Proposed Sheep Feedlot and Upgraded River Crossing at Portion 1/177 Vrolykheid Farm, Prince Albert.

Terrestrial Animal Species Specialist Assessment:

Site Sensitivity Verification Report and Compliance Statement

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Date:	May 2025
Version:	Final

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DECLARATION OF SPECIALIST INDEPENDENCE

- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);
- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;
- I do not have any influence over decisions made by the governing authorities;
- I undertake to disclose 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 a competent authority to such a relevant authority and the applicant;
- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity;
- This document and all information contained herein is and will remain the intellectual property of Confluent Environmental. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigators.
- All the particulars furnished by me in this document are true and correct.

Kim Daniels (MSc)

May 2025

SUMMARY OF EXPERIENCE AND ABRIDGED CV

- KIM DANIELS

Core skills

Three years of work experience (research assistance and education) for projects aimed at investigating invertebrate diversity, plant diversity, insect ecology, disease ecology, invasive species, plant systematics, herpetology, and climate change impacts on a variety of taxa.

Ecological and field work experience before, during, and after postgraduate degrees across a range of environments (mesic savanna, arid savanna, fynbos, succulent karoo, and Nama karoo) and taxa (plants, invertebrates, avifauna, amphibians, and small mammals).

My postgraduate studies have been focused on vegetation change in the fynbos and parasitic plants as thermal refugia for savanna birds.

Experience in conducting faunal and botanical specialist assessments for environmental authorisation projects throughout the Garden Route.

Work experience

Visiting academic for the Organization of Tropical Studies' African Ecology and Conservation course: Pollination Ecology

Teaching assistant at the Organization of Tropical Studies and Roots & Shoots

Internships in Entomology, Horticulture, and Plant Conservation

Research assistant at the Centre for Invasion Biology

Field assistant at Valuing Orchard and Integrated Crop Ecosystem Services Project as well as several short-term and long-term projects.

Qualifications

BSc. Biodiversity and Conservation Biology (2018, University of the Western Cape)

BSc. Hons. Biodiversity and Conservation Biology (2021, University of the Western Cape)

MSc. Conservation Biology (2023, University of Cape Town)

References

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ABBREVIATIONS AND ACRONYMS

CBA	Critical Biodiversity Area
CD:NGI	Chief Directorate: National Geo-spatial Information
DFFE	Department of Forestry, Fisheries, and the Environment
ESA	Ecological Support Area
EWT	Endangered Wildlife Trust
NEMA	National Environmental Management Act
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SDP	Site Development Plan
SSVR	Site Sensitivity Verification Report
WCBSP	Western Cape Biodiversity Spatial Plan

1. INTRODUCTION

Confluent Environmental Pty (Ltd) was appointed by CapeEAPrac to provide Terrestrial Animal Specialist inputs for a proposed sheep feedlot and the spreading of animal waste on existing farmlands, as well as an upgrade to the existing low water bridge providing access to Portion 1/177 Vrolykheid Farm near Klaarstroom, Western Cape.

1.1 General Site Location

Portion 1/177 Vrolykheid Farm is ca. 1914 ha. in extent and located east of Klaarstroom in the Prince Albert District Municipality. The R107 traverses the property. The active farming area and crops to be irrigated are located in the south of the property, south of the R107, and are a combined ca. 39 ha. in extent. They flank a non-perennial watercourse, the Jan Rolms River, flowing east to west (Figure 1). The property falls within the larger Gouritz Cluster Biosphere Reserve. Other protected areas within 5km of the site includes Groot Swartberg Nature Reserve and Swartberg East Nature Reserve, protected as a mountain catchment. Both of these reserves are south of the site.

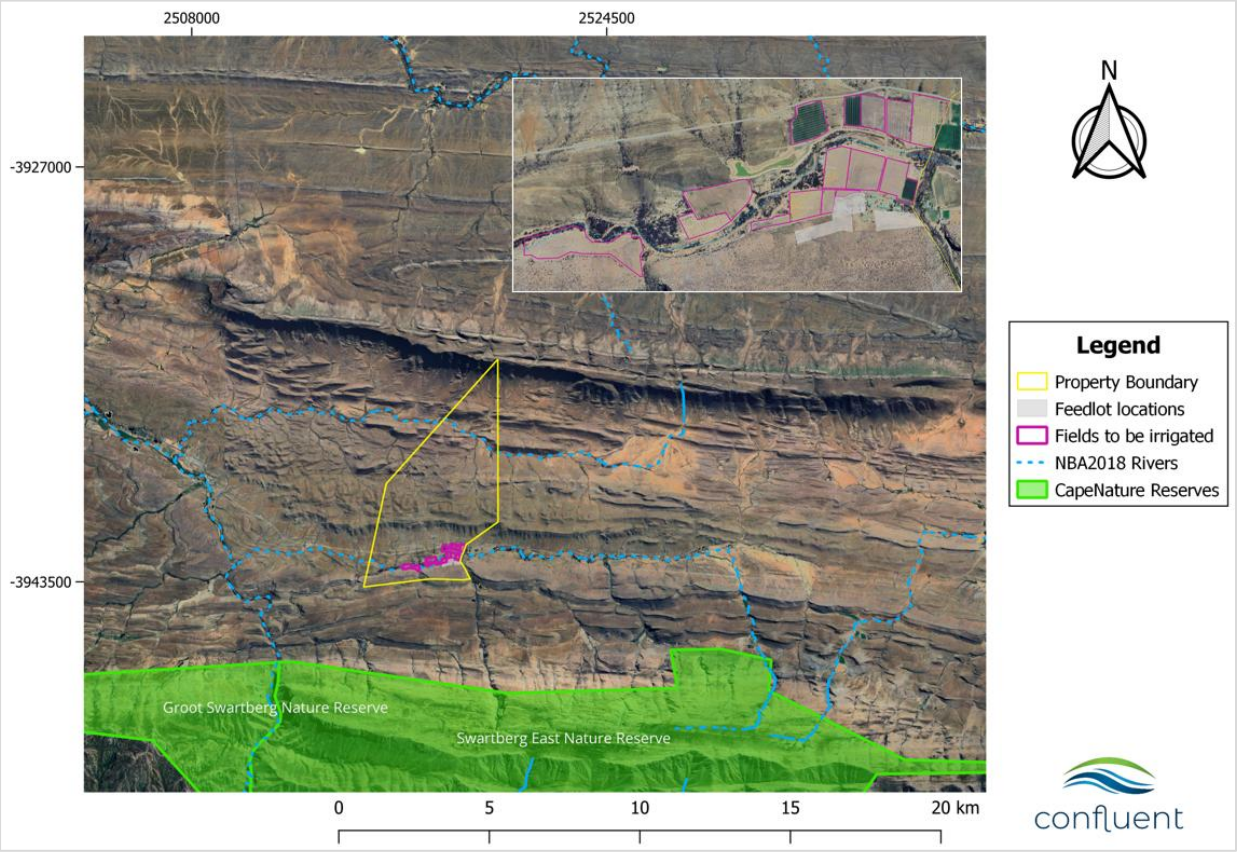

Figure 1. Portion 1/177 Vrolykheid Farm, Western Cape. Inset map shows a closer view of croplands proposed to be irrigated (purple) by effluent from sheep lots (greyed out).

1.2 Development Layout

At the time of writing this report the site development plan (SDP) proposed the transition of some existing old fields from their current use to sheep feedlots (). It is proposed that effluent from the feed lots be used to irrigate 37.5 ha of existing croplands (Figure. 1). An upgrade to

the existing low water bridge (Figure. 3) is also proposed on the property for access across the watercourse.

Figure 3. Location of the proposed sheep feedlots and associated infrastructure on Portion 1/177 Vrolykheid Farm

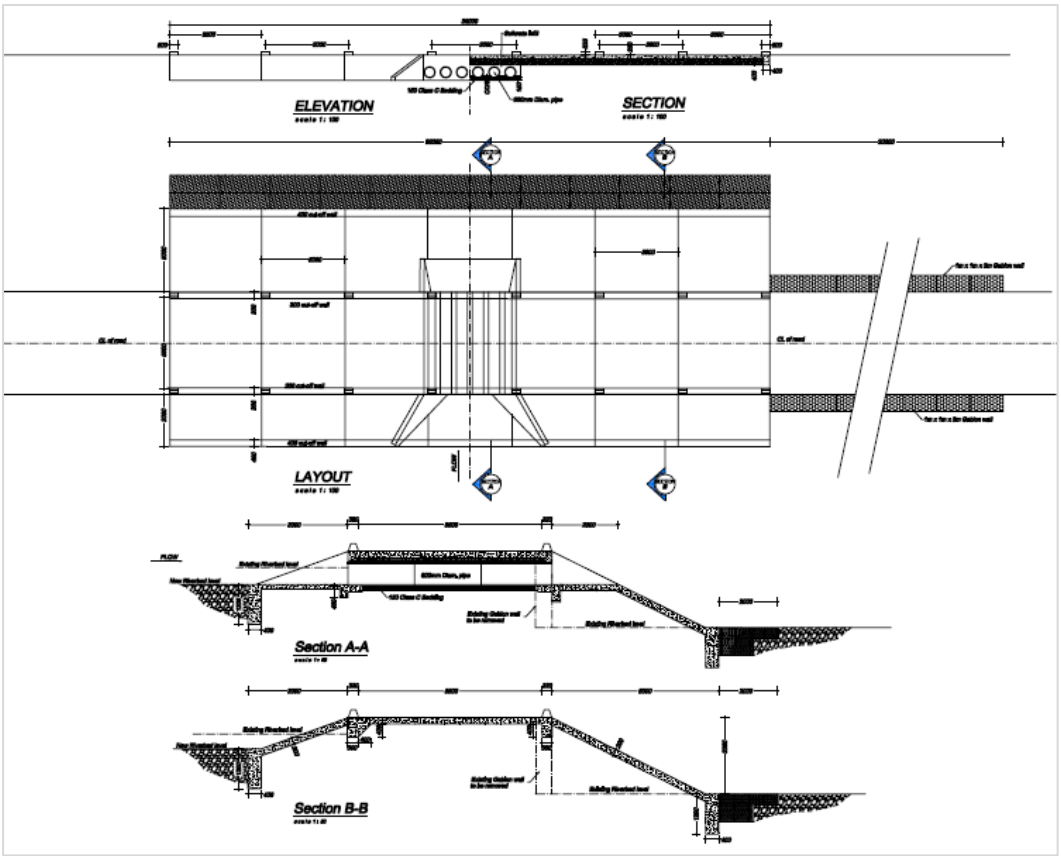

Figure 2. The low-water bridge proposed for Portion 1/177 of Vrolykheid Farm

The infrastructure to be developed for the feedlot area is as follows:

- Fencing of small kraals will be of wooden poles and wire;

- Each kraal will have a feeding trough on one side, and a water trough on the other side.
- A shadeport (shadecloth on a steel frame) will be erected in the middle of the two troughs to provide shade for animals.
- Troughs are made of steel with a rubber lining and they are free standing.
- A small concrete slab may be installed so the troughs can stand on something level.
- Water containing waste will gravitate through an earth furrow to the irrigation dam. Most of the solid faeces will be removed from the feedlot so the runoff should contain minimal solid waste.
- Solid waste will be collected in a manure collection area in the feedlot. It will be sprayed onto existing fields using a manure spreader.

2. TERMS OF REFERENCE

2.1 Online Screening Tool

The scope of work for this report is guided by the legislative requirements of the National Environmental Management Act (NEMA; Act 107 of 1998). The Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool determined a HIGH sensitivity for the terrestrial animal species theme across Portion 1 of Vrolykheid Farm 177 (Figure 4), with several animal Species of Conservation Concern (SCC) potentially present (Table 1).

As per Published Government Notice No. 1150 of the Government Gazette 43855 (30 October 2020)

A **HIGH** sensitivity rating indicates:

1. Confirmed habitat for SCC.
2. SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.

These areas are unsuitable for development due to a very likely impact on SCC.

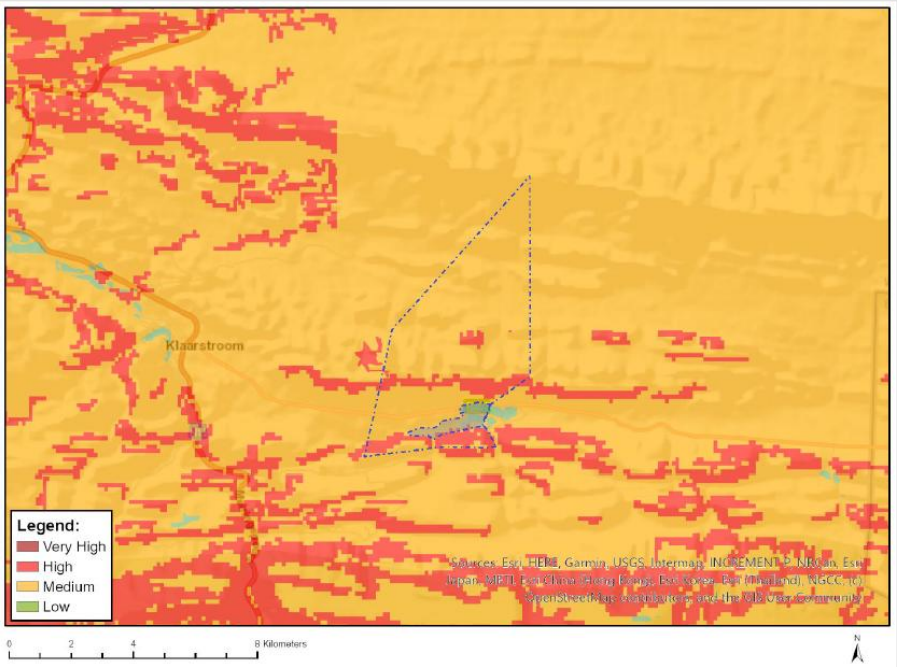

Figure 4. DFFE Online Screening Tool outcome for the terrestrial animal species theme for Portion 1/177 Vrolykheid Farm. The property boundary and boundary of the croplands is indicated by the blue dashed line.

Table 1. Species of Conservation Concern highlighted by the DFFE Online Screening Tool for Portion 1/177 Vrolykheid Farm.

Sensitivity	Classification	Scientific name	Common name	Red list status*
High	Avifauna	*Aquila verreauxii*	Verreaux Eagle	Vulnerable
Medium	Avifauna	*Circus maurus*	Black Harrier	Endangered
Medium	Mammal	*Bunolagus monticularis*	Riverine Rabbit	Critically Endangered
Medium	Reptile	*Chersobius boulengeri*	Karoo Dwarf Tortoise	Endangered

* Red list status as per SANBI's Red List of South African Species http://speciesstatus.sanbi.org

2.2 Scope of work

The purpose of this report is to verify the site sensitivity of the proposed sheep feedlot development area on Portion 1/177 Vrolykheid Farm for the terrestrial animal species theme in accordance with the protocols specified in the Published Government Notice No. 1150, Government Gazette 43855 (30 October 2020).

The site sensitivity verification includes:

- A desktop assessment to:
    - Characterize the vegetation, climate, general habitat features, and topography of the property.
    - Assess the property's location within the context of the Western Cape Biodiversity Spatial Plan (WCBSP).

  - Conduct a historical assessment of the property and immediate surroundings for any disturbances, development, and changes in land use or habitat characteristics over time.
  - Provide information on the habitat requirements for Species of Conservation concern highlighted by the DFFE online screening tool, in addition to other SCC indicated through online resources (e.g. Virtual Museum, iNaturalist) for the property and surrounding areas.
- On-site inspection(s) and field assessments to:
  - Verify the current land use and identify current impacts or disturbances on the property.
  - Characterize faunal habitats, determine the habitat suitability and the likelihood of SCC occurring on the property.
  - Conduct taxa-specific sampling for SCC in suitable habitats.
- Any other available and relevant information from
  - Discussions with landowners/neighbours.
  - Previous report findings for the property or surrounding areas.

Should the site sensitivity verification indicate a **LOW** sensitivity, then a Terrestrial Animal Species Compliance Statement will be issued.

Should the site sensitivity verification indicate a **HIGH** sensitivity, then a Terrestrial Animal Species Specialist Assessment will be compiled.

3. DESKTOP ASSESSMENT

3.1 Vegetation, Climate and General Habitat

The property is located at an ecotone between Succulent Karoo, Fynbos, and Albany Thicket biome and experiences a temperate climate year-round (Mucina and Rutherford 2006, Rebelo, *et al.* 2006). The mapped vegetation type at the site includes Prince Albert Succulent Karoo (SKv13) and Gamka Arid Thicket (AT33) which are not listed as threatened ecosystems in the revised national list of ecosystems that are threatened and in need of protection (18 November 2022). For a detailed assessment of the vegetation on site, refer to the botanical specialist assessment compiled by Bianke Fouche (Confluent Environmental, 2025).

Average temperatures range between 24^{0}C and 10^{0}C, with the hottest days on average experienced in January (30^{0}C highs and 16^{0}C lows) and the coldest days on average experienced in July (17^{0}C highs and 4^{0}C lows). Rain occurs throughout the year in a bimodal pattern with peaks in autumn (May) and spring (November; Figure 5).

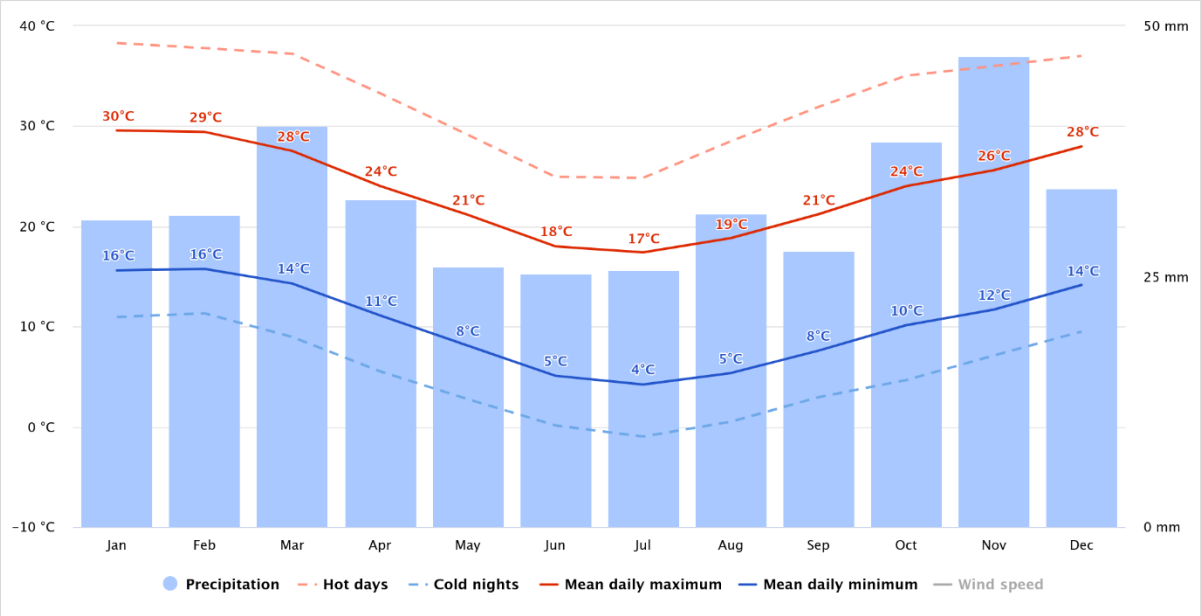

Figure 5. Summary of historical climate (modelled) for Portion 1/177 Vrolykheid Farm (www.meteoblue.com).

Satellite imagery from Google Earth and Cape Farm Mapper was used to assess general vegetation structure, elevational gradients, and water bodies within the project area (Figure 6). The surroundings of the croplands are comprised of dense vegetation (around the watercourse) and low density succulent karoo vegetation besides. Elevation is lowest at the watercourse, becoming markedly steeper south of the croplands towards the foothills of the Swartberg Mountains. Mapped watercourses and drainage lines are indicated as per the National Wetland Map 5 (Figure 6).

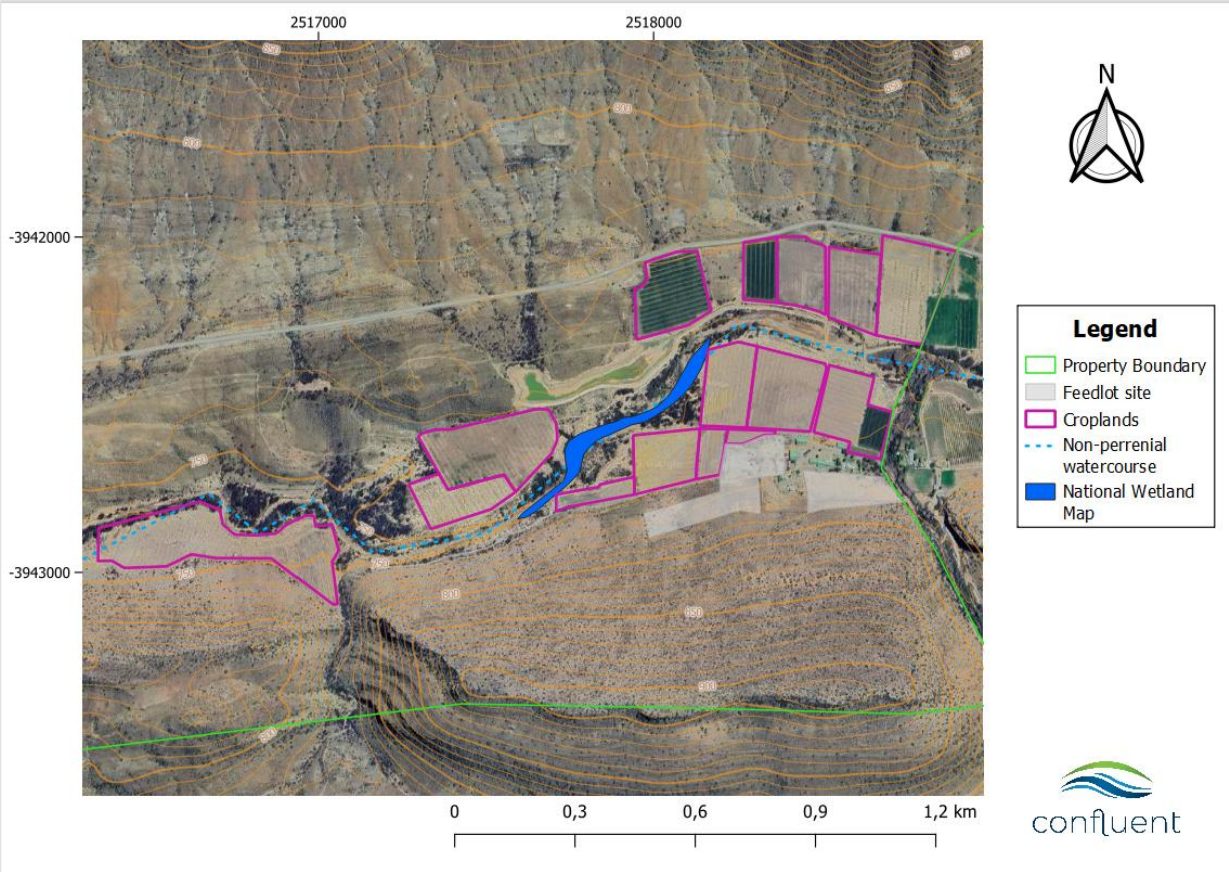

Figure 6. A map of the croplands proposed to be irrigated, with contour lines and in relation to mapped watercourses and wetlands (National Wetland Map 5).

3.2 Western Cape Biodiversity Spatial Plan

The Western Cape Biodiversity Act 6 of 2021 (WCBA) recognises the unique biodiversity in the Western Cape, the Republic's international obligations, the province's dependence on ecosystem services, the need for access and benefit sharing, and the need to ensure long-term ecological resilience.

Section 35 of the WCBA defines that the purpose of a Biodiversity Spatial Plan is to:

- Set biodiversity targets.
- Spatially identify one or more categories of biodiversity priority areas that will ensure the continued existence and functioning of biodiversity and ecosystems, including the delivery of ecosystem services.
- Provide guidelines that set out the desired management objectives for land and resource use in each category of biodiversity priority areas.
- Provide spatial planning and land-use decision-making guidelines to ensure environmentally sustainable development and resource use, as well as ecological and spatial resilience in the province.

- Ensure that the ecological infrastructure in the province is maintained, ecosystem fragmentation and loss are avoided, and the resilience of ecosystems and human communities to the impacts of climate change is strengthened.

To this end, additional mapping layers were applied to Portion 1/177 Vrolykheid Farm to include the Western Cape Biodiversity Spatial Plan (Cape Nature 2023), with Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) assessed in Figure 7 and Table 2 providing definitions and management options for these categories.

The croplands fall within a CBA 2 zone, with the Jan Rolms River being a CBA 1 zone (Figure 7). Areas surrounding the croplands are categorized as ESA1 and Other Natural Area (ONA). The reasons for the biodiversity spatial plan CBA 1 and 2 assignments for the croplands as given in the 2017 biodiversity spatial plan (since the BSP reasons layer for 2023 are yet to be released, although it is unlikely to report any big changes (pers. comm.— Cape Nature (March 2025)) The following reasons were provided in the 2017 plan. Grey entries either do not apply to the site or are outside of the scope of this report to provide comment on:

- Cape Mountain Zebra: Endemic to South Africa, Cape Mountain Zebra (*Equus zebra zebra*) is isolated in three locations: Nxuba (Eastern Cape), Kammanassie (Western Cape), and Gamkaberg (Western Cape). The closest locations of the subspecies are 30km and 70km from the site respectively. Additionally, they lie south of Swartberg, which is protected by Cape Nature but not recognized as a location where Cape Mountain Zebra occurs.

- FEPA River Corridor: This theme is outside of the scope of this report.

- Gamka Thicket (LT): The maintenance of natural vegetation is often important for the conservation of fauna. This theme is, however, better addressed by a botanical specialist report. It is also noted that croplands are modified environments.

- Prince Albert Succulent Karoo (LT): This theme is better addressed by a botanical specialist report although, as mentioned above, natural vegetation may be important for fauna.

- Rainshadow Valley Karoo Floodplain Wetland: Although this theme is better addressed by an aquatic specialist report, wetlands may be important habitats for some taxa such as amphibians and insects.

- Southern Folded Mountains Ephemeral Lower Foothill River: This theme is not addressed by this report, please refer to the aquatic specialist report.

- Southern Folded Mountains Ephemeral Upper Foothill River: This theme is not addressed by this report.

- Watercourse protection- Southern Folded Mountains: This theme is not addressed in this report.

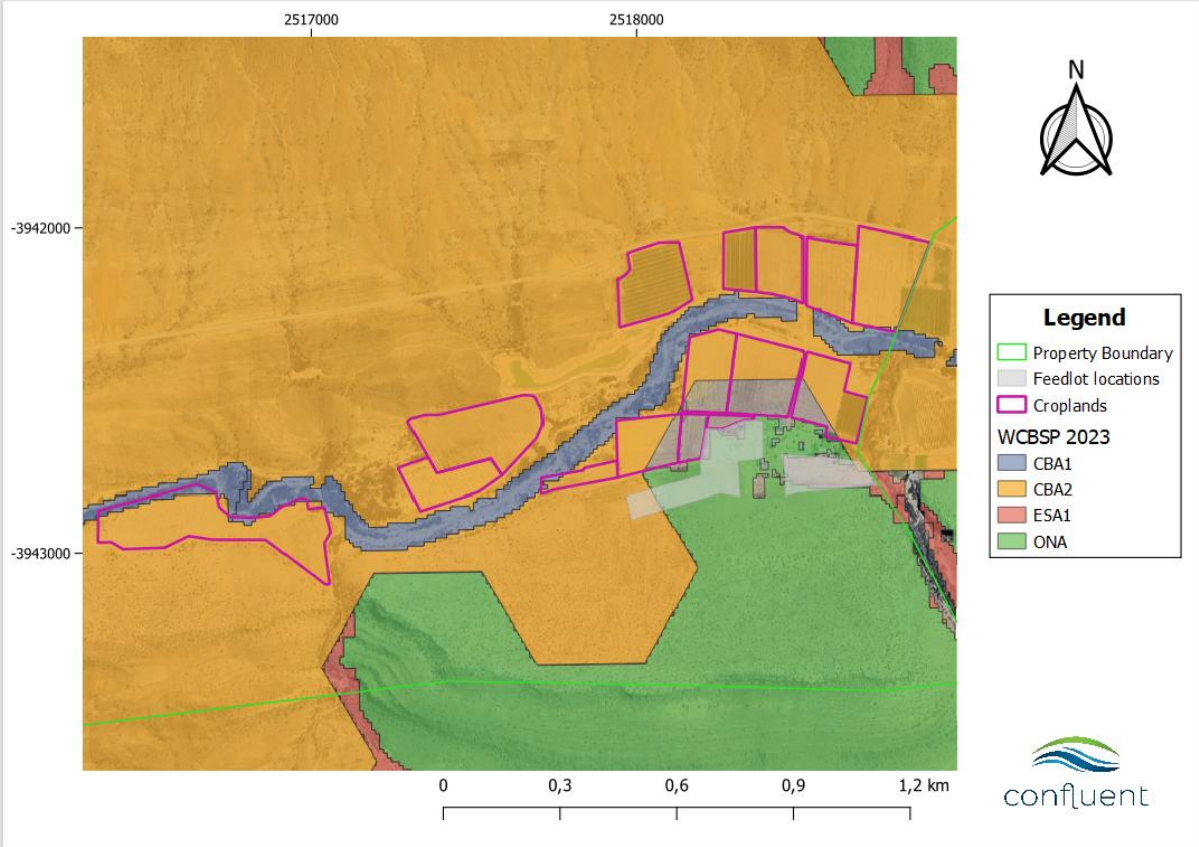

Figure 7. Site map of the croplands on Portion 1/177 Vrolykheid Farm with layers for the Western Cape Biodiversity Spatial Plan (2023).

Table 2. Definitions and objectives for conservation categories identified in the Western Cape Biodiversity Spatial Plan (CapeNature 2017) (Cape Nature 2023).

WCBSP Category	Definition	Management Objective
Critical Biodiversity Area 1 (CBA1)	Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
Critical Biodiversity Area 2 (CBA2)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land-uses are appropriate.
Other Natural Area (ONA)	Areas not currently identified as a priority but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although not prioritised, they are still an important part of the natural ecosystem.	Minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.
Ecological Support Area 1 (ESA 1)	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs and are often vital for delivering ecosystem services.	Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

3.3 Historical Assessment of Project Area

As evidenced by aerial imagery from the CD:NGI portal and Google Earth, the property has undergone minimal changes over the past 61 years from 1963 to 2024. In 2006 the currently disused dam at the site is still in use. Most buildings currently present are also already built. The watercourse appears to have been more densely vegetated in 1963, reducing in density up to 2024. It is difficult to determine the land use in 1963 due to the poor resolution of the images, but by 2006, it is evident that the purple areas are used for crops, a use that continues in 2024 (Figure 8).

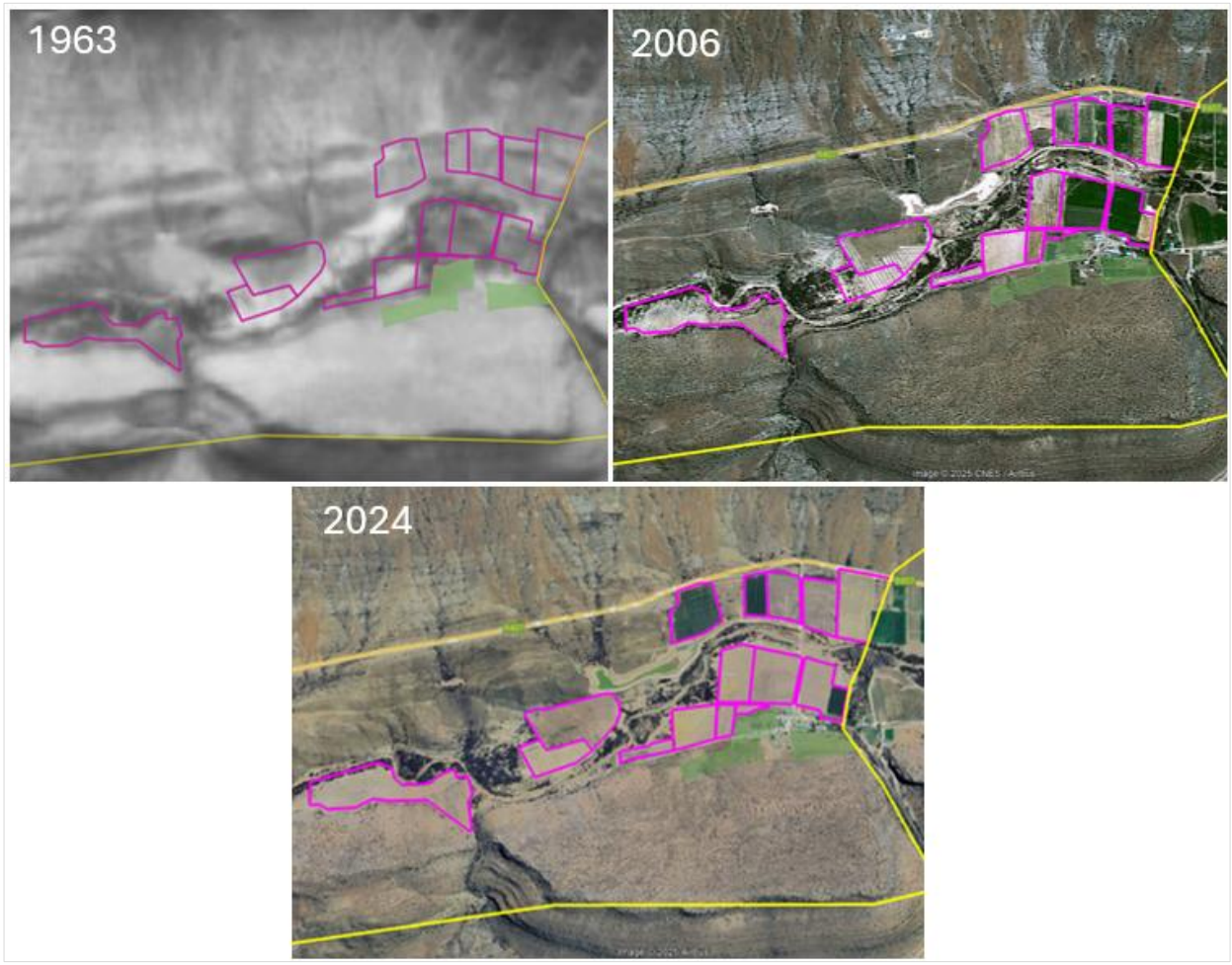

Figure 8. Historical imagery of Portion 1/17 Vrolykheid Farm sourced from the CD: NGI geospatial portal and Google Earth. The property boundary is indicated by the yellow line and the croplands are outlined in purple.

3.4 Species of Conservation Concern

In addition to the SCC highlighted by the DFFE screening tool (Table 1), the following public resources were consulted to provide additional SCC for Portion 1 of Vrolykheid Farm 177 and its immediate surroundings:

- iNaturalist (all taxa) within 2 km x 2 km of the project area.

- Global Biodiversity Information Facility (GBIF) data as sourced from the eBird observation dataset, SAFRING Historical Bird Ringing Records (2005-2009), Observation.org, and SANBI DNA banking (1987-2011).
- Virtual Museum for herpetofauna, mammals and invertebrate taxa within the Quarter Degree Square (QDS) 3322BC: DungBeetleMAP, FrogMAP, LacewingMAP, LepiMAP, MammalMAP, OdonataMAP, ReptileMAP, ScorpionMAP, SpiderMAP.
- South African Bird Atlas Project (SABAP2) for pentad 3320_2235.

Some SCC reported on the platforms were highly unlikely to occur at the site given either clearly unsuitable habitat or being deemed a vagrant/transient animal. For the purposes of this report these animals were excluded from further assessment (see also Section 4.2 and Appendix 1 for additional information).

The combined list of SCC (from DFFE Screening Tool and public resources) possibly occurring on Portion 1 of Vrolykheid Farm, 177, along with their habitat, breeding, and feeding requirements are listed in Table 3. The information for each SCC presented in Table 3 stems largely from the online SANBI Red List of South African Species (http://speciesstatus.sanbi.org) in addition to a few key resources for each taxa:

- Avifauna: Roberts Birds of Southern Africa VII (Roberts, et al. 2005)
- Mammals: The Mammals of the Southern African Subregion (Skinner 2005)
- Invertebrates:
    - Field guide to the insects of South Africa (Picker, Griffiths and Weaving 2019)
    - Field guide to the butterflies of South Africa (Woodhall 2005)

Any information presented from different sources is cited in the text.

Table 3. Summary of habitat, breeding and feeding requirements for animal SCC potentially occurring on Portion 1 of Vrolykheid Farm 177.

Red list status	Species	Habitat	Breeding	Feeding
AVIFAUNA				
Endangered	*Circus maurus* Black Harrier	In the Western Cape, mostly found in fynbos, especially montane fynbos and strandveld. Less common in dry restios and renosterveld. Elsewhere, occurs in dry grassland, Karoo scrub, crop fields (wheat), and grasslands (sometimes >3000m elevation). Many move from fynbos to Karoo and grasslands during the winter, likely to follow rodent numbers (e.g. capitalise on late summer litter of Sloggett's ice rats in Free State and Lesotho). Birds move away following fires and do not return for several years.	Mainly monogamous but some polygamy observed. Mate fidelity is low. Usually a solitary nester and territorial, but in Western Cape some semi-colonial nesting is observed with less territorial behaviour. Nest is a small structure of grass, stems, and small twigs. Usually on or just above ground, in rank marsh grasses or near Fynbos bushes and sedges (*Juncus* spp.) Nests most often in marshes or next to small streams, but also on damp soil or dry ground. Nest areas are reused in successive years. There is one observation of nest site used for 26 years. Lay dates are from mid-May to mid-December with a peak in mid-August to end of September. It is, however, noteworthy that laying occurs relatively earlier under rainier conditions, particularly when rain was more intense in autumn, winter, and spring, and when summers preceding laying were wetter. Nests in coastal regions have been shown to have earlier lay dates than those located in mountain regions and to lay over a more extended period (up to two months earlier and one month later than in the	Specialist predator of mice and birds. Predominantly rodents (vlei rats, mice) eaten by birds in Fynbos areas and small birds dominate diet of birds in mountain areas. Also takes reptiles and frogs. Insects are eaten but to a lesser extent. Sometimes caches prey. Forages most actively on blustery days (windy and rainy), hovers 1- 3m above vegetation with buoyant flight. Flashes into vegetation, hits prey hard and eats on ground. Perch hunting rare.

Red list status	Species	Habitat	Breeding	Feeding
			interior-mountain regions) (Garcia-Heras et al., 2016)	
Vulnerable	*Aquila verreauxii* Verreaux's Eagle	Hilly and mountainous regions with cliffs. Mostly active at dawn and dusk, then roosting/ resting in shade during the heat of the day.	Monogamous, solitary nester, and territorial. Territories can contain up to 5 nest sites, although one is usually favoured. Typically nests on cliffs, often in an overhung crevice or in a small cave, and sometimes on an open ledge. Very rare for a nest to be in trees. Nest is a large platform of sticks with a cup lined with green leaves. Old nests can be 2.5m in diameter and 4m high. Laying dates are between April and July. Usually lays 1 or 2 eggs. Incubation lasts between 44 and 48 days.	Preys on small mammals mostly, with main prey being rock hyraxes (*Procavia capensis*) but will also take small antelopes, gamebirds, hares, monkeys and small stock (young goats, sheep). Hunts aerially or from a perch, often in pairs, and takes most prey on the ground. Sometimes uses trees or cliff faces for cover. Hunting usually in early morning or late afternoon
Near Threatened	*Chaetops frenatus* Cape Rockjumper	Rocky mountain fynbos on windswept high slopes and ridges with high rainfall, down to sea level around Cape Hangklip, Western Cape. Threatened by alien vegetation, climate change, predation, and changes in land use. Distribution from Piketberg to the Cederberg to Cape Hangklip to Uitenhage.	Monogamous, facultative cooperative breeder. Group comprises breeding pair and sometime one or two additional birds. Territorial solitary nester. Nest is an untidy bowl of grasses, twigs, moss, lichen, fine restios, roots, fur, and hairy protea seeds. Placed on the ground at the base of a boulder or slab hidden by vegetation and protected from wind. Recorded breeding from September to November. Incubation was from 19 to 21 days with a clutch size of 2. Nestling period was 18 to 21 days long.	Feeds on the ground, scratching and probing in the sand at the bases of bushes and boulders. Eats mostly arthropods; occasionally lizards, rarely amphibians.
TERRESTRIAL INVERTEBRATES				

Red list status	Species	Habitat	Breeding	Feeding
Endangered	*Aloeides clarki* Coega Copper	Endemic to the Eastern Cape Province of South Africa, from the Sundays River and Coega area near Port Elizabeth. A special reserve for the butterfly has been established at Coega at a location named Butterfly Valley.	Little is known, but *Lepisiota capensis* ants are hosts for subspecies *A. p. grandis*.	Little is known, but larval food for the subspecies *A. p. pallida* and *A. p. jonathani* feed on *Aspalathus* species. The larvae of subspecies *A. p. grandis* are fed by trophallaxis by *Lepisiota capensis* ants and later feed on these ants' eggs.
Data Deficient	*Epirinus montanus* Dung Beetle	No information is available on the habitat requirements of the species, but *Epirinus* is distributed throughout southern Africa primarily in winter and bimodal rainfall climates of the southwest as well as southwest or northeast forests and highlands. The species is only known from two records from sandy substrate in mountain fynbos (pers. comm.- C. Scholtz (April 2025))	Members of the true dung beetle sub-family Scarabaeinae are well known for using the dung of larger animals for breeding purposes. No species-specific information is known.	Scarabaeinae (the sub-family that contains true dung beetles) is well known for using the dung of larger animals as forage. No further information is known for this species.
REPTILES				
Endangered	*Chersobius boulengeri* Karoo Padloper	Strong association with dolerite ridges and rocky outcrops of the southern succulent Karoo and nama Karoo biomes. Occurs peripherally in the Albany thicket biome in the southeast in dwarf shrubland that contains succulent and grassy elements. The tortoises usually take shelter in rock crevices and under rocks in vegetated areas. Threats include grasses invading the Karoo (leading to replacement of dwarf shrubs, increasing fire hazard, and	Females nest in autumn and spring and have single-egg clutches. No information exists on age at maturity and longevity but expected to mature at 10-12 years of age.	Padlopers as a group generally are known to eat grasses, shrubs, succulents, herbs. Succulents provide water. Insects are also sometimes consumed. This species, however, prefers *Hermannia* sp. and avoids grasses, with increasing numbers of *Crassula* and *Oxalis* eaten in Spring (Loehr et al., 2023)

Red list status	Species	Habitat	Breeding	Feeding
		reducing both food and cover), grazing pressure by livestock, and predation by crows and baboons (exacerbated by lack of predator refuge). Known populations occur in and around Williston, Carnavon, Fraserberg, and Pearston. Last seen in the Prince Albert area in in 1990's.		
Near Threatened	*Psammobates tentorius* Southern tent tortoise	Occurs in arid regions under varying temperature regimes and from sea level to at least 1500 masl (metres above sea level). Occurs in regions with winter, summer, and all-year rainfall in dwarf shrubland with succulents, annuals, grasses, and geophytes. *Psammobates t. trimeni* is restricted to a winter-rainfall region dominated by dwarf succulent shrubs and annuals. *Psammobates t. verroxii* occurs mainly on the inland plateau above 900 m, although its range may extend below the escarpment in the west, and rainfall in its range is predominantly in summer and unpredictable. The SCC is generally more dormant during winter months, burying themselves in sand or retreating into animal burrows. Threats to *Psammobates tentorius* include road mortality, veld fires, electrocution by livestock/game	Take 5-8 years to mature. Female *P. tentorius tentorius* in the Karoo have an extended reproductive season from spring to late autumn (October to June). They produce small clutches (1.78 ± 0.63; 1–3 eggs) but produce several clutches (3.7 ± 1.6; 1–6 clutches) in a season as a means of coping with low and unpredictable rainfall.	Tent Tortoises are known to feed in early morning or late afternoon on grasses (*Stipagrostis* sp.), annuals (*Oxalis* sp., *Gazania krebsian*), and succulents (*Anacampseros* sp.). *Psammobates t. verroxii*i in southern Namibia feeds on grasses, herbs, bulbs, succulents, trees/shrubs, other plant matter, and bone.

Red list status	Species	Habitat	Breeding	Feeding
		fences, and overgrazing from domestic livestock.		
MAMMALS				
Critically Endangered	*Bunolagus monticularis* *Riverine rabbit*	Dense riparian growth on alluvial soils along the seasonal rivers in the central Karoo (Nama-Karoo shrubland). Observations from the southern Cape population include new records but most of the occupancy lies in the Upper Karoo Bioregion (approximately 80%). The southern population is found within the following habitat types as described by Vlok and Schutte-Vlok (2010): Transitional Shrublands Vegetation, Arid Renosterveld, Succulent Karoo Vegetation, Apronveld, and Randteveld. They are not restricted to the alluvial floodplains in the southern Cape and can also occur in old lands not associated with riverine vegetation. The northern population are highly reliant on the critical resource areas of Karoo riparian ecosystems. Home range has been estimated as 12 ha. This species is elusive and nocturnal, spending daylight hours in a scrape beneath riparian vegetation.	They are solitary and will only be found in breeding pairs for short periods, or in female-juvenile pairs for rearing purposes.	This species is predominantly a browser but is known to occasionally feed on grasses during the early wet rainy season when short, green grasses become available. When browsing, they have been found to show a preference for *Pteronia erythrochaetha*, *Kochia pubescens*, *Salsola glabrescens*, and species of Aizoaceae. They are unable to survive on heavily overgrazed or agriculturally transformed habitats but have been found feeding on lucerne fields at night.

4. FIELD ASSESSMENT

4.1 Methods

Following the Species Environmental Assessment Guidelines (SANBI 2020) and Table 3, taxa-specific sampling techniques were conducted in habitats where SCC were likely to occur. Taxa-specific sampling was interspersed with a meander across the project area to collect additional opportunistic data for all fauna and inspect all habitat types (Table 4).

Table 4. Sampling techniques conducted for potential SCC occurring on Portion 1/177 Vrolykheid Farm.

Taxa	Field methods	Public platform where observations were reported
Avifauna	• Meander* across site for direct observations. • 3 point counts (5-minute bird counts).	Birdlasser (species lists) iNaturalist (photos)
Reptiles	• Meander* across site for direct observations. • Active searching.	iNaturalist (photos)
Invertebrates	• Meander* across site for direct observations. • Active searching.	iNaturalist (photos)

* Meandering involved slow walking across the site through various habitat types and key landscape features. Active observations took place for all fauna throughout this walk which was then supplemented by taxa specific sampling methods in habitats deemed most suitable for SCC.

4.2 Assumptions and Limitations

1. While the public platforms mentioned in Section 3.4 are excellent sources of additional information for animal species occurring within an area, these results require some expert interpretation to determine which of the SCC are relevant to include in the faunal assessment of the project area. For example, the coarse spatial scale of reporting within the Virtual Museum platforms (Quarter Degree Square level (27km x 27km) or SABAP2 pentad level (9km x 7 km)) can result in species records from habitats quite different to those present on site. Additionally, these platforms include sightings of vagrant or transient animals upon which an assessment cannot reasonably be based. Expert interpretation is therefore applied to the full list of SCC identified by the various public platforms (see Appendix 1) and some species are then excluded from further assessment due to the project area clearly lacking suitable habitat or the species clearly representing a vagrant or transient animal outside its normal range. The SCC assessed in this report therefore represent those which may reasonably occur on site. However, there is always the possibility that some SCC (although highly unlikely to occur on site) are overlooked in this process.

2. One field visit took place to the site for the faunal assessment. The detectability of animal species increases with more visits. This assessment therefore only represents a “snap-shot” in time and it is possible that SCC occurring on site were not observed during the visit. These results should therefore be interpreted with this in mind and not be treated as an exhaustive list of species occurring on site.

3. The site visit took place during daylight hours so the likelihood of encountering nocturnal species was limited, although no species of this description were highlighted as SCC.

4. The site visit coincided with early autumn. This may be of consequence for some species showing seasonal variation in breeding and activity patterns.

5. Evidence of animals in the form of tracks, scats, and signs always brings with it a level of uncertainty, but best efforts were made in this regard, and uncertainties are highlighted in the report.

4.3 Site Inspection Details

One site visit took place on 26 March 2025. The weather was warm with little wind and clear skies. Vegetation types mapped for the site according to the National Vegetation Map are Prince Albert Succulent Karoo (SKv13) and Gamka Arid Thicket (AT33) (for further details refer to the Botanical Report — B Fouche: Confluent Environmental). Habitat types found on the site consist mainly of riverine bushy/ tree vegetation (which provides habitat to tree nesting birds and insects), riverine reed beds (providing habitat to small mammals and birds), river (supports a variety of taxa at the site as breeding and hunting sites (invertebrates and amphibians) and for drinking) and associated eroded riverbed (primary and secondary cavities providing roosting and breeding sites for birds such as swallows and kingfishers, for example), croplands (fallow and not; providing habitat (rodents, insects), forage, and hunting grounds to a variety of taxa), and disturbed habitat associated with old fields (rocky with sparse vegetation dominated by kraalbos (*Aizoon africanum*)), buildings, and dirt roads, and grazed sparse native vegetation (Figure. 9). An effort was made to cover the project area with the meander and to conduct taxa specific sampling techniques across a range of suitable habitats for potential SCC (Figure. 10).

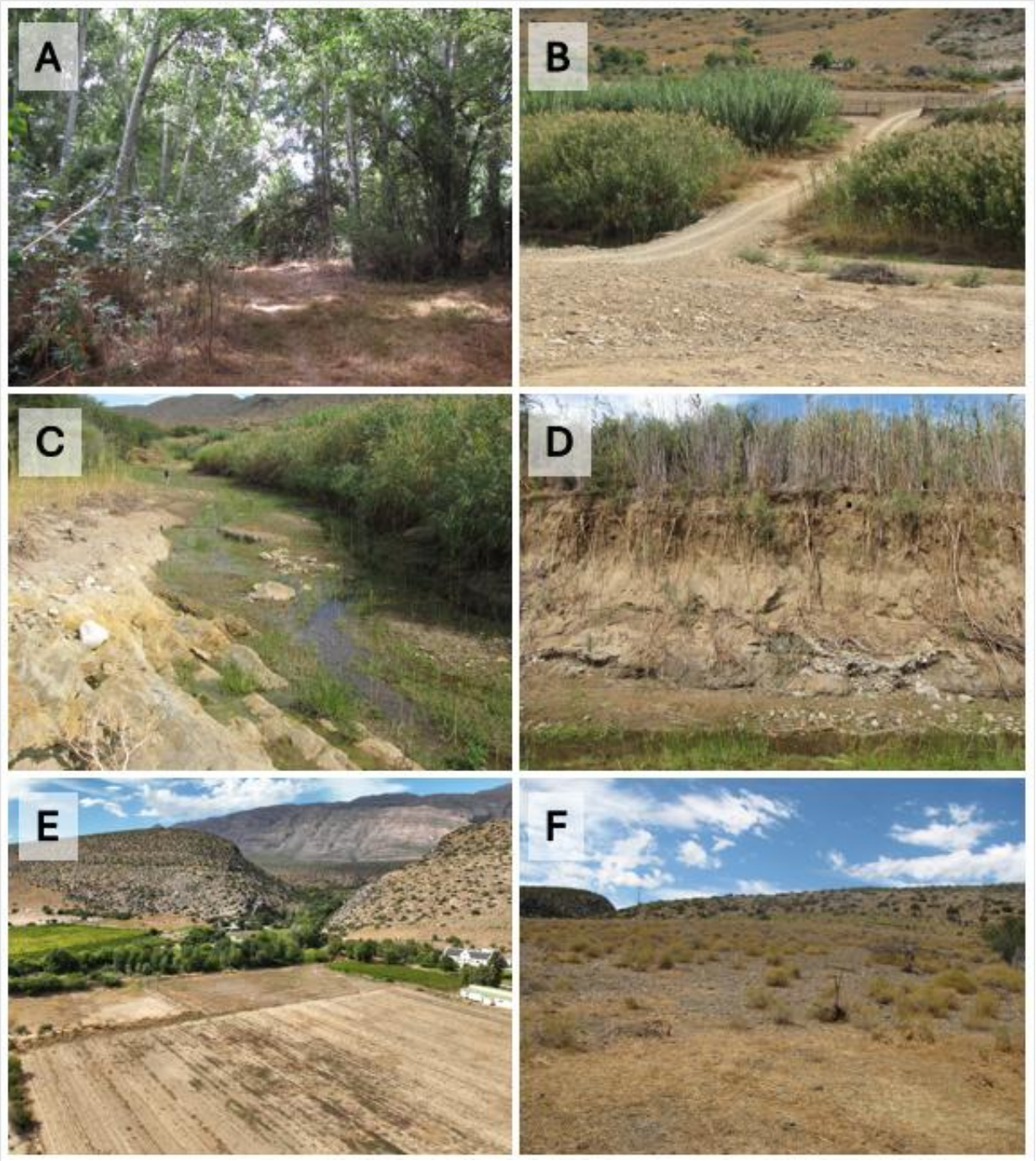

Figure 9. Habitat types identified on Portion 1 of Vrolykheid Farm 177 namely (A.) Riverine bushy/ tree vegetation; (B.) Riverine reed beds; (C.) River, (D.) Eroded riverbed, (E.) Croplands and, (F.) Disturbed old field.

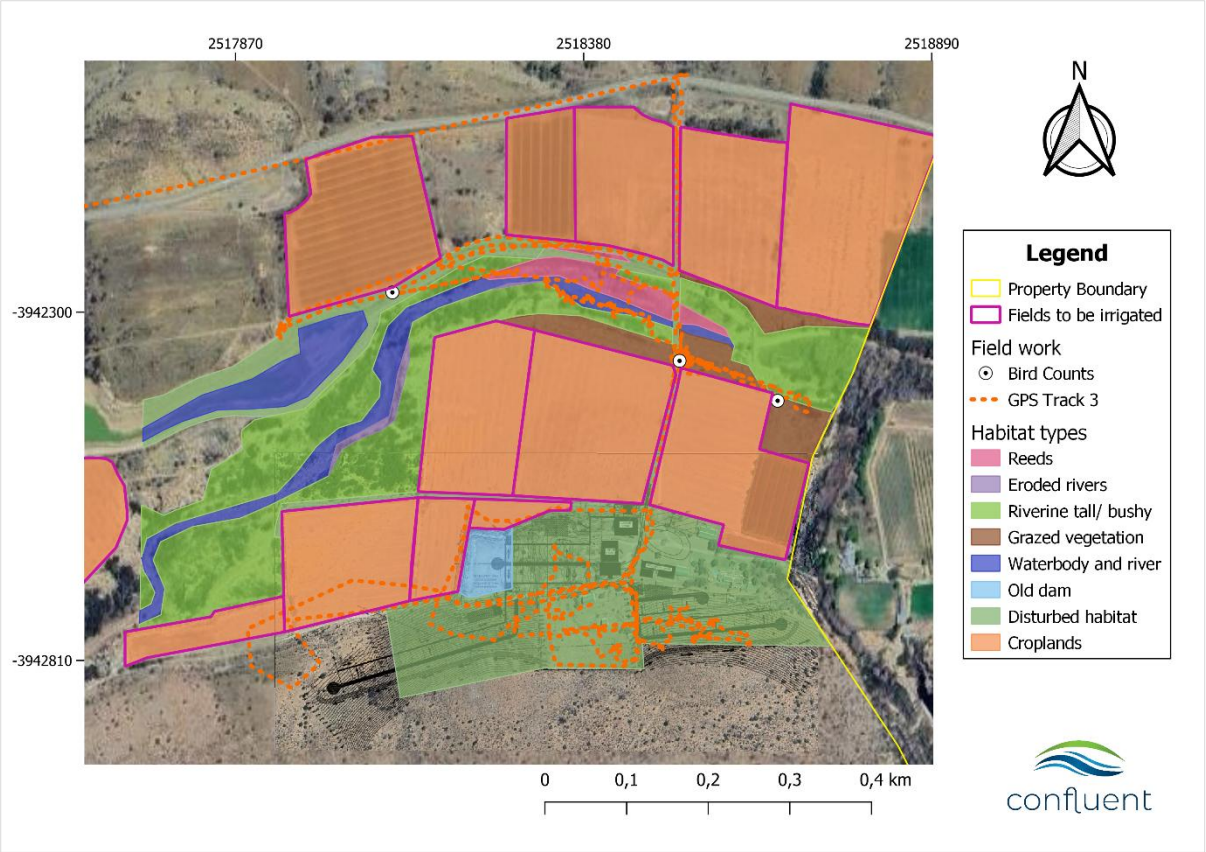

Figure 10. Habitats found on Portion 1/177 Vrolykheid Farm as well as field work conducted at the site.

4.4 Results

4.4.1 Avifauna

No SCC was encountered during the site visit. Three bird counts were conducted across the property, in addition to opportunistic sightings noted throughout the meander and searching for nests/roosting sites in suspected habitat. A total of 11 bird species were identified during the site visit, as well as a disused nest (Figure 11; See Appendix 2). Photographs of some bird species were also taken at the site (Figure 12).

Figure 11. The nest found at Portion 1 of Vrolykheid 177. Nest was situated to too high in the tree and considered too disused to determine species.

Figure 12. Some bird species found at Portion 1 of Vrolykheid 177 namely A) Black-headed canary (Serinus alario), (B.) Cape sparrow (Passer melanurus), (C.) Laughing dove (Spilopelia senegalensis) and, (D.) Helmeted guineafowl (Numida meleagris)

4.4.2 Mammals

The mammal SCC was not found, but Domestic Sheep (*Ovis orientalis aries*) of the Dorper breed were found across the site, kept by the owner of the property. These free-roaming sheep and their associated scat represented a nutrient input across the site. At least one rodent (resembling individuals in the genus *Rattus*, the rats) was seen, as well as other smaller mammals such as Grey mongoose *(Herpestes ichneumon*), Rock hyrax (*Procavia capensis*), and a klipspringer or bush duiker (Antilopinae).

4.4.3 Terrestrial invertebrates

No SCC were found during the site visit with the only beetle type found being chafers (Scarabaeidae). Three butterflies/ moths (Lepidoptera) were seen namely a blue (Lycaenidae), Pioneer white (*Belenois aurota*), and Geometer moth (*Grammodes stolida*). Short-horned grasshoppers (Acrididae) were found across the site. Scorpions (suspected to be *Opistacanthus* sp.) were found under rocks (see Figure 13 for a burrow found at the site). Three species of dragonfly (Odonata) in the family Libellulidae occur (Figure 14). Suspected species are Broad Scarlet (*Crocothemis erythraea*), Orange-winged Dropwing (*Trithemis kirbyi*), and Skimmer (*Orthetrum* sp.).

Figure 13. A scorpion (Opistacanthus sp.) burrow found on site.

Figure 14. Dragonflies found at Portion 1 of Vrolykheid Farm 177 namely (A.) Orange-winged Dropwing (Trithemis kirbyi), (B.) Broad Scarlet (Crocothemis erythraea), and a (C.) Skimmer (Orthetrum sp.) with C1 showing a breeding pair and C2 showing a single individual.

4.4.4 Amphibians

No amphibian SCC were highlighted for this site by the DFFE Screening Tool or any of the public platforms. During the site visit a Karoo Toad (*Vandijkophrynus gariepensis,* LC) was heard calling, but no additional species were directly observed at the site which could be attributed to climatic issues or the time of day (with midday being less than ideal when searching for frogs).

4.4.5 Reptiles

No SCC were found at the site. The site proposed for the feedlot is not ideal to support tortoise SCCs highlighted due to the lack of thermal refuges such as large rocks and bushes in the project area. Additionally, the presence of suitable food plants was not recorded at the site.

4.4.6 Likelihood of Occurrence for SCC

Following the terrestrial fauna surveys and site inspection, the possible SCC occurring in the project area on Portion 1/177 Vrolykheid Farm were evaluated according to their likelihood of occurrence. It is always possible that a species assessed as having a low probability of occurrence can still occur on the site, especially species which are listed as having a low likelihood of detection, and therefore this table represents the best assessment possible given the information obtained during the desktop and site assessment.

Table 5: Likelihood table for faunal SCC suspected to occur on Portion 1 of Vrolykheid Farm 177.

Species	Red list status	Observed	Suitable habitat	Likelihood of occurrence	Reason
AVIFAUNA					
Circus maurus Black Harrier	Endangered	No	No	Low	Inland, the SCC nests in dry riverbeds where Kraalbos vegetation occurs, in montane uplands, damp areas and south-facing slopes with midday shade (Simmons 2020). This does not characterise this site. Although very few observations of the SCC are noted in the vicinity of the site it is within the mapped range of the SCC. Prey species are present and if the SCC is present, the site may be used opportunistically for hunting but would not be used preferentially for this purpose.
Aquila verreauxii Verreaux's Eagle	Vulnerable	No	No	Low	The SCC is present in the surrounding habitat. The site may be used opportunistically to support its feeding needs but would not be used preferentially and is not novel in the resources it provides.
Chaetops frenatus Cape Rockjumper	Near Threatened	No	No	Low	The site is at the edge of the SCC's range, and no observations have been made close by or in similar habitats to the site.
TERRESTRIAL INVERTEBRATES					
Aloeides clarki Coega Copper	Endangered	No	No	Low	The SCC occurs within a very small range in Coega, Eastern Cape and is not known to occur elsewhere. Additionally, the habitat at the site is not suitable to host the species.
Epirinus montanus Dung Beetle	Data Deficient	No	Unknown	Low	Herbivore dung is present at the site, however known records of the species were from sandy substrate in mountain fynbos (*pers comm*— C. Scholtz). It can therefore be reasonably said that the SCC does not occur at the site given the lack of suitable habitat.
REPTILES					
Chersobius boulengeri Karoo Padloper	Endangered	No	No	Low	The vegetation affected by the proposed infrastructure does not provide habitat, breeding, or feeding space for the SCC, although the correct vegetation type to support this species is mapped. Geology at the site (predominantly sandstone with some shale) does coincide with where individuals have been found before (although sandstone and dolerite are preferred), however no refuge

Species	Red list status	Observed	Suitable habitat	Likelihood of occurrence	Reason
					from predators (terraces, sills strewn with boulders) are present at the site and its surrounds. The closest observation of the SCC was in the 1990's outside of Prince Albert in Dwyka Tillite absent from this site (pers. comm— C. Hundermark (May 2025)). Additionally, the species is not mapped to occur on the property by the IUCN assessment compiled in 2018. The SCC is therefore unlikely to occur at the site.
Psammobates tentorius Southern tent tortoise	Near Threatened	No	No	Low	This SCC has a wide distribution but the lack of suitable food plants at the site makes its presence unlikely
MAMMALS					
Bunolagus monticularis Riverine rabbit	Critically Endangered	No	Yes	Low	Although habitat is marginally suitable, no known populations of the SCC occur in this area and no evidence of its occurrence was found. Known food plants also do not occur.

5. SITE SENSITIVITY VERIFICATION

After the site visit and fauna surveys, it is determined that the site sensitivity for the terrestrial animal theme of Portion 1 of Vrolykheid Farm 177 is **LOW**. This does not accord with the **HIGH** sensitivity highlighted by the DFFE Screening tool for most of the property.

Based on the information in this report during the desktop and field assessment, the following reasons support this finding:

- All SCCs have a low likelihood of occurrence at the site. Raptor SCCs (i.e. Black Harrier (*Circus maurus*) and Verreaux's Eagle (*Aquila verreauxii*)) may visit the site opportunistically to forage, but neither the present activity nor the resources that may be created by the proposed activity would not lead to the site being used preferentially for this purpose. Prey species and suitable breeding habitat are present throughout the wider landscape to which avifauna would have access.

- The development of the sheep feedlot, spreading waste on existing croplands, and the upgrade of the low water bridge are activities expect to have little effect on the SCC outlined. It does not modify the habitat beyond its present condition in such a way that novel resources or habitats are made available to SCC, nor does it remove vast amounts of existing habitat.

As per the Published Government Notice No. 1150, Government Gazette 43855 (30 October 2020), the **LOW** sensitivity of the site allows for a **Terrestrial Animal Species Compliance Statement** to be issued.

6. COMPLIANCE STATEMENT AND RECOMMENDATIONS

Following on from the site sensitivity verification for the Terrestrial Animal Species Theme, a compliance statement is issued for the proposed sheep feedlot and river crossing upgrade. Some general recommendations for the project include:

- Animals are dependent on botanical and aquatic resources for habitat, breeding, and feeding purposes. All recommendations provided in the Botanical Specialist Report (B. Fouche— Confluent Environmental) and the Aquatic Specialist Report (J. Dabrowski— Confluent Environmental) should therefore be applied for the protection of these resources for fauna.
- General recommendations and best practice guidelines should be followed for all animal species encountered (regardless of whether they are SCC or not) during any stage of the development. These are summarised in Box 1 below:

Box 1: Best practice principles for ALL fauna encounters during construction or operational phases of projects

If any animals are seen on site, a photo or a video should be taken if possible (to assist in identification) and all fauna encountered on site should be reported to the ECO immediately. This is particularly important when:

- An animal is harmed or compromised in any way during construction.
- Ground-dwelling animals their nests or eggs are unearthed during earthworks (e.g. moles, tortoise eggs, terrapins/frogs estivating).
- Any animal with limited mobility is found on site (e.g. tortoises, moles, chameleons).
- Any potentially dangerous animal is encountered. This includes any potentially venomous animal (e.g. snakes, scorpions) or any medium-large animal that has become cornered in an enclosed area such that it cannot escape (e.g. porcupines, monkeys, baboons, antelope). It is critical in the case of snakes/ scorpions to get pictures/videos to aid in identification and appropriate treatment of anyone needing medical assistance.
- Any animal that shows a reluctance to escape or move away from the construction site thereby increasing its exposure to harm or increasing the risk of injuring people on site.

The ECO should provide guidance or assistance to get all animals to safety, treating any injured animals, and issuing instructions on when to continue with construction (once they are satisfied that all animals have been removed from site) or put additional mitigation measures in place to protect animals on the site from harm.

For any injured animals or animals to be removed from site (domestic or wild):

A local SPCA or animal welfare society can collect and treat most animals and should be the first point of call for assistance. If they cannot directly assist, they will revert and notify the relevant authorities/vets.

For any assistance with snake removals/relocations, identifications, or bite treatment contact the African Snakebite Institute. The contact details of a suitably qualified snake handler are provided at the following link: https://snakeremoval.co.za/prince-albert. Also available are the following emergency contacts.

SNAKEBITE EMERGENCIES:	
Poisons Information Helpline	+27 861 555 777
Dr Jenna Taylor	+27 83 631 4816
Dr Christoff Bell	+27 73 174 0199
Johan Marais	+27 82 494 2039
Jason Seale	+27 82 781 8498
Arno Naude	+27 83 739 9303
Dr PJC Buys	+26 481 127 5109 (Namibia)

GET THE FREE APP:

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APPENDIX 1: SCC IDENTIFIED FROM PUBLIC PLATFORMS FOR THE PROJECT AREA.

SCC were included or excluded from further analysis in this report based on expert interpretation for the presence/absence of key landscape and habitat features on site. See Section 4.2 Assumptions and Limitations for more information.

Taxa	Species	Common name	Regional; Global status	Source	Assessed in report
Avifauna	*Aquila verreauxii*	Verreaux's eagle	Vulnerable; Least concern	Screening Tool, SABAP2, iNaturalist	Yes
Avifauna	*Chaetops frenatus*	Cape Rockjumper	Near threatened; Near threatened	iNaturalist	Yes
Avifauna	*Circus maurus*	Black Harrier	Endangered; Endangered	Screening Tool	Yes
Invertebrate	*Epirinus montanus*	Dung Beetle	Data deficient; Endangered	Virtual Museum	Yes
Invertebrate	*Aloeides clarki*	Coega Copper	Endangered	Virtual Museum	Yes
Mammals	*Bunolagus monticularis*	Riverine Rabbit	Critically Endangered	Screening Tool	Yes
Mammals	*Equus zebra*	Mountain Zebra	Vulnerable	Virtual Museum	No
Reptiles	*Chersobius boulengeri*	Karoo Padloper	Endangered	Screening Tool	Yes
Reptiles	*Psammobates tentorius*	Karoo Tent Tortoise	Near threatened	Virtual Museum	Yes

APPENDIX 2: AVIFAUNA SPECIES OBSERVED DURING SITE VISIT TO PORTION 1/177 VROLYKHEID FARM

Common name	Scientific name
Familiar chat	*Oenanthe familiaris*
Barn swallow	*Hirundo rustica*
Ring-necked dove	*Streptopelia capicola*
Red-faced mousebird	*Urocolius indicus*
Cape wagtail	*Motacilla capensis*
Black-headed heron	*Ardea melanocephala*
Spur-winged goose	*Plectropterus gambensis*
Helmeted guineafowl	*Numida meleagris*
Pririt battis	*Batis pririt*
Laughing dove	*Spilopelia senegalensis*
Black-headed canary	*Serinus alario*
Cape sparrow	*Passer melanurus*