the surrounding area. Typically comprised of a dense shrub and small tree cover including *Euclea undulata*, *Pappea capensis*, *Schotia afra*, *Ptaeroxylon obliquum*, *Sideroxylon inerme*, *Azima tetracantha*, *Brachylaena ilicifolia*, *Cadaba aphylla*, *Capparis sepiaria*, *Carissa bispinosa*, *Ehretia rigida*, *Gymnosporia capitata*, *Gymnosporia polyacantha*, *Mystroxydon aethiopicum*, *Plumbago auriculata*, *Searsia longispina* and *Scutia myrtina*. Succulent trees include *Euphorbia triangularis*, *Aloe africana*, *Aloe ferox* and *Aloe speciosa*.

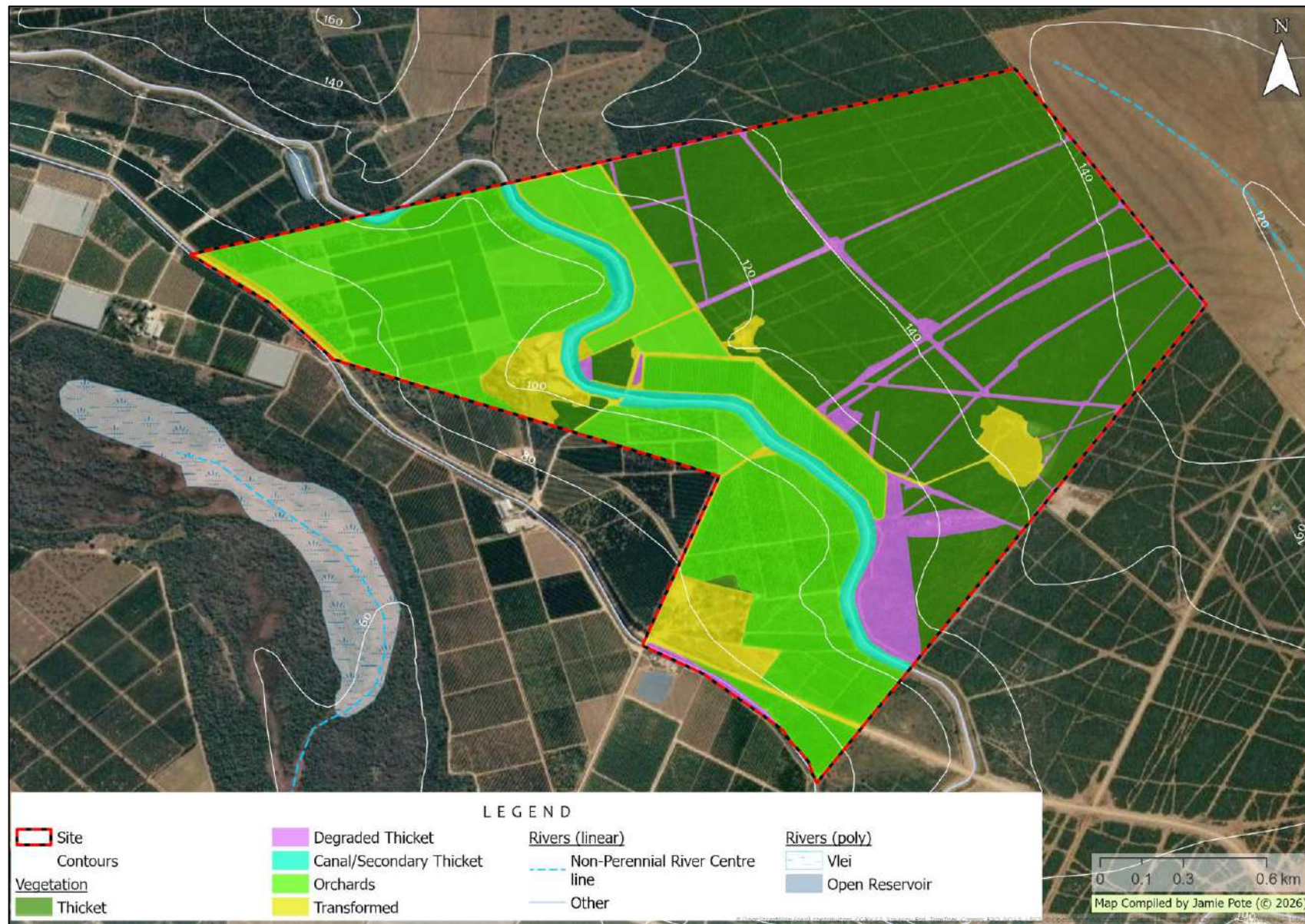


Figure 18: Mapped Vegetation. Sundays Valley Thicket and Albany Alluvial Vegetation of the affected farm portions.

The understorey is comprised of a mix of succulent and herbaceous species including *Portulacaria afra*, *Cotyledon orbiculata*, *Crassula capitella*, *Crassula ovata*, *Kalanchoe rotundifolia*, *Pelargonium carnosum*, *Sansevieria hyacinthoides*, *Sansevieria aethiopica*, *Abutilon sonneratianum*, *Aizoon glinoides*, *Arctotheca calendula*, *Commelina benghalensis*, *Gazania krebsiana*, *Hypoestes aristata*, *Plectranthus madagascariensis*, *Asparagus crassifolius*, *Asparagus striatus*, *Barleria obtusa*, *Felicia muricata*, *Hermannia althaeoides* and *Osteospermum imbricatum*.

3.1.2 Albany Alluvial Vegetation

Sparse remnant elements confirm that the Albany Alluvial Vegetation would typically be an *Acacia natalitia* thornveld, with additional species including typical thicket pioneer species such as *Acacia caffra*, *Rhus longispina*, *Carissa haematocarpa* and *Lycium cinereum*. The vegetation unit has evolved historically to be a pioneer community that responds to periodic flooding. Historically speaking the unit rarely formed a climax state typical of the surrounding Sundays Thicket.

3.1.3 Secondary and Degraded Thicket

A mosaic of shrubs, herbs and succulent elements with sporadic grasses are present in disturbed areas where typical solid thicket is absent or significantly disturbed or has been fully removed historically (i.e. for cultivation of infrastructure). This degraded vegetation is common in cutlines and adjacent to roads and other areas that have previously been cleared of thicket.

3.1.4 Transformed (with secondary grassland)

Areas around dwellings or other previously cleared areas where natural vegetation has been removed completely and is maintained in a transformed state. Usually with a grass and creeping succulent cover.

3.1.5 Wetlands, Dams and Riparian

Wetlands and Dams generally have poorly developed riparian vegetation but can provide a semi-permanent or temporary water source for various faunal species. The riparian vegetation along the Sundays River is more well developed comprising mainly reedbeds with a narrow band of *Vachellia natalitia* (*Acacia karoo*). A few small features are present within the broader site and would serve as important water sources for the local fauna.

3.2 Terrestrial Habitat Sensitivity

An overall Biodiversity Sensitivity assessment, incorporating key vegetation and ecological indicators was undertaken (Figure 19) and includes the following key criteria:

- relative levels of *intactness* i.t.o overall loss of indigenous vegetation cover.
- presence, diversity, and abundance of *species of special concern* (weighted in favour of local endemic species).
- extent of *invasion* (severity and overall ecological impact), as well as the degree to which successful rehabilitation could take place.
- overall degradation incorporating above factors.
- relative importance of the vegetation communities relative to regional conservation status - indicated as vulnerability of the area because of loss.

Intactness

Three basic classes are differentiated as follows:

- **Low:** > 75 % of original vegetation has been removed or lost; and/or no species of special concern present that are critically endangered, endangered, or endemic with highly localised distribution.
- **Moderate:** 25 - 75 % of original vegetation has been removed/lost; and or presence of species of special concern but not having high conservation status or high levels of endemism or highly localised distributions.
- **High:** < 25 % of original vegetation has been removed or lost; and or presence of species with a highly endemism and or high conservation status (endangered or critically endangered).

Intactness for the site is generally *High* for intact vegetation and *Low* for transformed and degraded areas.

Alien Invasion

Three classes are differentiated as follows:

- **Low:** no or few scattered individuals.
- **Moderate:** individual clumps of invasives present but cover less than 50% of original area.
- **High:** dense, impenetrable stands of invasives present, or cover > 50 % of area with substantial loss functioning. Rehabilitation will most likely require specialised techniques over an extended period (> 5 years).

Alien invasion for the site is generally *Low*, with some Prickly Pear.

Degradation

Overall Degradation is determined from the above alien invasion and intactness scores, according to the following matrix:

INTACTNESS	INVASION		
	LOW	MODERATE	HIGH
High	Pristine	Near Pristine	Moderately Degraded
Moderate	Near Pristine	Moderately Degraded	Severely Degraded
Low	Moderately Degraded	Severely Degraded	Transformed

Degradation for the site is *High* for transformed and disturbed Natural/Intact vegetation and *Moderate* for intact thicket, as there is existing clearing along cutlines, fencelines and roads.

Overall Sensitivity score

Overall Biodiversity Sensitivity of the vegetation within the site is calculated according to the following matrix which combines degradation and overall conservation status of the vegetation units of the site.

DEGRADATION	CONSERVATION STATUS			
	LEAST THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED
Severely degraded/ Transformed	Very Low	Low	Moderate	Moderate - High
Moderately degraded	Low	Moderate	High	High
Ecologically Pristine or near Pristine	Moderate	Moderate - High	Very High	Very High (No-Go area)

Refer to Figure 19 for overall Terrestrial Biodiversity Sensitivity map of site.

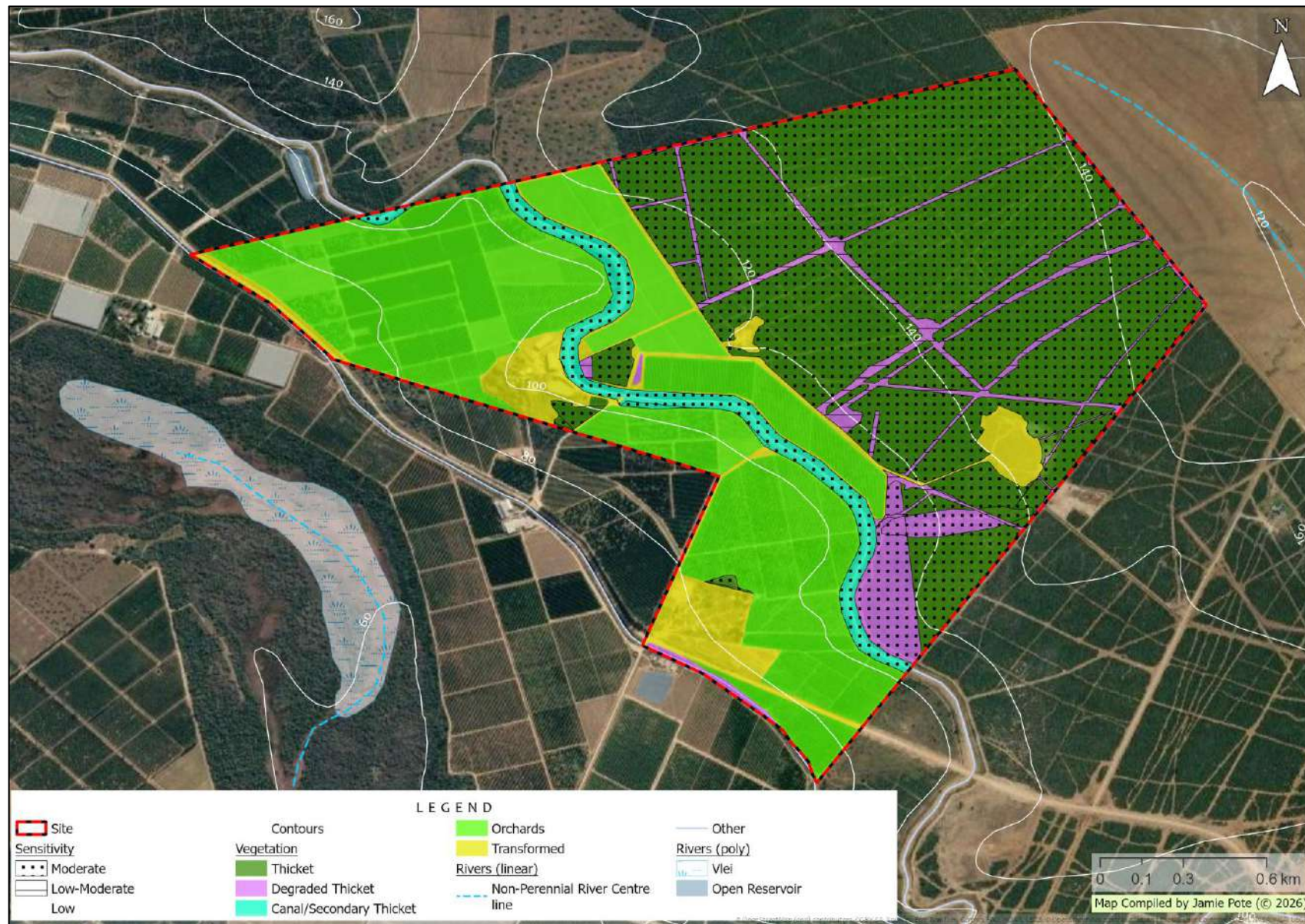


Figure 19: Mapped Vegetation Sensitivity.

In summary, site sensitivity for the site is categorized as follows (Figure 19):

- Areas scoring an overall VERY LOW OR LOW sensitivity include the portions of the site that are completely transformed or severely degraded, that have a low conservation status, or where there is very dense alien infestation. Loss of these areas will not significantly compromise the current conservation status of the vegetation unit at a regional level, nor is its loss likely to compromise the ecological functioning of surrounding areas. Low sensitivity areas are limited to the transformed areas (around dwellings) as well as orchards and secondary or significantly degraded solid Thicket and old lands.
- Areas scoring an overall MODERATE sensitivity include the portions of natural vegetation that is mostly intact, but not having specific biodiversity related issues of significance or where proposed activity will have limited overall impact and recovery will be good with minimal intervention. Moderate sensitivity areas include intact solid Sundays Valley Thicket, being a widespread unit with generally low occurrence of Species of Conservation Concern).
- Areas scoring an overall HIGH OR VERY HIGH sensitivity include those areas deemed to have a sensitivity, including being within any remnant Albany Alluvial Vegetation. No High sensitivity terrestrial areas are identified on site.

The orchards and lands that were historically cleared were largely within intact/natural, to somewhat degraded habitat. While Albany Alluvial vegetation does have an elevated conservation status, the unit is generally not a biodiversity rich habitat. It would be considered important in terms of broader ecological corridors and connectivity along watercourses and adjacent floodplains including movement of fauna. It is also noted that the area is a regionally important agricultural area associated with the Lower SRVM canal, which traverses the property. Since the floodplain areas are the most agriculturally useful land for orchards and cultivation, they are the focus of agriculture in the region and extensive transformation is present. With the historical absence of a clear combined agriculture and conservation directive or plan, unauthorised clearing is rampant in the Sundays River Valley.

3.3 Summary of Historical Clearing Activities

Northern portion of the site is comprised of Sundays Valley Thicket (intact plus degraded). Southern portion would have been Albany Alluvial Vegetation. Remnant *Acacia karoo* elements are visible along road along the southern site boundary but none remaining on the farm. The Albany Alluvial vegetation has a significantly lower coverage within the site than what is delineated according to the National Vegetation Map, as revised based on observations made on site. Albany Alluvial vegetation is a vegetation unit that is specifically associated with historical floodplains, and the coverage would not extend upslope from the floodplains as it would be comprised of only a narrow band on floodplain. The revised delineation is based on elevation, and the 100m contour is used as a reference, being below the canal (note, the canal is built upslope from the floodplain).

The current ECBCP (2017 onward) designations are ESA 1 with ESA 2 over orchards on southern boundary. The historical ECBCP (after 2007) designation for the entire site was CBA 2. No Protected Areas or designated NPAES areas overlap the site.

No Species of Conservation Concern are confirmed to date, species with potential include only *Encephalartos horridus* and *Haworthiopsis attenuata*.

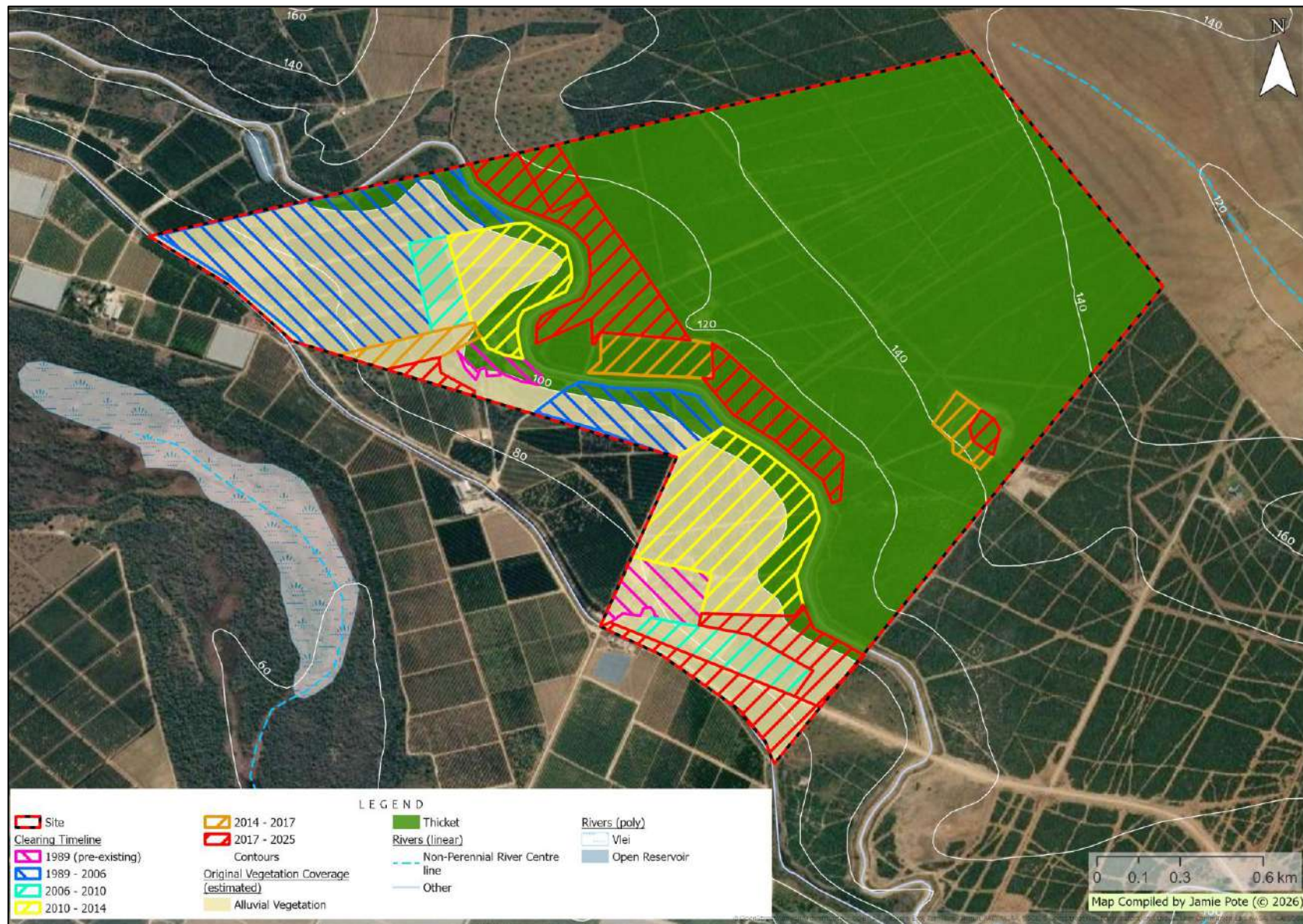


Figure 20: Revised vegetation coverage of Albany Alluvial Vegetation on affected farm portions with historical clearing timeline.

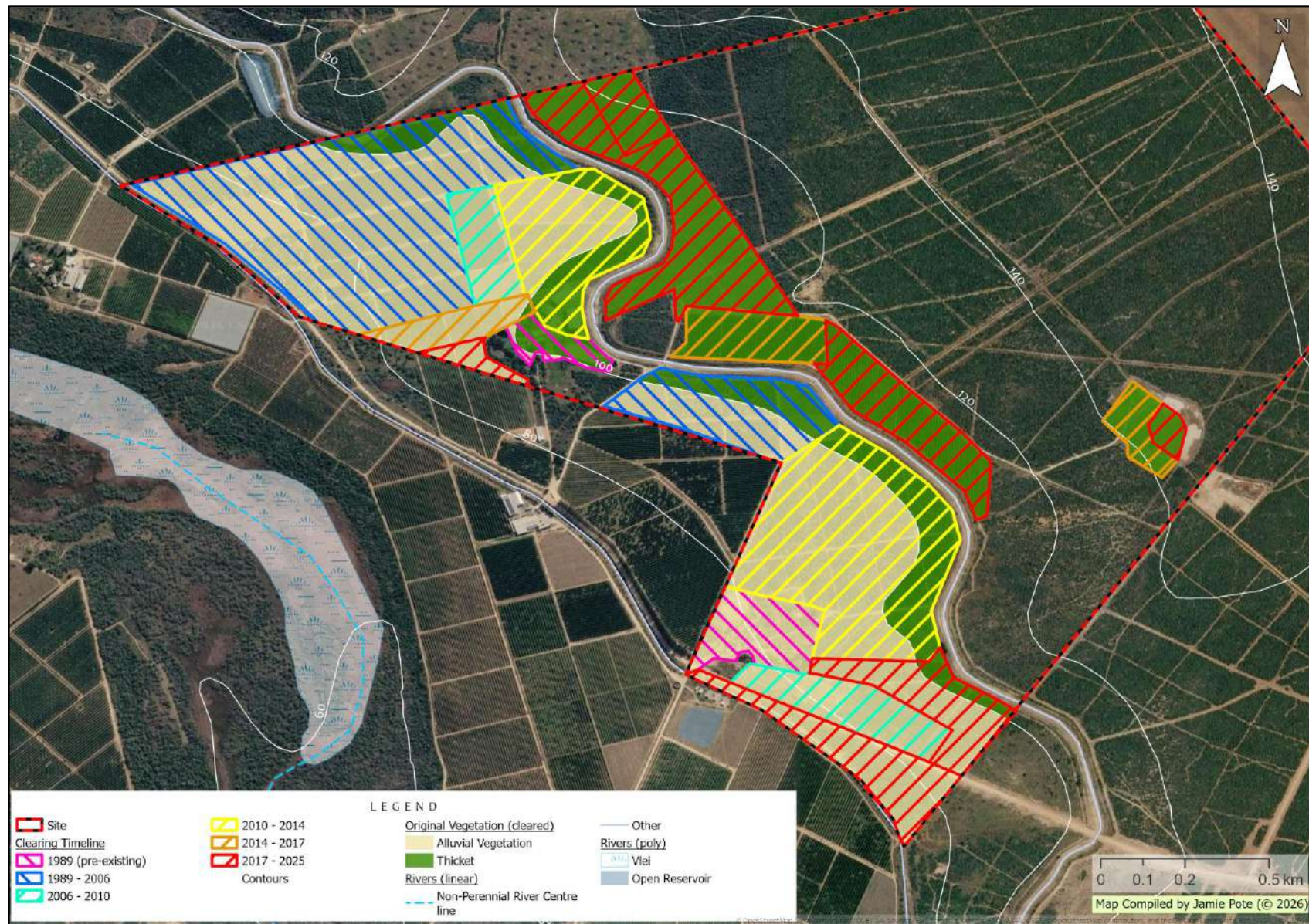


Figure 21: Revised Vegetation coverage of Albany Alluvial Vegetation on historically cleared areas.

3.3.1 Clearing Area Timeline

The approximate cleared area of each unit is indicated in Table 5. Note the delineations and calculations are based on the limited availability of historical data including aerial imagery and Landsat and/or Sentinel imagery.

Table 5: Timeline of estimated vegetation clearing in Hectares (Ha).

DATE	ALLUVIAL VEGETATION (HA)	THICKET (HA)	TOTAL (HA)
1989	5.03	1.58	6.61
1989 - 2006	32.28	6.95	39.23
2006 - 2010	8.87	-	8.87
2010 - 2014	21.93	10.13	32.06
2014 - 2017	2.71	6.39	9.10
2017 - 2025	11.37	22.20	33.57
TOTAL	82.19	47.25	129.44

The canal which runs east-west through the southern portion of the site is not included in this reporting as it was constructed via a separate authorisation process.

No designated CBA is affected, so clearing of lands will not have had a significant negative impact on conservation targets, but rather landscape connectivity (i.e. ESA). The site is within a heavily fragmented area with adjacent farms having extensive clearing limiting connectivity options within similar ESA designated habitat. It is also noted that the site and associated Albany Alluvial Vegetation fall along a minor tributary of the Sundays River, so would not be considered a primary landscape connectivity corridor, which is present in the wider landscape.

Regeneration of thicket around the canal does provide some east-west connectivity but is narrow and fragmented. No further clearing along this corridor should be permitted.

4 Assessment of Terrestrial Biodiversity Impacts

4.1 Identified Terrestrial Biodiversity Impacts

The following impacts to terrestrial biodiversity, fauna, and flora, associated with this application were identified and assessed, namely:

Impact No.	Impact Description	Phase of Development	Direct or Indirect
Impact 1	Loss of natural vegetation due to clearing	Site Clearing	Direct
Impact 2	Loss of ESA due to clearing	Site Clearing	Direct
Impact 3	Loss of flora and fauna species of special concern during vegetation clearing	Site Clearing	Direct
Impact 4	Fragmentation of natural habitat due to clearing	Site Clearing	Direct

4.2 Assessment of Risks and Impacts to Biodiversity

4.2.1 Criteria of assigning significance to potential impacts

The following methodology is to be applied in the specialist studies for the assessment of potential impacts.

CRITERIA	EXPLANATION
Nature of impact	Review the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"
Extent	Indicate whether the impact will be: (5) local and limited to the immediate area of development (the site).

CRITERIA	EXPLANATION
	(L) limited to within 5 km of the development: or (R) whether the impact may be realized regionally, nationally or even internationally.
Duration	Review the lifetime of the impact, as being: (V) very short term (0 - 1 years), (S) short term (1 - 5 years), (M) medium (5 - 15 years), (L) long term (>15 years but where the impacts will cease after the operation of the site), or (P) permanent.
Intensity	Establish whether the impact is destructive or innocuous and should be described as either: (L) low (where no environmental functions and processes are affected) (M) medium (where the environment continues to function but in a modified manner) or (H) high (where environmental functions and processes are altered such that they temporarily or permanently cease), including loss of critical endangered ecosystem and or critically endangered species (population).
Probability	Consider the likelihood of the impact occurring and should be described as: (I) improbable (low likelihood) (P) probable (distinct possibility) (H) highly probable (most likely) or (D) definite (impact will occur regardless of prevention measures).
Status of the impact	Description as to whether the impact will be positive (a benefit), negative (a cost), or neutral.
Degree of confidence	The degree of confidence in the predictions, based on the availability of information and specialist knowledge. This should be assessed as high, medium, or low.
Significance	(VL) Very Low: Considered to be negligible. (L) Low: Where the impact will not have an influence on the decision or require to be significantly accommodated in the project design (M) Medium: Where it could have an influence on the environment which will require modification of the project design or alternative mitigation. (H) High: Where it could have a 'no-go' implication for the project unless mitigation or re-design is practically achievable. (VH) Very High: Confirmed No-Go area, no mitigation feasible, redesign and avoidance are required, where activity will have a significant permanent and irreversible impact on a critically endangered ecosystem or species population.

4.2.2 Significance Rating

INTENSITY		PERMANENT	LONG TERM	DURATION MEDIUM TERM	SHORT TERM	VERY SHORT TERM
HIGH INTENSITY						
EXTENT	National	Very High	Very High	High	High	Medium
	Regional	Very High ⁸	High	High	High	Medium
	Local	High	High	Medium	Medium	Medium
	Site specific	Medium	Medium	Medium	Medium	Medium
MEDIUM INTENSITY						
EXTENT	National	High	High	High	Medium	Medium
	Regional	High	High	High	Medium	Medium
	Local	Medium	Medium	Medium	Medium	Medium
	Site specific	Medium	Medium	Medium	Medium	Low
LOW INTENSITY						
EXTENT	National	Medium	Medium	Medium	Medium	Medium
	Regional	Medium	Medium	Medium	Medium	Low
	Local	Medium	Medium	Medium	Low	Very Low
	Site specific	Low	Low	Low	Very Low	Very Low

⁸ Considered a regional impact if activity will result in significant permanent and irreversible loss to a critically endangered species population or ecosystem (vegetation type)

4.2.3 Assessment of Terrestrial Biodiversity Impacts

Vegetation clearing can result in a range of negative impacts on terrestrial ecosystems if not effectively managed. The retroactively predicted significance of these are summarised in Table 6 below.

Table 6 : Impacts Assessment Summary (Refer to Sections 4.2.1 & 4.2.2 for methodology).

Nature of impact	Extent	Duration	Intensity	Probability	Status of the impact	Degree of confidence	Significance (before)	Significance (after) ⁹
Loss of natural vegetation due to clearing	S	P	M	D	-ve	H	M	-
Loss of ESA due to clearing	S	P	M	D	-ve	H	M	-
Loss of flora and fauna species of special concern during vegetation clearing	S	P	L	H	-ve	M ¹⁰	L	-
Fragmentation of natural habitat due to clearing	S	P	M	D	-ve	H	M	-

Loss of natural vegetation & ESA due to clearing and Fragmentation of natural habitat due to clearing are assessed to be of medium significance. Loss of fauna and flora species due to clearing are assessed to be of low significance. Since the assessment is undertaken retroactively, no differentiation between before/after mitigation is possible.

4.3 Cumulative Impacts

Due to the surrounding developments that are proposed on adjacent farms, it is likely that there will be residual cumulative impacts relating to loss of species and loss of species habitat.

4.4 Biodiversity Offsets

Since the loss was primarily before publication of the recently gazetted Biodiversity Offset Guidelines (23 June 2023), no biodiversity offset is recommended.

4.5 No-Go Areas

No No-Go areas are identified. It is recommended that the existing corridor of secondary vegetation be retained on either side of the canal, as it does provide some landscape connectivity.

5 Findings and Recommendations

5.1 Summary of Findings

- Areas scoring an overall VERY LOW OR LOW sensitivity include the portions of the site that are completely transformed or severely degraded, that have a low conservation status, or where there is very dense alien infestation. Loss of these areas will not significantly compromise the current conservation status of the vegetation unit at a regional level, nor is its loss likely to compromise the ecological functioning of surrounding areas. Low sensitivity areas are limited to the

⁹ Differentiation between significance before/after mitigation cannot be assessed retroactively.

¹⁰ It is impossible to ascertain with certainty what species of conservation concern were present retroactively, but inferences can be made from surrounding natural vegetation. Also, Albany Alluvial Vegetation, which comprises the bulk of cleared vegetation generally does not contain significant populations of species of conservation concern.

transformed areas (around dwellings) as well as orchards and secondary or significantly degraded solid Thicket and old lands.

- Areas scoring an overall MODERATE sensitivity include the portions of natural vegetation that is mostly intact, but not having specific biodiversity related issues of significance or where proposed activity will have limited overall impact and recovery will be good with minimal intervention. Moderate sensitivity areas include intact solid Sundays Valley Thicket, being a widespread unit with generally low occurrence of Species of Conservation Concern).
- Areas scoring an overall HIGH OR VERY HIGH sensitivity include those areas deemed to have a sensitivity, including being within any remnant Albany Alluvial Vegetation. No High sensitivity terrestrial areas are identified on site.
- Loss of natural vegetation & ESA due to clearing and Fragmentation of natural habitat due to clearing are assessed to be of medium significance.
- Loss of fauna and flora species due to clearing are assessed to be of low significance. Since the assessment is undertaken retroactively, no differentiation between before/after mitigation is possible.
- No-go areas – No-Go areas are not identified that would have implications in terms of the historical clearing.
- Cumulative impacts due to the cumulative loss of species and species habitat as well as loss of designated ESA associated with the site at a regional level will likely be fairly low compared to the extensive agricultural transformation of land in the broader area. Since the loss was primarily before publication of the recently gazetted Biodiversity Offset Guidelines (23 June 2023), no biodiversity offset is recommended.

5.2 Conclusions

Without significant intervention and rehabilitation at a regional level within the Sundays River Valley, localised rehabilitation will serve little purpose. While the activity is considered to be an unauthorised activity, it is not recommended that any rehabilitation be undertaken unless it is part of a broader regional plan that will encompass the broader Sundays River Valley area including adjacent neighbouring farms that would serve to restore regional corridors. Any future development or clearing within the site should pay attention to ensuring that ecological corridors are maintained with the surrounding landscape as far as possible.

6 Appendices

6.1 Appendix A: References

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6.2 Appendix B: Glossary and Abbreviations

6.2.1 Abbreviations

CARA	Conservation of Agricultural Resources Act, Act 43 of 1983
CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs (now DEFF, see below)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism The Department of Environmental Affairs was renamed the <u>Department of Environment, Forestry and Fisheries</u> (DEFF) in June 2019, incorporating the forestry and fisheries functions from the previous Department of Agriculture, Forestry and Fisheries.
DEFF	
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 or Protected Species
ToR	Terms of Reference
+ve	Positive
-ve	Negative

6.2.2 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 <u>taxon is Data Deficient</u> 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 <i>Physical processes</i> [Climate (precipitation, insolation), hydrology, geomorphology]; <i>Biological processes</i> [Photosynthesis, respiration, reproduction]; <i>Ecological processes</i> [Competition, predator-prey interactions, environmental gradients, life histories]
Ecological Processes	Ecological processes typically only function well where natural vegetation remains, and where the remaining vegetation is well-connected with other nearby patches of natural vegetation. Loss and fragmentation of natural habitat severely threaten 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)	<u>Endangered terrestrial ecosystems</u> have lost significant amounts (more than 60 % lost) of their original natural habitat, so their functioning is compromised. <u>A taxon (species)</u> is Endangered when the best available evidence indicates that it meets any of the criteria for Endangered, and it is therefore considered to be facing a <u>very high risk</u> of extinction in the wild (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 Threatened Species.
Environment	The external circumstances, conditions and objects that affect the existence and development of an individual, organism, or group. These circumstances include biophysical, social, economic, historical, and cultural aspects.
Estuary	a partially or fully enclosed body of water - (a) which is open to the sea permanently or periodically; and

	(b) within which the sea water can be diluted, to an extent that is measurable, with fresh water drained from land.
Evolutionary Processes	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.
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 (<i>Bern Convention 1979</i>). A species or lower taxon living within its natural range (past or present) including the area which it can reach and occupy <u>using its natural dispersal systems</u> (<i>modified after the Convention on Biological Diversity</i>)
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 <u>ecosystems</u> have lost only a small proportion (more than 80 % remains) of their original natural habitat and are largely intact (although they may be degraded to varying degrees, for example by invasive alien species, overgrazing, or overharvesting from the wild). A <u>taxon (species)</u> is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category (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 (<i>Podocarpus latifolius</i>) 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 <u>taxon (species)</u> is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future (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 <u>extent of occurrence</u> (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 (<u>BBOP</u>).
Resilience	The capacity of a natural system to recover from disturbance (<u>OECD</u>).
Restoration	The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. An ecosystem has recovered when it contains sufficient biotic and abiotic resources to continue its development without further assistance or subsidy. It would sustain itself structurally and functionally, demonstrate resilience to normal ranges of environmental stress and disturbance, and interact with contiguous ecosystems in terms of biotic and abiotic flows and cultural interactions (<u>IFC</u>).
Riparian	Pertaining to, situated on, or associated with the banks of a watercourse, usually a river or stream.
Riparian Habitat	Includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.
River Corridors	River corridors perform several ecological functions such as modulating stream flow, storing water, removing harmful materials from water, and providing habitat for aquatic and terrestrial plants and animals. These corridors also have vegetation and soil characteristics distinctly different from surrounding uplands and support higher levels of species diversity, species densities, and rates of biological productivity than most other landscape elements. Rivers provide for migration and exchange between inland and coastal biotas.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (<u>WCED</u>).
Terrestrial	Occurring on, or inhabiting, land.
Threatened Species	Umbrella term for any species categorised as Critically Endangered, Endangered or Vulnerable by the IUCN Red List of Threatened Species (<u>IUCN</u>). Any species that is likely to become extinct within the foreseeable future throughout all or part of its range and whose survival is unlikely if the factors causing numerical decline or habitat degradation continue to operate (<u>EU</u>).
Traditional Ecological Knowledge	Knowledge, innovations, and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values,

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

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 **4 May 2026**.

PROJECT TITLE

**Agricultural Activities carried out on portions 10 and 14 of Farm Tregaron No 92,
Sunland, Ward 8 of the Sundays River Local Municipality, Sarah Baartman District Municipality, Eastern Cape**

SPECIALIST ¹

Contact Person

Postal address:

Postal code:

Telephone:

E-mail:

Professional affiliation(s) (if any)

Project Consultant:

Contact person:

Postal address:

Postal code:

Telephone:

E-mail:

Mr Jamie Pote

Mr Jamie Pote

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SACNASP Ecological 400268/07

Claire de Jongh trading as EAP Services

Claire De Jongh

1 Kolstert avenue, Sedgefield, Western Cape

6573

Cell:

084 607 4743

Fax:

-

claire@eapservices.co.za

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:

12/06/20261

Date:



Signature of the Commissioner of Oaths:

12/06/2026

Date:

OWNER/MANAGER

Designation:

Official stamp (below).

Cornelia Johanna Delport
COMMISSIONER OF OATHS
Owner / Manager – 9/1/8/2Kouga
Post Zone shop 6, Magna Towers
124 Da Gama road, Jeffreys Bay 6390

¹ Curriculum Vitae (CV) attached

Annexure 1

CV



Jamie Pote

SENIOR ECOLOGIST AND ENVIRONMENTAL
SCIENTIST

CONTACT

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-  Port Elizabeth, South Africa
-  [Linkedin.com](https://www.linkedin.com/in/jamiepote)
-  JamiePote
-  [Bluesky-SA](https://bsky.app/profile/jamiepote)

EDUCATION

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

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

Professional Natural Scientist
SACNASP
2016

SERVICES

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

ABOUT ME

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

EXPERIENCE AND CLIENTS

Key Sectors

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

Key Projects

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



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

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

Effective **20 July 2016**

Expires **31 March 2027**



A handwritten signature in black ink, likely belonging to the President of Council.

President of Council

A handwritten signature in black ink, likely belonging to the Chief Executive Officer.

Chief Executive Officer



To verify this certificate scan this code

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, Ethekeini 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

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

• 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

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

POWERLINE INFRASTRUCTURE PROJECTS

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

PIPELINE INFRASTRUCTURE PROJECTS

• Terrestrial Biodiversity Assessment for Thornhill Phase 2 Sanitation Link, Ndlambe, Eastern Cape	2020
• Botanical Assessment for Ngqamakhwe Regional Water Supply Scheme (Phase 3)	2018
• Ecological Assessment for Butterworth Emergency Bulk Water Supply Scheme	2017
• Ecological Assessment for 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

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

GENERAL INFRASTRUCTURE DEVELOPMENT PROJECTS

• Ecological Assessment for Amalinda crossing, BCM, Eastern Cape	2019
• Ecological Assessment for Cookhouse Bridge rehabilitation and temporary deviation, Eastern Cape	2019
• Ecological Assessment for Nelson Mandela University Access Road, NMB	2019
• Botanical Assessment for Zachtevelei 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 Extension, 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 Craggs 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

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

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

AGRICULTURAL PROJECTS

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

GOLF ESTATE AND RESORT DEVELOPMENT PROJECTS

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

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MIXED USE DEVELOPMENT PROJECTS

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

BUSINESS AND INDUSTRIAL DEVELOPMENT PROJECTS

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

ECO-ESTATE DEVELOPMENT PROJECTS

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

FLORA AND FAUNA RELOCATION PLANS, PERMITS AND IMPLEMENTATION

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

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

ENVIRONMENTAL MANAGEMENT PLANS

• Final Environmental Management Programme (EMPr) and Maintenance Management Plan for South End Precinct Mixed Use Zone, Nelson Mandela Bay Municipality	2020
• Final Environmental Management Programme (EMPr) for Coega Land-Based Aquaculture Development Zone (ADZ), Coega Industrial Development Zone (IDZ), Nelson Mandela Bay Municipality	2019
• Basic Botanical Assessment for Kromensee EMP (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 Parsonsvei Erf 984 & 1134 Parsonsvei	2020
• Construction of Deviation and Rehabilitation of Bridge along DR02481 road	2020
• Basic Assessment Application for Vermaak Boerdery Hydro Turbine (Cookhouse)	2020
• Basic Assessment Application for Walmer Erf 11667 Bidfood Warehousing Development	2020
• Basic Assessment Application for Portion 87 of the Farm Little Chelsea No 10	2020
• Basic Assessment Application for Nelson Mandela University Access Road, NMB	2019
• Basic Assessment, WULA and Borrow Pit/Quarry Mining Application, Clarkebury Rd, Idutywa	2019
• Basic Assessment Application for Erf 599 Walmer Mixed Use Development, Nelson Mandela Bay	2019
• Basic Assessment Application for Cookhouse Bridge rehabilitation and temporary deviation	2019
• Basic Assessment Application for Erf 14 Kabega, NMBM	2017
• Basic Assessment Application for Hankey Housing, Kouga District Municipality	2017
• Basic Assessment Application for Fairwest Rental Housing, Nelson Mandela Bay	2017
• Basic Assessment Application for Citrus expansion on Hitgeheim Farm, Sunland, Eastern Cape	2015

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

MINING PERMIT/ENVIRONMENTAL MANAGEMENT PROGRAMME APPLICATIONS (DMR)

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

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ENVIRONMENTAL COMPLIANCE AUDITING

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

ENVIRONMENTAL MANAGEMENT, AUDITING, COMPLIANCE AND MONITORING PROJECTS

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

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

ENVIRONMENTAL SCREENING PROJECTS

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

SECTION 24G APPLICATIONS

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

CONFERENCES AND PUBLICATIONS

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

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OTHER RESEARCH EXPERIENCE

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

6.4 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 Regulation¹¹.

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 Institute¹².

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 desk top analysis, using satellite imagery,
 - a preliminary on-site inspection; and
 - 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:

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.;

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

¹¹ The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act 107 of 1998).

¹² The biodiversity dataset has been provided by the South African National Biodiversity Institute (for details of the dataset, click on the options button to the right of the various biodiversity layers on the screening tool).

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

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 area 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 ¹³ , 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 Critical habitat for range-restricted species¹⁴ of conservation concern, that have a global range of less than 10 km². SCC listed on the IUCN Red List of Threatened Species¹⁵ or on South Africa's National Red List website¹⁶ as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare. 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. 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 Confirmed habitat for SCC. 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	

¹³ Available at <https://bgis.sanbi.org/>

¹⁴ Species with a geographically restricted area of distribution.

¹⁵ <https://www.iucnredlist.org/>

¹⁶ This category includes the categories Extremely Rare, Critically Rare and Rare

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: 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 ¹⁷ . 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 Areas where no natural habitat remains. Natural areas where there is no suspected occurrence of SCC.	✓
5.1	The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Zoological Science or Ecological Science).	✓
5.2	The compliance statement must:	✓
5.2.1	be applicable to the study area;	✓
5.2.2	confirm that the study area, is of “low” sensitivity for terrestrial animal species; and	✓
5.2.3	indicate whether or not the proposed development will have any impact on SCC.	✓
5.3	The compliance statement ¹⁸ 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;	✓

¹⁷ The methodology by which habitat suitability models have been developed are explained within the Species Environmental Assessment Guideline.

¹⁸ An example of what is contained in a Compliance Statement for Animal Species Impact Assessment can be found in the Species Environmental Impact Assessment Guideline

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 EMP; and	✓
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.	✓
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 ¹⁹ , 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 Critical habitat for range-restricted species²⁰ of conservation concern, that have a global range of less than 10 km². SCC listed on the IUCN Red List of Threatened Species²¹ or on South Africa's National Red List website²² as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare. 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. 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 Confirmed habitat for SCC. 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:	
	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 ²³ .	✓

¹⁹ Available at <https://bgis.sanbi.org/>

²⁰ Species with a geographically restricted area of distribution.

²¹ <https://www.iucnredlist.org/>

²² This category includes the categories Extremely Rare, Critically Rare and Rare

²³ The methodology by which habitat suitability models have been developed are explained within the Species Environmental Assessment Guideline.

	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 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 Areas where no natural habitat remains. Natural areas where there is no suspected occurrence of SCC.	✓
5.1	The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (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 ²⁴ 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 ²⁵ ; 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.	✓

²⁴ 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

²⁵ Refer to the Species Environmental Assessment Guideline.

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