



# Scientific Terrestrial Services

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**Date:** Wednesday, 07 February 2024

**Ref:** STS 23-2049

## Seedcracker Environmental Consulting CC

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**Attention:** Ms Stephanie Cliff

**RE: TERRESTRIAL COMPLIANCE STATEMENT AS PART OF THE ENVIRONMENTAL AUTHORISATION PROCESS FOR THE PROPOSED URBAN DEVELOPMENT ON PORTION 268 RIETFontein 189 IQ, GAUTENG PROVINCE.**

## 1 INTRODUCTION AND BACKGROUND SETTING

Scientific Terrestrial Services (Pty) Ltd (hereafter "STS") was appointed by Seedcracker Environmental Consulting CC (hereafter "Seedcracker") to undertake a site verification in support of a compliance statement for the proposed urban development on Ptn 268/189 Rietfontein IQ (hereafter referred to as the "study area"). For a visual representation of the location of the study area, please refer to Figure 1 and Figure A1 in Appendix A.

The study area measures approx. 9.2 hectares (ha) in extent and is located approx. one kilometre (km) east of the town of Muldersdrift and approximately 0.3 km south of the R114 regional roadway. It falls within the Mogale City Local Municipal which is an administrative district of West Rand District Municipality, Gauteng Province.

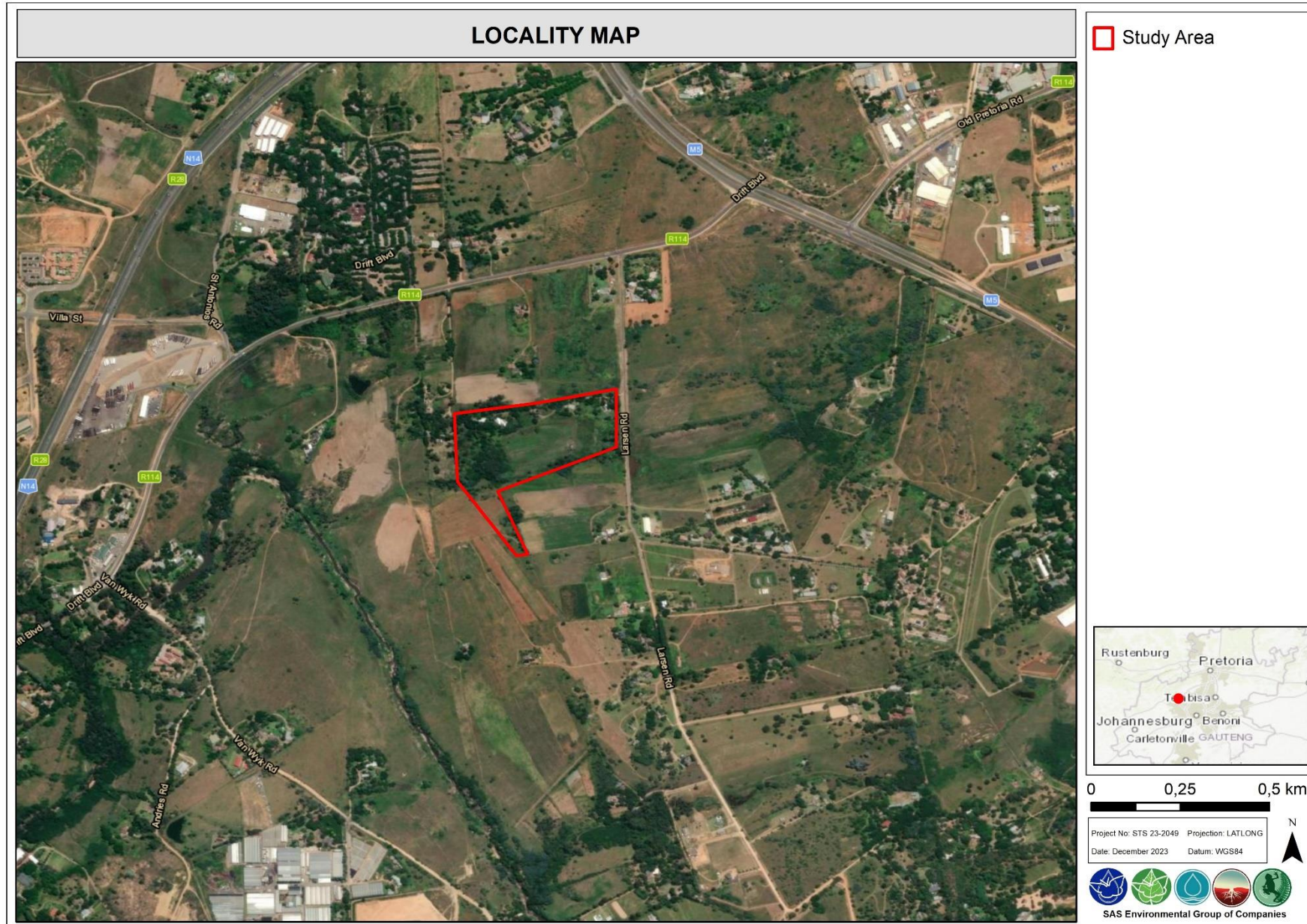


Figure 1: The location of the study area depicted on satellite imagery.

## 2 PURPOSE OF THIS REPORT

This report aims to verify or dispute the outcome of the Screening Tool Assessment for the Animal Species Theme, the Plant Species Theme, and the Terrestrial Biodiversity Theme.

This compliance statement will follow the requirements as stated in the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The outcome of the compliance statement is presented in the form of a report that:

- **Confirms** or **disputes** the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status;
- Contains a motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and
- Does not include results of a full terrestrial biodiversity assessment. Sensitivities provided in this report only confirm or dispute the screening tool outcomes. If a “Very High” sensitivity is confirmed, the requirements must be followed as outlined in Sections 24(5)(A) and (H) and 44 of the NEMA.

## 3 LEGISLATIVE REQUIREMENTS

The legislation considered during this investigation included the following:

- The Constitution of the Republic of South Africa, 1996;
- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA);
  - Government Notice (GN) number 2747: The Revised National List of Ecosystems that are Threatened and in need of Protection, published in Gazette No. 47526, dated 18 November 2022, as it relates to the NEMBA; and
  - GN number 30568: Threatened or Protected Species (TOPS) list dated 14 December 2007, as it relates to the NEMBA.
- Government Gazette 45421 dated 10 May 2019 as it relates to the Department of Forestry, Fisheries, and the Environment’s (DFFE) national environmental screening report required with an application for environmental authorisation (EA) as identified in regulation 16(1)(v) of Environmental Impact Assessment (EIA) Regulations (as amended):
  - For the Terrestrial Biodiversity Theme: GN 320 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity as published in Government Gazette 43110 dated 20 March 2020;
  - For Animal and Plant Species Themes: GN 1150 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Plant and Animal Species as published in Government Gazette 43855 dated 30 October 2020, as amended in GN 3717 of 2023; and
  - GN 3717 Amendment to the Protocols for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal and Plant Species as published in Government Gazette 49028 dated 28 July 2023.
- The Gauteng Department of Agriculture and Rural Development (GDARD) Guidelines for Biodiversity Assessments (GDARD, 2014) were also considered during the field survey and development of this report.

This compliance statement will follow the requirements as stated in the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The outcome of the compliance statement is presented in the form of a report that:

- **Confirms** or **disputes** the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status;
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- Does not include results of a full terrestrial biodiversity assessment. Sensitivities provided in this report only confirm or dispute the screening tool outcomes. If a “Very High” sensitivity is

confirmed, the requirements must be followed as outlined in Sections 24(5)(A) and (H) and 44 of the NEMA.

## 4 METHODOLOGY

The sections below outline the approach taken in terms of data collection for the study area.

### 4.1 Desktop Assessment

The desktop analysis was undertaken utilising digital satellite imagery (Google Earth Pro®), historical aerial photography (retrieved from the Chief Directorate: National Geo-spatial Information<sup>1</sup>), and available baseline environmental geospatial data from the South African National Biodiversity Institute's (SANBI) Biodiversity Geographical Information System (BGIS) and the DFFE's Environmental Geographic Information System (GIS) (E-GIS) webpage.

### 4.2 Field Survey

A field investigation to ground truth the desktop findings was undertaken on the 29<sup>th</sup> of November 2023. Prior to the site visit, all species that were identified by the screening tool (where applicable) for the Plant and Animal Species Themes were used to guide fieldwork preparation. Where it was deemed likely for a species to be present on the site (or within the vicinity of the study area), the presence of individuals of the species and/or the availability of suitable habitat were the focus of the field survey.

## 5 INVESTIGATION FINDINGS

This section provides the key findings of the desktop research and the field survey. Full results of the desktop assessment are provided in **Appendix B**, with the relevant maps presented in **Appendix A**.

### 5.1 Assumptions and Limitations

The following assumptions and limitations are applicable to this site verification and compliance statement:

- It is assumed that all third-party information used (e.g., GIS data and satellite imagery) are correct and includes the most up-to-date versions available at the time of generating this report;
- The optimal time to survey floral communities within the Grassland Biome, as suggested by the Species Environmental Assessment Guidelines (2022), is between October and March (peaking in December and January). Additionally, the GDARD Biodiversity Directorate's minimum requirements for vegetation assessments (2014) suggests that floral assessments take place from the beginning of November to the end of April. The flowering time of the triggered floral species provided by the screening tool, namely *Melolobium subspicatum* (vulnerable, VU) and Sensitive species 1248 (VU)<sup>2</sup>, is during the spring and summer seasons. As such the single site assessment (within the early summer season) was conducted, on-site data was also augmented with all available desktop data, together with project experience in the area to improve on the overall understanding of the assessment area's floral ecology. Therefore, conclusions drawn is considered sufficient in determining site sensitivity and for verification purposes; and
- Due to the nature and habits of many faunal taxa and the surrounding anthropogenic activities, it is unlikely that all species or classes would have been observed during a field assessment of limited duration. A more comprehensive assessment would require that assessments take place in all seasons of the year to account for the cyclic nature of faunal assemblages. However, on-site data were significantly augmented with all available desktop data and specialist experience in the area, and thus is deemed sufficient to allow for appropriate decision making.

### 5.2 Outcomes of the Application of the Screening Tool

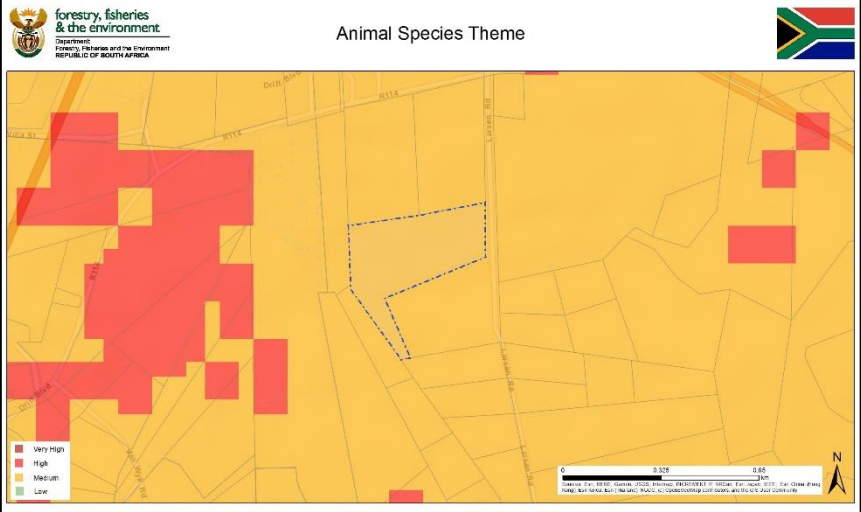
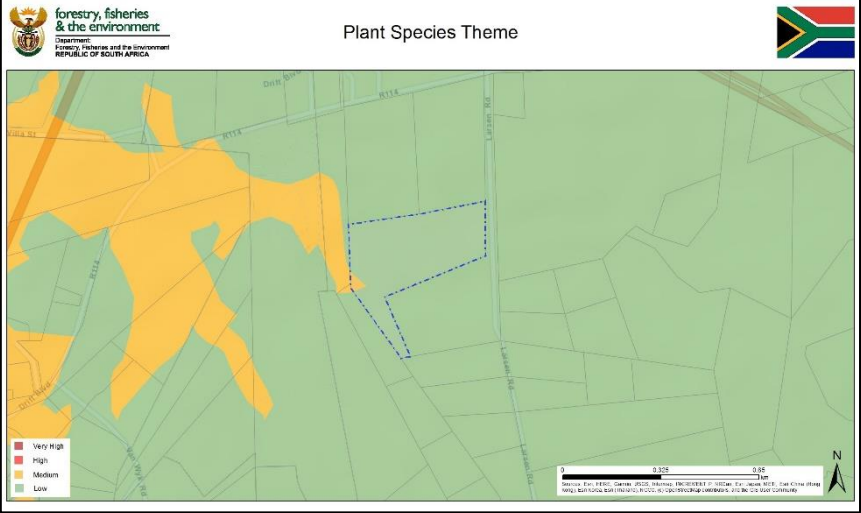
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<sup>1</sup> <http://www.cdngiportal.co.za/cdngiportal/>

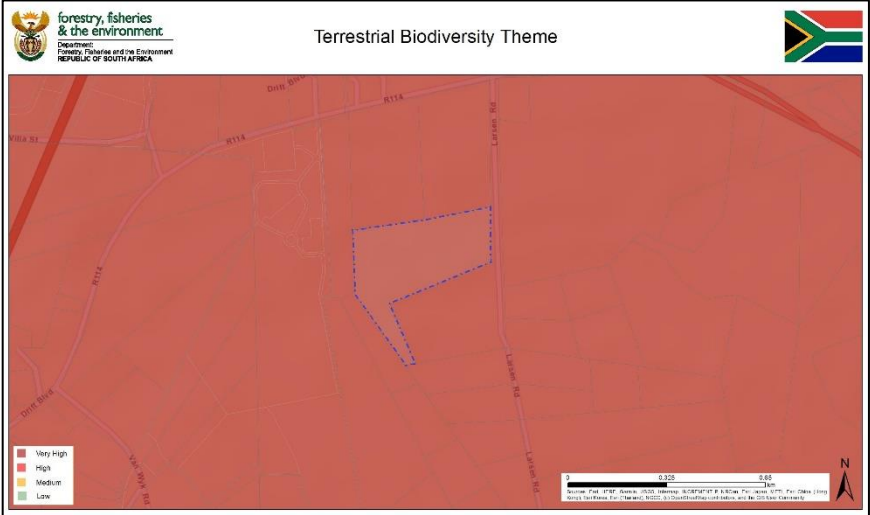
<sup>2</sup> As per the best practice guidelines as stipulated by the South African National Biodiversity Institute protocol (SANBI), the name of sensitive species may not appear in the public domain as a means to protect the identity and potential location of such species.

On 20 March 2020, the Minister gazetted a set of protocols for the assessment and minimum report content requirements of environmental impacts for various environmental themes. The assessment requirements of these protocols are associated with a level of environmental sensitivity determined by the screening tool. For terrestrial biodiversity, the requirements are for landscapes and/or sites that support various levels of threatened or unique biodiversity. The relevant faunal and floral biodiversity data are stated in the screening tool and has been provided by the SANBI. As part of initiating the EIA process, the screening tool was applied to the study area (Table 1). According to the screening tool, the study area occurs in an area of **medium** sensitivity for the Animal Species Theme, in a **low** and medium sensitivity area for the Plant Species Theme, and for Terrestrial Biodiversity Theme the screening tool identified the area as a **very high** sensitivity area (Figures 2 - 4).

**Table 1: The outcome of the screening tool for the study area as it pertains to the Terrestrial Biodiversity, Plant, and Animal Themes.**

<p><b>Animal Species Theme</b></p>	<p>For the Animal Species Theme, the study area is considered to have a <b>medium sensitivity</b> due to potential suitable habitat for the following trigger species:</p> <ul style="list-style-type: none"> <li>- <u>Mammals</u>: <i>Chrysospalax villosus</i> (Rough-haired golden mole, VU), <i>Crociodura maquassiensis</i> (Makwassie musk shrew, VU), <i>Dasymys robertsii</i> (Robert's Shaggy Rat, Data Deficient (DD)), and <i>Hydriectis maculicollis</i> (Spotted-necked Otter, VU); and</li> <li>- <u>Insects</u>: <i>Clonia uvarovi</i> (Uvarov's Clonia, VU).</li> </ul> 
<p><b>Plant Species Theme</b></p>	<p>For the Plant Species Theme sensitivity, the study area is mostly located within a <b>low sensitivity</b>, although a small section in the west of the study area is located within an area of <b>medium sensitivity</b>. The medium sensitivity is triggered by potential habitat for the following trigger species:</p> <ul style="list-style-type: none"> <li>- <i>Melolobium subspicatum</i> (VU); and</li> <li>- Sensitive species 1248 (VU)<sup>3</sup>.</li> </ul> 

<sup>3</sup> As per the best practice guidelines as stipulated by the South African National Biodiversity Institute protocol (SANBI), the name of sensitive species may not appear in the public domain to protect the identity and potential location of such species.

<p><b>Terrestrial Biodiversity Theme</b></p>	<p>For the Terrestrial Biodiversity Theme, the study area is considered to have a <b>very high sensitivity</b> due to the zoning of the following biodiversity triggers:</p> <ul style="list-style-type: none"> <li>- Critical Biodiversity Area 1 (CBA 1);</li> <li>- CBA 2;</li> <li>- Ecological Support Area 1 (ESA 1);</li> <li>- ESA 2; and</li> <li>- Critically Endangered (CR) Egoli Granite Grassland.</li> </ul> <p>Details pertaining to CBAs and ESAs are provided in Appendix B: Table B1.</p> <div style="text-align: center;">  </div>
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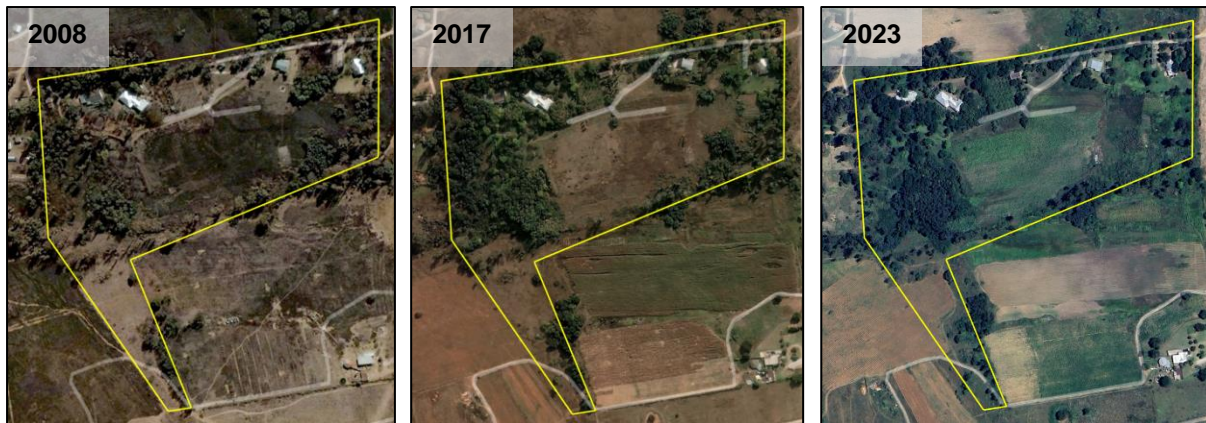
### 5.3 Desktop Research

- The study area is located within the **Mesic Highveld Bioregion**, which forms part of the **Grassland Biome** (more details provided in Appendix B: Table B1). The associated vegetation type, according to the 2018 National Vegetation Map project (VegMAP), is the poorly protected **Egoli Granite Grassland (Gm10)**;
- According to the 2022 Red List of Ecosystems (RLE) dataset, the study area is located outside of the remaining extent of the Egoli Granite Grassland ecosystem (which is a critically endangered (CR) ecosystem);
- The Gauteng Conservation Plan (C-Plan) v3.3 indicates that the southwestern portion of the site is associated with a CBA: Irreplaceable as well as an ESA. No ridges are associated with the study area. A non-perennial river buffer is associated with a small section of the study area in the southwest (Appendix A: Figure A2 and A3, and Appendix B: Table B1); and
- The study area is not located directly within any protected or conservation areas; however, several protected and conservation areas are located within 10 km of the study area (Appendix A: Figures A4 and A5, and Appendix B: Table B1).

### 5.4 Field Survey

The study area has been associated with anthropogenic activities for an extended period (> 20 years). Land use within the study area is dominated by residential smallholdings, which includes areas of active cultivation (Figure 2).

Given the general land use within the study area (i.e., residential and agricultural), the study area has been exposed to significant anthropogenic activities, which has resulted in a lowered habitat and ecological integrity. Specifically, anthropogenic activities such as mowing, alteration of vegetation communities through cultivation, Alien and Invasive Plant (AIP) introduction and proliferation, etc., have resulted in the subsequent modification of the biodiversity with the study area and have lowered the sensitivity of the habitat for both floral and faunal communities. Furthermore, important ecological functions are considered mostly absent within the study area (and immediate surrounding areas).



**Figure 2: Satellite imagery depicting the study area (indicated by the yellow polygon). The three photographs illustrate the land use associated with the study area from 2008 to 2023. It is evident that the study area has been subject to anthropogenic activities (residential and agricultural) for an extended period of time.**

Across the study area, the floral assemblages associated are degraded and modified in nature. Specifically, historic, and current agricultural practices as well as general disturbances associated with the various residences have resulted in a lowered habitat condition. Across the study area, broad floral communities consisted of (1) Freshwater Habitat (refer to the Freshwater Verification report for further details (SAS 23-1156, 2024), (2) Cultivated Areas, (3) Wooded Habitat Areas, and (4) Transformed Habitat. As brief description of each is provided below:

- **Freshwater Habitat:** habitat consisted of areas defined as a watercourse<sup>4</sup> as per the National Water Act, 1998 (Act No. 36 of 1998) (NWA), including a Seep Wetland, a remnant Seep Wetland, and a Unchanneled Valley Bottom Wetland (UCVBW). The Vegetation communities associated with these features were characterised by species that have an increased affinity for wetter soils, including species within the Cyperaceae (Sedge Family) as well as species such as *Imperata cylindrica*, *Sporobolus africanus*, *Berkheya radula*, *Denekia capensis*, *Lobelia erinus*, and *Tulbaghia leucantha*. The habitat has been subject to significant anthropogenic activities and is largely degraded in nature, as is evident in the AIP component that is associated with this habitat (e.g., *Acacia mearnsii*, *Eucalyptus cf. camaldulensis*, *Melia azedarach*, *Morus alba*, and *Paspalum urvillei*);
- **Cultivated Areas:** areas that are currently utilised for cultivation practices (mainly *Glycine max* (soybean) and *Zea mays* (maize)). These areas support a number of AIP species, including *Conyza bonariensis*, *Oenothera rosea*, *Tagetes minuta*, and *Verbena bonariensis*;
- **Wooded Areas:** areas mostly located in the west of the study area that are dominated by AIP woody vegetation (*Melia azedarach*, *Morus alba*, and *Populus x canescens*). Native species are largely lacking, although individuals of *Asparagus laricinus* and *Searsia pyroides* were noted; and
- **Transformed Areas:** areas associated with the houses and associated gardens. These areas are degraded in nature and have been subject to mowing and gardening activities.

Overall, the floral species composition across the study area is considered to have significantly deviated from the reference Egoli Granite Grassland vegetation type (i.e., the reference vegetation type). Except for the Cultivated Areas, the majority of the vegetation communities within the study area meet the NEMA definition of **indigenous vegetation**<sup>5</sup>.

Observed faunal species diversity within the study area was moderately low; the poorly represented faunal communities are attributed mainly to the levels of habitat disturbance and modification associated with the study area. Only common faunal species, those well adapted to peri-urban areas, were

<sup>4</sup> The National Water Act, 1998 (Act No. 36 of 1998) (NWA) define a watercourse as follows: (1) a river or spring, (2) a natural channel which water flows regularly or intermittently, (3) a wetland, dam, or lake into which, or from which, water flows, and (4) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse. Note: A reference to a watercourse includes, where relevant, its bed and banks.

<sup>5</sup> The NEMA Listing Notice definition of indigenous vegetation: "... refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding 10 years."

observed during the field assessment; most of which included bird and insect species, e.g., *Bostrychia hagedash* (Hadedda Ibis), *Euplectes ardens* (Red-collared Widowbird), *Laniarius ferrugineus* (Southern boubou), *Ploceus velatus* (Southern-masked weaver), *Streptopelia senegalensis* (Laughing dove), *Vanellus coronatus* (Crowned lapwing), *Urocolius indicus* (Red-faced Mousebird), *Lagria villosa* (Hairy darkling beetle), *Lycus trabeatus* (Tailed net-winged beetle), and *Zonocerus elegans* (Elegant Grasshopper). The study area is situated within a medium-density urban environment and therefore fragmented from other open space areas by surrounding roads, cultivation, and other residential and/or business areas, which limits species movement. Food availability primarily composed of seed-bearing grasses and fruiting tree species. Although habitat modification and transformation has occurred due to AIP proliferation, cultivation activities, amongst others, the study area is still capable of providing habitat to some faunal species, albeit common, widespread species. It should be noted that the presence of dogs within the study area also likely limit the presence of some faunal species, including small mammal species.

Refer to Figure 3 for representative habitat and representative floral and faunal species photographs.

As the study area has been subjected to anthropogenic influences, and thus has little ecological value for fauna or flora, the screening tool outcomes of medium sensitivity for the Animal Species and Plant Species Themes are disputed, and the low sensitivity areas for the Plant Species Theme are confirmed. The very high sensitivity for the Terrestrial Biodiversity Theme is confirmed for areas that are associated with the Freshwater Habitat only, while the remaining very high sensitivity areas are disputed (Table 2):

- The screening tool triggered a medium sensitivity for the Animal Species Theme. However, no faunal species that were triggered by the screening tool were encountered during the site visit, nor are any triggering species expected to be found within the study area. The triggered species are discussed below:
  - *Chrysospalax villosus* (Rough-haired golden mole, VU) is found on sandy soils in grasslands, meadows and along the edges of marshes. Given the level of cultivation and presence of dogs within the Transformed Habitat (housing area), this species is not anticipated to utilise the study area. The absence of moles from the study area is further supported by a lack of observed mole hills within the study area;
  - Although little is known about the biology of *Crocidura maquassiensis* (Makwassie musk shrew, VU), the species is thought to be primarily found within montane vegetation of rocky areas. Although the species has been recorded in gardens and along rivers before, the degradation associated with the study area (cultivation, AIP proliferation, etc), indicates that no suitable habitat is anticipated to be present within the study area;
  - Specifically, *Dasymys robertsii* (Robert's Shaggy Rat, DD) is dependent on intact rivers and wetland ecosystems. Although Freshwater features (UCVBW) were present within the study area, however these features are largely degraded (significant AIP proliferation and potential poor water quality attributed to cultivation within the area as well as the presence of human settlements in which runoff is anticipated);
  - *Hydriectis maculicollis* (Spotted-necked Otter, VU) is restricted to areas of permanent (good condition) freshwater, which offers good shoreline cover and an abundant prey base. Given the degraded nature of the freshwater feature within the study area (and lack of permanent water as water flow through the system is likely seasonal), this species is not anticipated to utilise the UCVBW on a permanent basis. The crocodile river is located approximately 0.4 km west of the study area and *Hydriectis maculicollis* is more likely to utilise this as a permanent habitat;
  - *Clonia uvarovi* (Uvarov's Clonia, VU) inhabits tall woodland savannas. The species is sensitive to invasion by AIP species which ultimately affects the suitability of potential habitat sites. Although a subset of large trees is available within the study area, many of these species are AIP species (e.g., *Melia azedarach* (Syringa, NEMBA Category 1b), and *Morus alba* (Common Mulberry, NEMBA Category 3)). As such, no suitable habitat to support *Clonia uvarovi* is considered present within the study area; and
  - Based on the lack of suitable habitat conditions within the study area, the medium sensitivity as assigned to the Animal Species Theme is disputed for the study area and a low sensitivity instead verified.
- The screening tool indicated that the study area is of both medium and low sensitivity for the Plant Species Theme. A small section in the west of the study area is located in an area

anticipated to be of medium sensitivity. No suitable habitat to support either *Melolobium subspicatum* (VU) or Sensitive species 1248 (VU) was identified within the study area. The lack of suitable habitat is attributed to the degraded nature of the study area and the largely modified floral communities that persist within the site. As such, the medium sensitivity for the Plant Species Theme is disputed for the far western section of the study area. Additionally, the low sensitivity for the Plant Species Theme for the remaining sections of the study area were verified during the site visit; and

- The screening tool triggered a very high sensitivity for the Terrestrial Biodiversity Theme. No habitat representative of the threatened vegetation type (CR Egoli Granite Grassland) was observed within the study area. The study area has been significantly impacted by anthropogenic activities over the years and the current species composition within the site is considered to be completely modified. CBA: Irreplaceable and ESA habitat was triggered by the Screening Tool. Following the transformation experienced within the study area, as well as within the surrounding area, the CBA: Irreplaceable is considered absent. The triggered features of the CBA: Irreplaceable (as per the Gauteng C-Plan) indicate the presence of Red Listed plant species habitat, Orange Listed<sup>6</sup> plant species habitat, red listed bird species habitat, primary vegetation, and a bioclimatic zone. These factors are considered absent within the study area and thus the presence of CBA: Irreplaceable habitat is disputed for the study area. ESA habitat was also triggered by the screening tool (lower west corner of the study area). The presence of ESA habitat was confirmed only within the Freshwater Habitat (along a section of the UCVBW in which ESA overlap occurs), however, the presence of ESA habitat for the remainder of the study area is disputed. Based on the lack of habitat representative of the threatened vegetation type and that CBA: Irreplaceable habitat and ESA habitat is considered absent within the study area (with the exception for the Freshwater Habitat where it overlaps with the UCVBW), the very high sensitivity as assigned to the Terrestrial Biodiversity Theme is disputed for the study area (except for the Freshwater Habitat) and a low sensitivity instead verified. The very high sensitivity assigned to the Terrestrial Biodiversity Theme is confirmed only for the Freshwater Habitat (specifically the UCVBW) as the presence of ESA habitat was confirmed (Figure 4). Although an increased sensitivity is supported for the UCVBW, this is not anticipated to be a constraint to development as any layouts would need to exclude the Freshwater Feature (and associated buffer) as stipulated by the Freshwater Verification report which is guided by legal requirements for watercourses (e.g., GDARD requirements). Refer to the Freshwater Verification Report for further details (SAS 23-1156, 2024).

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<sup>6</sup> The concept of an Orange List was introduced as a way of assessing and recording the conservation importance of taxa that are rare and of special concern but are not on a Red List (Victor and Keith, 2004). For Gauteng, this includes species that are endemic to either South Africa or the province, species that have a limited distribution in the country, species that are overharvested for the medicinal plant trade or species that are losing habitat due to urban expansion, to name a few (GDARD, 2014).

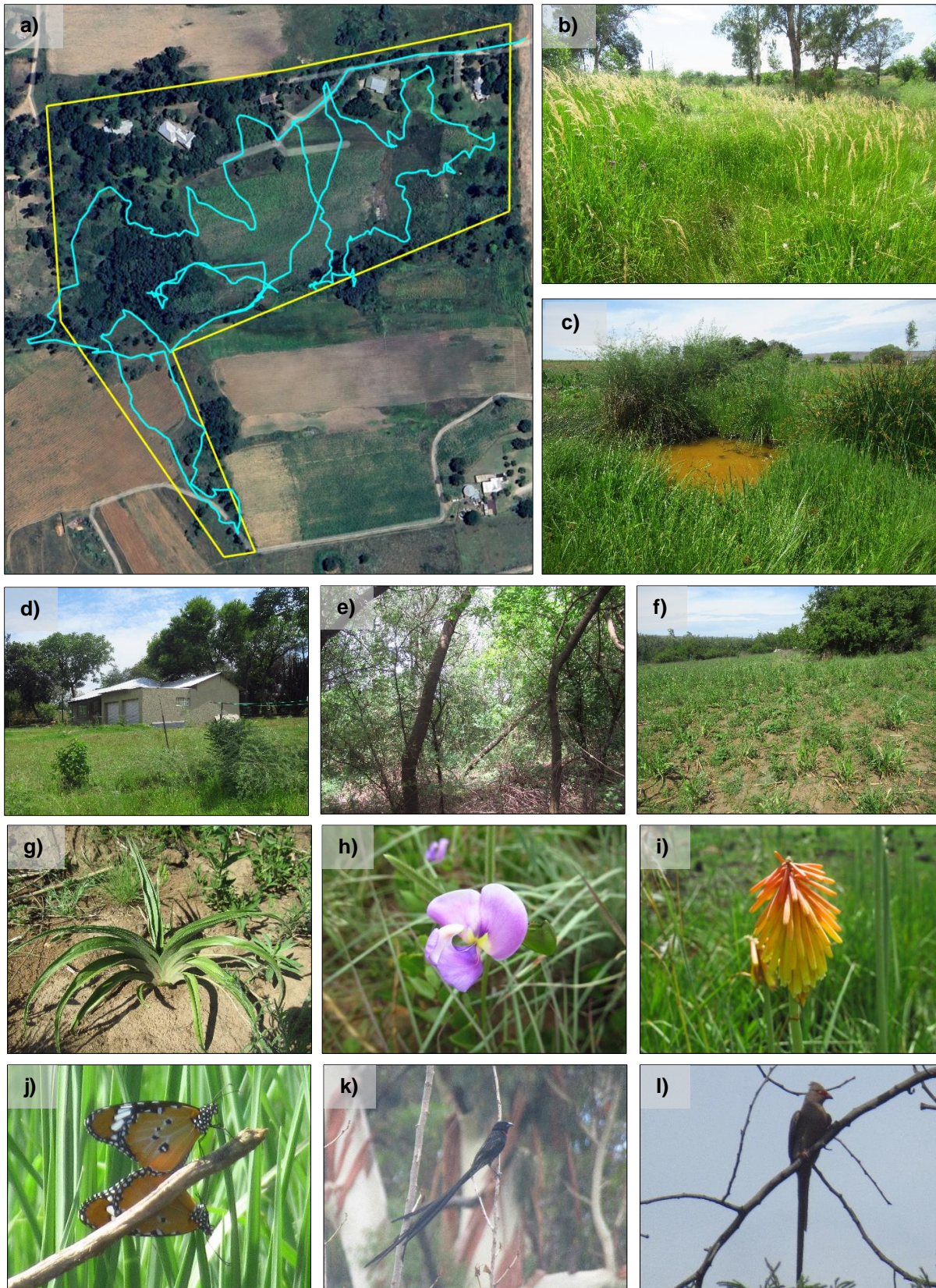
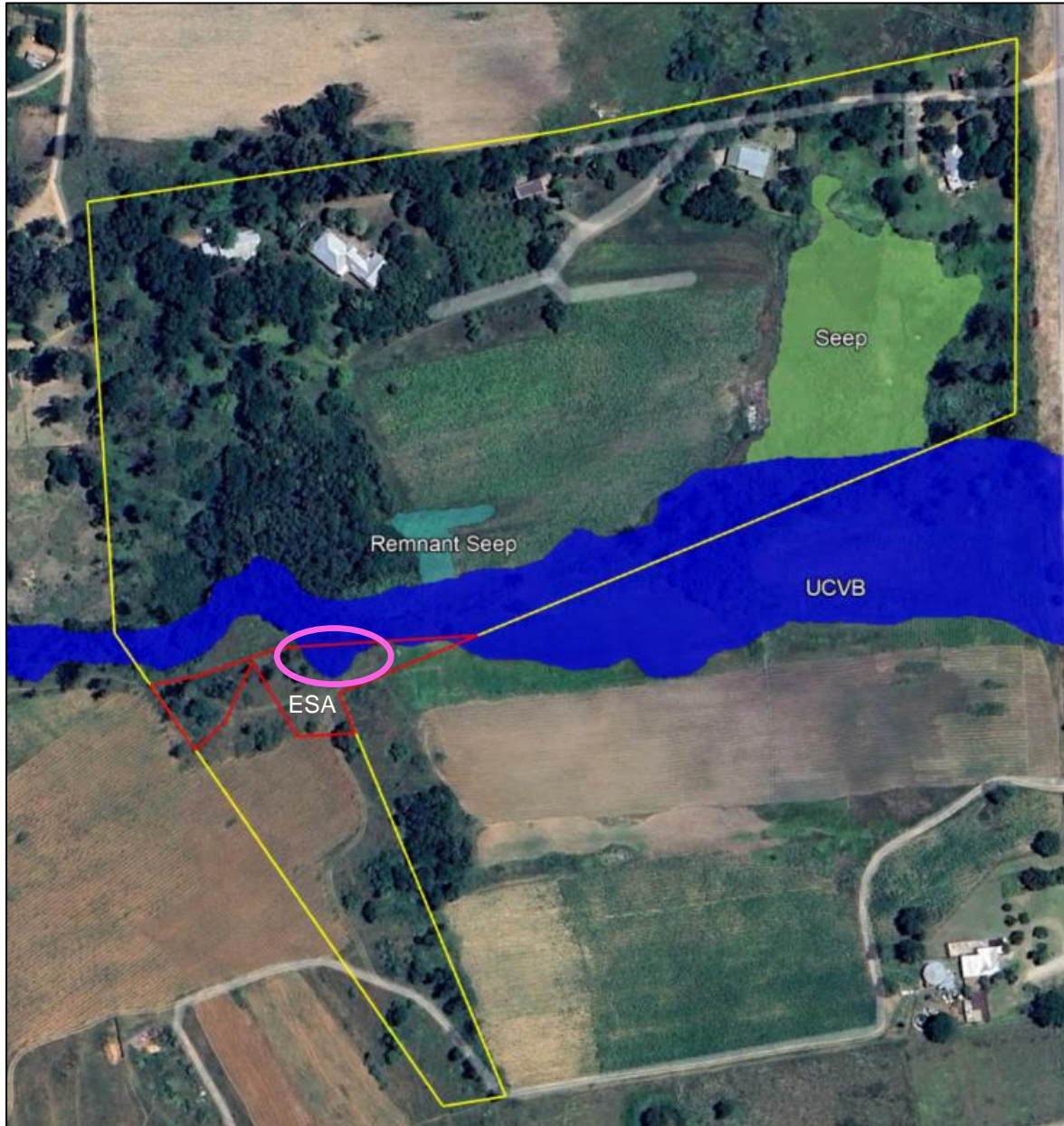


Figure 3: Site overview of the proposed study area, including habitats and recorded floral and faunal species. Images depict the following: image a) indicates the specialist's tracks (blue line) within the study area (yellow polygon) overlain on satellite imagery; Photographs b) – f) indicate the habitat recorded on site; Photographs g) – i) illustrate some of the recorded floral species within the study area, namely *Hypoxis hemerocallidea*, *Sphenostylis angustifolia*, and *Kniphofia porphyrantha*; and Photographs j) – l) illustrate some of the recorded faunal species within the study area, namely *Danaus chrysippus* (Plain Tiger Butterfly), *Euplectes ardens* (Red-collared Widowbird), and *Urocolius indicus* (Red-faced Mousebird).

The very high sensitivity assigned to the Terrestrial Biodiversity Theme is confirmed only for the Freshwater Habitat (specifically the UCVBW). The high sensitivity is supported because of the presence of ESA habitat within the Freshwater Habitat (Figure 4).

GPS coordinates for the images provided in Figure 3 are as follows: photographs a) 26°1'56.54"S; 27°51'42.29"E (b), 26°1'59.15"S; 27°51'39.66"E (c), 26°1'56.01"S; 27°51'39.05"E (d), 26°2'0.67"S; 27°51'31.73"E (e), and 26°1'59.76"S; 27°51'35.07"E (f).



**Figure 4: Satellite image illustrating the section of the Freshwater Habitat (UCVB) in which the very high sensitivity is supported for the Terrestrial Biodiversity Theme (circled in pink).**

**Table 2: Summary of the site verified results for the various habitat types associated with the survey site.**

	Freshwater Habitat	Cultivated Fields	Wooded Areas	Transformed Areas
Animal Species Theme	Low	Low	Low	Low
Plant Species Theme	Low	Low	Low	Low
Terrestrial Biodiversity Theme	Very High	Low	Low	Low

\*The very high sensitivity confirmed for the Freshwater Habitat (UCVBW) is not anticipated to be a constraint to development as any approved development would need to stay out of the Freshwater Habitat (and associated buffers) as stipulated by legal standards (NWA and GN509).

## 6 PROPOSED IMPACT MANAGEMENT ACTIONS

Given the overall low sensitivity of the study area from a floral and faunal perspective, together with the low likelihood of trigger species being present in the study area, the direct impacts and associated edge effects arising from proposed urban development on the floral and faunal habitat is anticipated to be low.

Based on the presence of an ESA located within the UCVBW (Freshwater Habitat), the impacts arising from the proposed urban development can have moderate to substantial impacts on the integrity and overall functionality of the ESA if development encroaches into the Freshwater Habitat. However, impacts to the habitat within the rest of the study area are indicated to be low, especially given the level of degradation and lack of CBA and ESA habitat within such areas.

The general mitigation measures that are to be implemented during construction and operational phases within the study area to reduce impacts to biodiversity include the following:

➤ **Impacts:**

- Habitat loss (fauna and flora) through clearance or removal of degraded vegetation for construction activities. This will result in reduced floral and faunal species richness and density within the proposed study area; and
- Habitat degradation beyond the footprint areas due to poorly managed edge effects, including 1) introduction and/or spread of AIP species with construction vehicles, and 2) potential inadequate design of stormwater management and erosion control.

➤ **Required Mitigation:**

- All footprint areas should remain as small as possible, and the boundaries of footprint areas must be clearly defined, and it should be ensured that all activities remain within defined footprint areas;
- No development is to take place within the Freshwater Habitat and associated buffer (as stipulated in the Freshwater Verification Report. All mitigation measures proposed by the freshwater ecologist (SAS 23-1156, 2024) must be implemented and strictly adhered to with specific mention of the UCVBW and associated buffer area. If development is anticipated to occur within the Freshwater Habitat (which represents an ESA), a Terrestrial Biodiversity Specialist Assessment will need to be submitted;
- Clearing of vegetation should take place in a phased manner. This will allow for faunal species within the study area to flee and avoid harm;
- Smaller species that are not as readily able to move out of an area ahead of ground clearing activities such as scorpions and reptiles will be less mobile during rainfall events and cold days (winter). As such should any be observed in the construction site during clearing and construction activities, they are to be carefully and safely moved to an area of similar habitat outside of the disturbance footprint. Construction personnel are to be educated about these species and instructed not to kill them. Smaller scorpion species and harmless reptiles (that may be present within the study area) should be carefully relocated by a suitably nominated construction person. For larger venomous snakes, a suitably trained specialist, or on-site personnel, should be contacted to carry out the relocation of the species, should they be encountered and not move off on their own;
- Control invasive species throughout the life of the project. Specific mention in this regard is made of listed invasive species as per the NEMBA Alien species lists, 2020, in line with the NEMBA Alien and Invasive Species Regulations (2020). All cleared plant material must be

- disposed of at a licensed waste facility which complies with legal standards, or a garden refuse site;
- Edge effects arising from proposed activities, such as soil compaction, erosion and/or stormwater should be adequately managed;
  - No dumping of litter, rubble or cleared vegetation on site should be allowed. If construction material is to be discarded, it should be disposed of at an appropriate registered dump site away from the development footprint. No temporary dump sites should be allowed in areas with natural vegetation;
  - Revegetating temporary-use and lay down areas as soon as reasonably practicable after construction activities are complete. Make use of indigenous and non-invasive species in this regard;
  - From a floral perspective, no trigger species or SCC<sup>7</sup> are associated with the study area and a walkdown to mark such species for relocation purposes is not required;
  - No collection of indigenous plants allowed outside of the footprint areas and, where possible, poaching of animals by construction and operational staff in the surrounding natural areas must be prohibited;
  - If envisioned, formal landscaped gardens should make use of indigenous species or ornamental alien species that are not listed within the NEMBA Alien Species List (2020); and
  - As part of any envisioned landscaping plans (if any), the recreation of habitat for faunal species such as small lizards, arachnids, small mammals, and birds should be considered. Creation of rock gardens, using dead logs and fallen trees in landscape areas should also be considered, as these will provide areas of niche habitat and refuge for small faunal species. Trees can be planted to provide nesting and roosting sites for avifauna.

## 7 CONCLUDING REMARKS

The study area is of low sensitivity for the Animal Species and Plant Species Themes. The probability of floral and faunal trigger species establishing viable populations within the study area is deemed low. This can be attributed to the long-term association with historic and current disturbances, fragmentation of the study area from larger ecologically functional natural areas, as well as degradation of habitat by AIP proliferation. The very high sensitivity was confirmed for the terrestrial biodiversity theme within the Freshwater Habitat (specifically the UCVBW), a functional ESA habitat was identified. However, the very high sensitivity assigned to the terrestrial biodiversity theme for the remainder of the study area was disputed.

### **Animal Species and Plant Species Compliance Statement**

The findings of the site inspection dispute the screening tool outcome of a **medium sensitivity** for the Animal Species Theme and confirms a **low sensitivity** instead. An overall low likelihood of faunal SCC within the study area is apparent.

The findings of the site inspection confirm the overarching screening tool outcome of a **low sensitivity** for the Plant Species Theme within the study area and disputes the small regions of medium sensitivity as identified by the screening tool. An overall low likelihood of floral SCC within the study area is apparent.

The proposed development will thus not result in the clearance of sensitive vegetation, nor will they result in significant (or important) loss of faunal or floral habitat (given the current characteristics thereof). It is, however, important that stringent mitigation measures and general good housekeeping be in place to counter the potential for edge effects on adjacent habitat.

### **Terrestrial Biodiversity Theme discussion**

The findings of the site inspection confirm the screening tool outcome of a **very high sensitivity** (Terrestrial Biodiversity Theme) for the UCVBW as the presence of an ESA is confirmed within this freshwater feature. However, the **very high sensitivity** (Terrestrial Biodiversity Theme) for the

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<sup>7</sup> For this report floral SCC include RDL species, TOPS listed species, trees listed within the NFA and Provincially protected species. Where necessary a distinction will be made between threatened and protected species.

remainder of the study area is disputed and a low sensitivity instead confirmed (ESA Habitat overlaps terrestrial habitats and the presence thereof is disputed in these areas).

The Freshwater Habitat, which although natural in a significantly degraded state, is required to be rehabilitated and maintained in an ecologically functional state to allow ongoing ecological functioning and to maintain ecological corridors within the landscape. In this regard, the Freshwater Report (SAS 23-1156, 2024) stipulates a buffer zone around the freshwater feature that is to be excluded during development activities – provided that the proponent commits to full rehabilitation actions of this buffer zone to ensure that the remaining buffer area provides the necessary ecological support to the watercourse as well as some elements of recreation that do not impact on biodiversity maintenance functions, then impacts to the Freshwater Habitat are anticipated to remain negligible.

No layout was provided at the time of the survey but **should the development footprint remain outside the Freshwater Habitat (and associated buffer as stipulated by the Freshwater Report)**, the proposed development activities within the study area are not anticipated to result in loss of, or alteration to, the ESA's functionality and the impacts are considered to be low (given that the mitigation measures as provided in section 6 are implemented). A compliance statement for the terrestrial theme would thus suffice in this regard. **However, if proposed development layouts will encroach into the Freshwater Habitat and associated buffer**, the ESA will be affected and as per the GN 320<sup>8</sup> (as published in Government Gazette 43110 dated 20 March 2020), a detailed Terrestrial Biodiversity Specialist Assessment should be submitted.

We trust that we have interpreted your requirements correctly. Please do not hesitate to contact us if there are any aspects of this memorandum that you would like to discuss.

Yours Faithfully,

Samantha-Leigh Daniels  
Senior Floral Ecologist (PhD)

Mathew Ross  
Senior Aquatic Ecologist and Discipline Lead (SACNASP REG.NO: 005072)

Chris Hooton  
Senior Faunal Ecologist and Discipline Lead

**Declaration of independence and CVs included in Appendix C**

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<sup>8</sup> Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity.

## REFERENCES

- BirdLife South Africa. Important Bird Areas 2015 [vector geospatial dataset] 2015. Downloaded from (www link) Conservation of Agricultural Resources Act (CARA) 43 of 1983.
- Department of Environmental Affairs (2018) National Protected Areas Expansion Strategy for South Africa 2018. Department of Environmental Affairs, Pretoria, South Africa.
- International Union for Conservation of Nature (IUCN) 2022. The IUCN Red List of Threatened Species. Version 2021-3. <https://www.iucnredlist.org/>.
- Mucina, L. and Rutherford, M.C., (editors) 2006. The vegetation of South Africa, Lesotho, and Swaziland. South African National Biodiversity Institute.
- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).
- National Environmental Management: Biodiversity (Act No.10 of 2004) (NEMBA).
- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPAA).
- National Forests Act, 1998 (Act No. 84 of 1998) (NFA).
- National Web Based Environmental Screening Tool (2023). Accessible online: <https://screening.environment.gov.za/screeningtool/#/pages/welcome>
- SABAP2, 2015. The South Africa Bird Atlas Project 2 database.
- SACAD: Department of Environmental Affairs. (2023). South Africa Conservation Areas Database (SACAD\_OR\_2023\_Q2). Online available: [<http://egis.environment.gov.za>]. URL: <http://bgis.sanbi.org>.
- SANBI BGIS (2023). The South African National Biodiversity Institute - Biodiversity GIS (BGIS) [online]. URL: <http://bgis.sanbi.org>.
- SANBI. 2018. 2018 Final Vegetation Map of South Africa, Lesotho and Swaziland [Vector] 2018. Available from the Biodiversity GIS website. URL: <http://bgis.sanbi.org>.
- SANBI. 2022a. The 2022 Red List of Ecosystems (RLE) for terrestrial realm for South Africa - Original extent [Vector] 2021. Available from the Biodiversity GIS website.
- SANBI. 2022b. The 2022 Red List of Ecosystems (RLE) for terrestrial realm for South Africa - remnants [Vector] 2021. Available from the Biodiversity GIS website.
- SAPAD: Department of Environmental Affairs. (2023). South Africa Protected Areas Database (SAPAD\_OR\_2023\_Q2). Online available: [<http://egis.environment.gov.za>].
- SAS (Scientific Aquatic Services) Project No. 23-1156. 2024. Freshwater Ecosystem Assessment as Part of the Environmental and Water Use Authorisation Processes for the Proposed Urban Development on Portion 268 Rietfontein 189 IQ, Gauteng Province. Prepared for Seedcracker Environmental Consulting CC
- Water Research Commission. 2017. SWSA Surface water [Vector] 2017. Available from the Biodiversity GIS website.
- Wilson, J.R.U., Gaertner, M., Richardson, D.M. and Van Wilgen, B.W., 2017. Contributions to the national status report on biological invasions in South Africa. *Bothalia* 47 (2): a2207.

## APPENDIX A: PROJECT MAPS

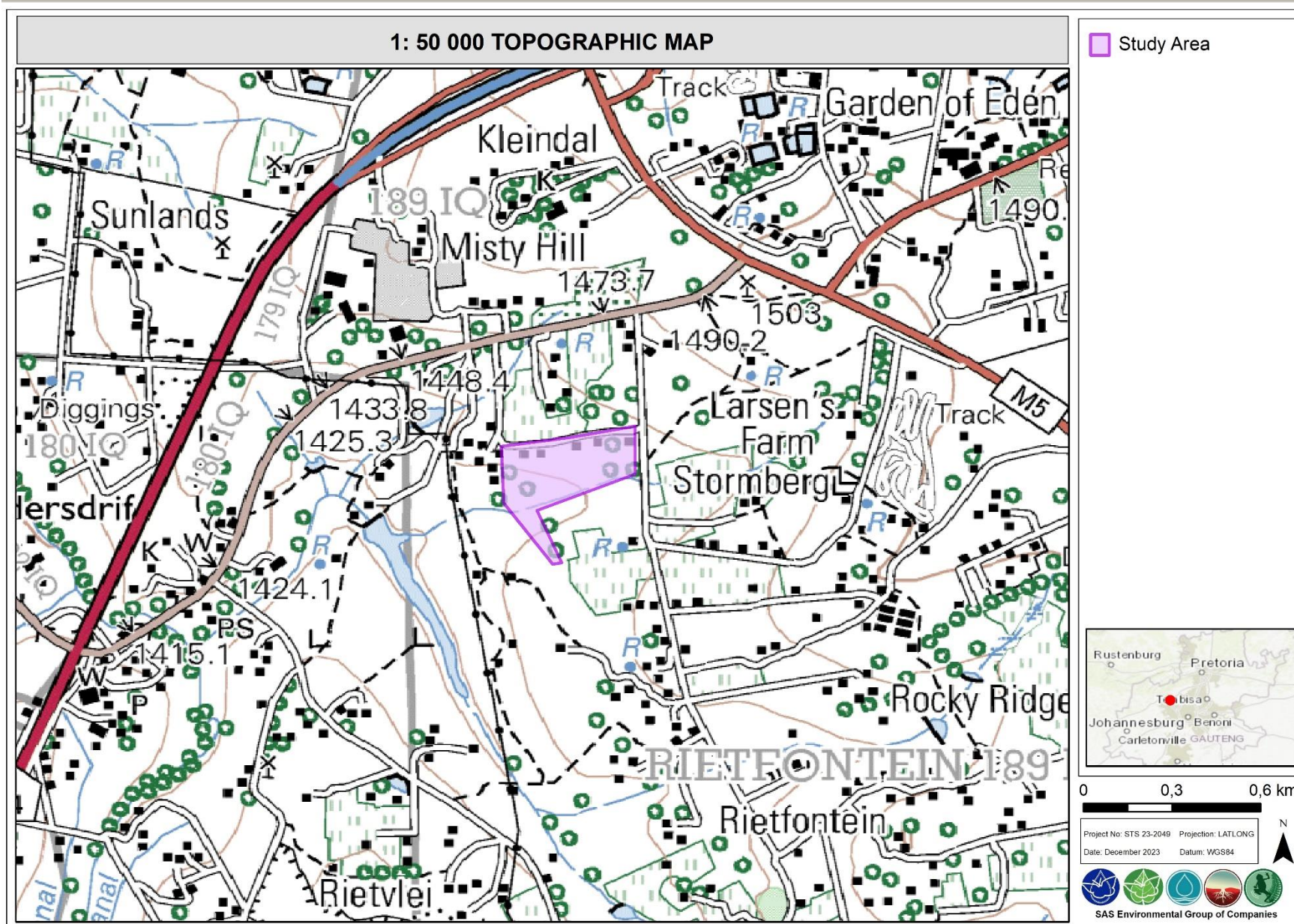


Figure A1: The study area depicted on a 1: 50 000 topographical map in relation to the surrounding area.

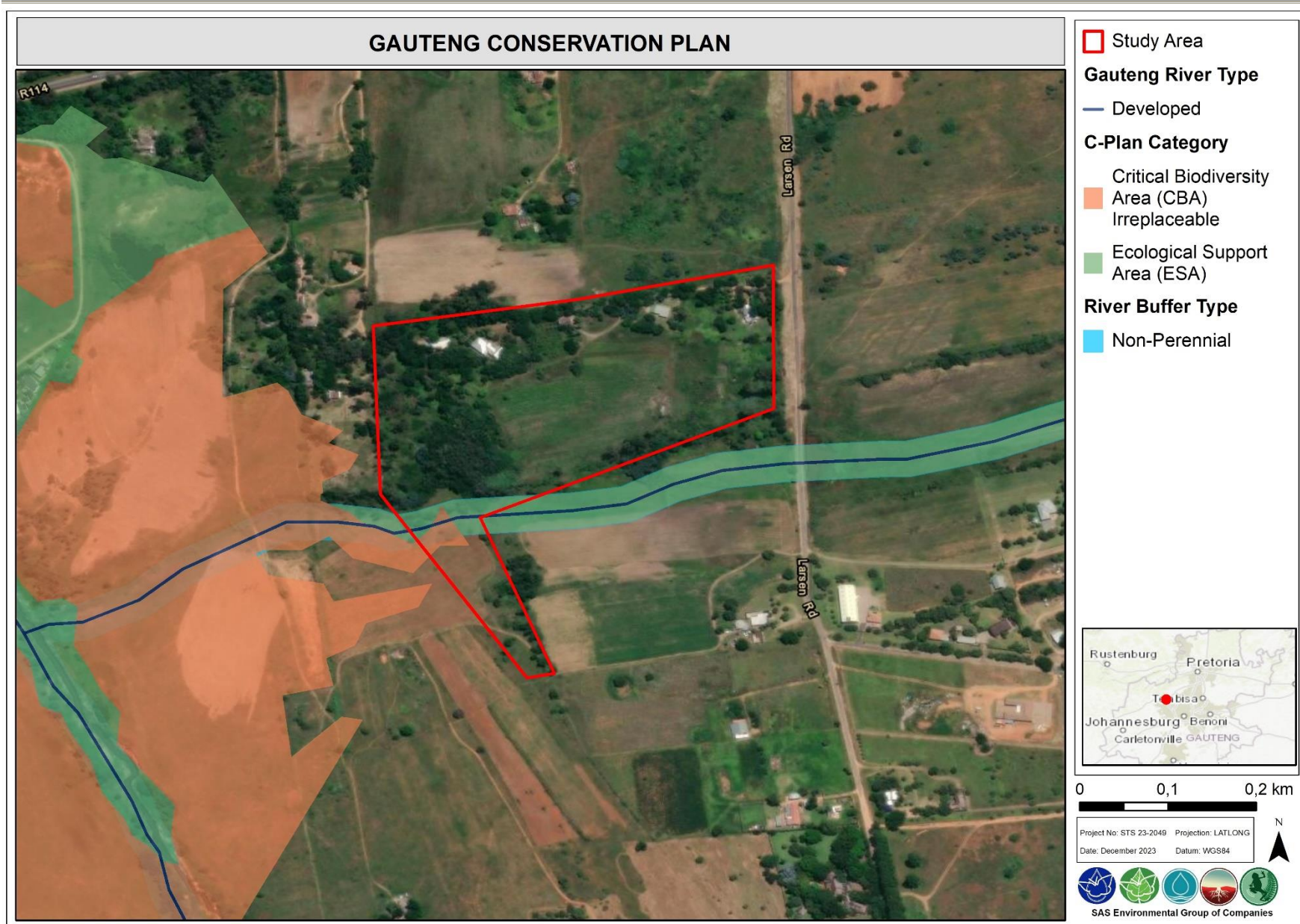


Figure A2: Gauteng C-Plan (v3.3) areas associated with the study area.

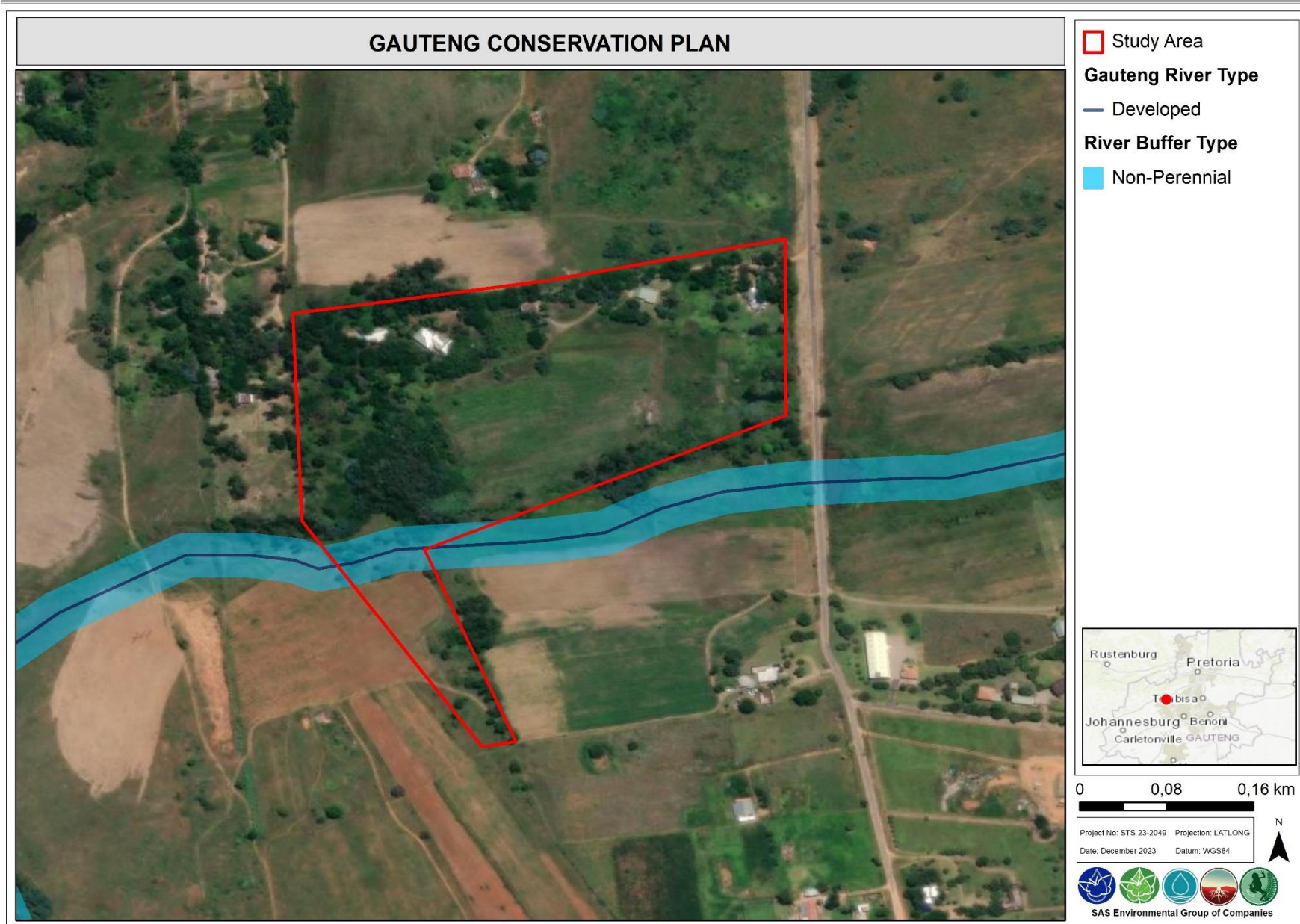


Figure A3: Gauteng C-Plan (v3.3) areas associated with the study area.

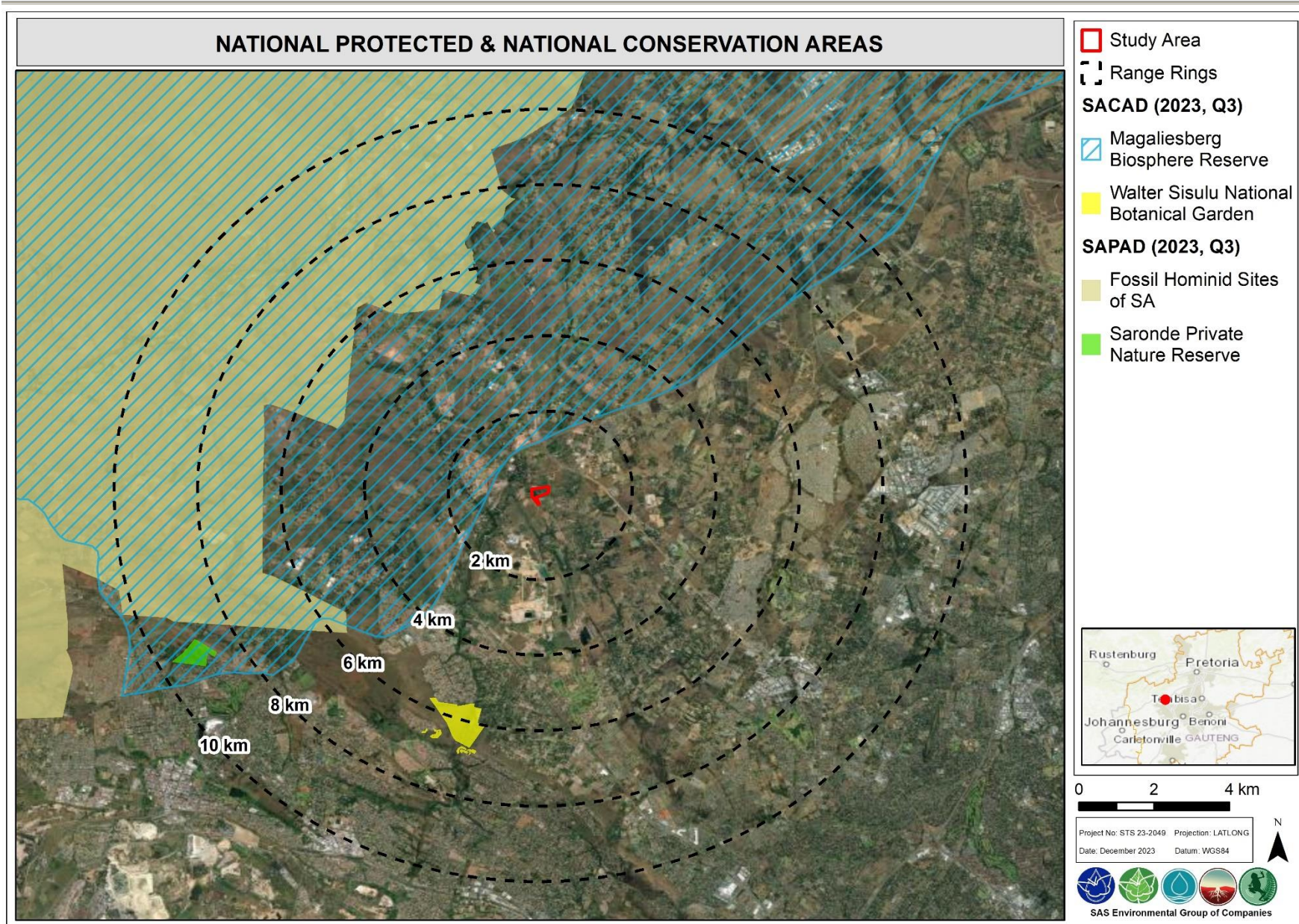


Figure A4: Nationally protected and other conservation areas within 10 km of the study area.

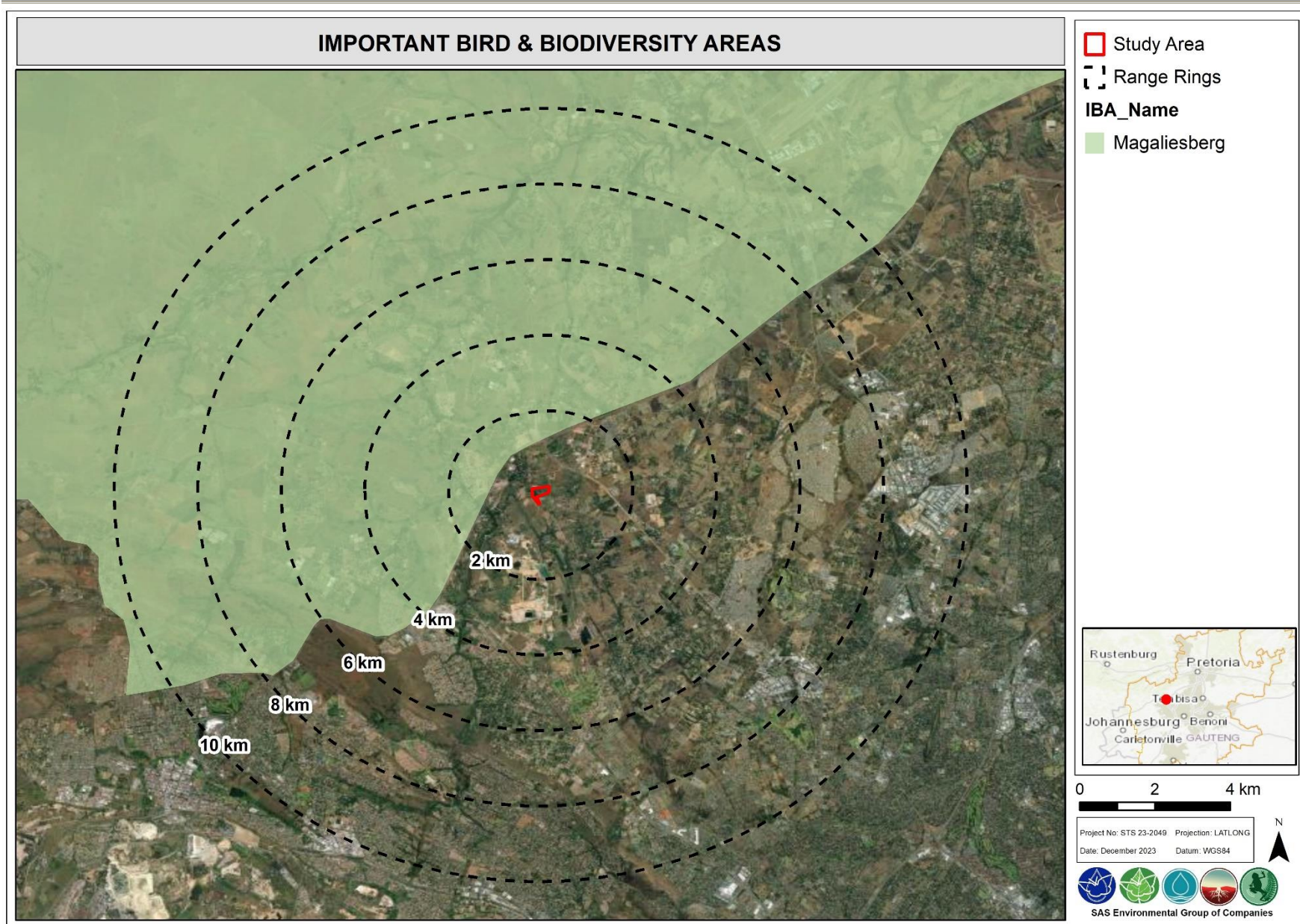


Figure A5: IBAs within 10 km of the study area (IBA 2015 dataset).

## APPENDIX B: BACKGROUND INFORMATION

**Table B 1: Summary of the terrestrial conservation characteristics for the study area (Quarter Degree Square (QDS) 2527DD).**

DETAILS OF THE ASSESSMENT AREA IN TERMS OF MUCINA & RUTHERFORD (2006) AND THE NATIONAL VEGETATION MAP PROJECT (SANBI, 2018) - ORIGINAL EXTENT OF MAPPED VEGETATION TYPE					
<b>Biome(s) and Bioregion(s)</b>	The study area located entirely within the <b>Grassland Biome</b> and the <b>Mesic Highveld Grassland Bioregion</b> (within the Egoli Granite Grassland vegetation type).				
<b>Vegetation Descriptions</b>	<b>Type</b>	The study area is located within the <b>Critically Endangered (CR) Egoli Granite Grassland</b> (Gm10).			
		<b>Egoli Granite Grassland</b>			
<b>Distribution</b>	<b>Gauteng Province:</b> Johannesburg Dome extending in the region between northern Johannesburg in the south, and from near Lanseria Airport and Centurion (south of Pretoria) to the north, westwards to about Muldersdrift and eastwards to Tembisa.				
<b>Climate*</b>	Strongly seasonal summer-rainfall region, with very dry winters. Incidence of frost frequent, but higher in the south than the north.				
	<b>MAP (mm)</b>	<b>MAT (°C)</b>	<b>MFD (days)</b>	<b>MAPE (mm)</b>	<b>MASMS (%)</b>
	682	16.0	29	2194	75
<b>Altitude (m)</b>	1 280 –1 660				
<b>Conservation</b>	<b>Endangered (EN)</b> as per Mucina and Rutherford (2006) but is now updated to CR in the 2018 Final Vegetation Map of South Africa, Lesotho, and Swaziland, as well as in the updated 2022 RLE dataset.				
	Target 24%. Only about 3% of this unit is conserved in statutory reserves (Diepsloot and Melville Koppies Nature Reserves) and several private conservation areas, including Motsetse and Isaac Stegmann Nature Reserves, Kingskloof Natural Heritage Site, Melrose and Beaulieu Bird Sanctuaries as well as the Walter Sisulu National Botanical Garden. More than two thirds of the unit have already undergone transformation mostly by urbanisation, cultivation or by building of roads. Current rates of transformation threaten most of the remaining unconserved areas. Alien infestation in this unit is not significant. Erosion is moderate and very low.				
<b>Geology &amp; Soils</b>	Archaean granite and gneiss of the Halfway House Granite at the core of the Johannesburg Dome supporting leached, shallow, coarsely grained, sandy soil poor in nutrients of Glenrosa form.				
<b>Vegetation &amp; landscape features</b>	Moderately undulating plains and low hills supporting tall, usually <i>Hyparrhenia hirta</i> -dominated grassland, with some woody species on rocky outcrops or rock sheets. The rocky habitats show a high diversity of woody species, which occur in the form of scattered shrub groups or solitary small trees.				
CONSERVATION DETAILS PERTAINING TO THE ASSESSMENT AREA (VARIOUS DATABASES)					
<b>2018 National Biodiversity Assessment</b>					
The NBA lists the Egoli Granite Grassland as Poorly Protected.					
<b>DEFINITION:</b> Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the NEMPAA.					
<b>2022 Red List of Ecosystems</b>					
The RLE database replaces the NBA (2018) and, according to the 2022 RLE, the study area is located outside of the remaining extent of the CR Egoli Granite Grassland ecosystem. The Egoli Granite Grassland's status was triggered under the Trigger Sub-Criteria: B1(i), i.e., the Egoli Granite Grassland is narrowly distributed with high rates of habitat loss in the past 28 years (1990-2018), placing the ecosystem type at risk of collapse.					
The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value. The revised list (known as the RLE 2022) is based on assessments that followed the IUCN RLE Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa (Mucina and Rutherford 2006; with updates described in Dayaram et al., 2019). The revised list identifies 120 threatened terrestrial ecosystem types (55 CR, 51 EN and 14 vulnerable (VU) types). Following a series of consultations with conservation authorities and the					

public in 2020/21, the Revised list of terrestrial ecosystems that are threatened and in need of protection was approved by the Minister for implementation in August 2022. The revised list was published in the Government Gazette (Gazette Number 47526, GN 2747) and came into effect on 18 November 2022.	
<b>Gauteng Conservation Plan V3.3 (2011) (Figures A2 – A3)</b>	
<b>Critical Biodiversity Area (CBA) Irreplaceable Area</b>	<p>An Irreplaceable CBA is located within a small section of the study area (Figure A2). This CBA is mostly associated with the Unchanneled Valley Bottom Wetland that is located within the study area. The triggering features for the CBA Irreplaceable include the following: Red Listed plant species habitat, Orange Listed plant species habitat, red listed bird species habitat, primary vegetation, and a bioclimatic zone.</p> <p><b>DEFINITION:</b> CBAs are areas of high biodiversity value and need to be maintained in a natural state. CBA Important Areas are areas considered important for the survival of threatened species and includes valuable ecosystems such as wetlands, untransformed vegetation, and ridges.</p>
<b>Ecological Support Area (ESA) (Figure A 4)</b>	<p>The western portion of the study area is in an ESA site (Figure A2).</p> <p><b>DEFINITION:</b> Natural, near natural, degraded or heavily modified areas required to be maintained in an ecologically functional state to support Critical Biodiversity Areas and/or Protected Areas. ESAs maintain the ecological processes on which Critical Biodiversity Areas and Protected Areas depend. Some ESAs are irreversibly modified but are still required as they still play an important role in supporting ecological processes.</p>
<b>Wetland and River Buffers</b>	According to the Gauteng C-Plan one river buffer (of a non-perennial river) intersects the southern portion of the study area (Figure A3).
<b>Ridges</b>	None associated with the study area.
<b>National Protected &amp; Conservation Areas</b>	
<b>SAPAD (2023, Q3); SACAD (2023, Q3); NPAES (2018); SWSA (2017)</b>	<p>According to the SAPAD (2023 Q3 database)<sup>9</sup>, the Fossil Homind Sites of SA is approx. 5 km northeast and east of the study area, whereas the <b>Saronde Private Nature Reserve</b> is located approx. 9 km southeast of the study area (Figure A4).</p> <p>According to the SACAD<sup>10</sup> (2023 Q3 database), the study area occurs within 5 km of the <b>Magaliesberg Biosphere Reserve</b> (Figure A4). The SACAD also indicates that the study area is located within 6 km of the <b>Walter Sisulu National Botanical Gardens</b>.</p> <p>No areas of importance in terms of the National Protected Areas Expansion Strategy (NPAES) 2018 database are associated with the study area. Additionally, no Strategic Water Source Areas (SWSA) are associated with the study area.</p>
<b>IBA (2015)</b>	The study area is located approximately 1 km south and southwest of the Magaliesberg IBA (Figure A5), previously known as the Magaliesberg and Witwatersberg IBA. Several large rivers have their headwaters in these mountains, including the Crocodile, Sterkstroom, Magalies and Skeerpoort.

\*NBA = National Biodiversity Assessment; SAPAD = South African Protected Areas Database; SACAD = South African Conservation Areas Database; NPAES = National Protected Areas Expansion Strategy; IBA = Important Bird Area; MAP = Mean annual precipitation; MAT = Mean annual temperature; MAPE = Mean annual potential evaporation; MFD = Mean Frost Days; MASMS = Mean annual soil moisture stress (% of days when evaporative demand was more than double the soil moisture supply); CBA = Critical Biodiversity Areas; ESA = Ecological Support Areas.

<sup>9</sup> **SAPAD (2023):** The definition of protected areas follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the “System of Protected Areas”, which consists of the following kinds of protected areas - 1. Special nature reserves; 2. National parks; 3. Nature reserves; 4. Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003); 5. World heritage sites declared in terms of the World Heritage Convention Act; 6. Marine protected areas declared in terms of the Marine Living Resources Act; 7. Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and 8. Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

<sup>10</sup> **SACAD (2023):** The types of conservation areas that are currently included in the database are the following: 1. Biosphere reserves, 2. Ramsar sites, 3. Stewardship agreements (other than nature reserves and protected environments), 4. Botanical gardens, 5. Transfrontier conservation areas, 6. Transfrontier parks, 7. Military conservation areas and 8. Conservancies.

## APPENDIX C: DETAILS, EXPERTISE AND CURRICULUM VITAE OF SPECIALISTS

### 1. (a) (i) Details of the specialist who prepared the report

Mathew James Ross	PhD Aquatic Health (University of Johannesburg)
Chris Hooton	BTech Nature Conservation (Tshwane University of Technology)
Samantha-Leigh Daniels	PhD Plant Science (University of Pretoria)

### 1. (A). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

<b>Company of Specialist:</b>	<b>Scientific Terrestrial Services</b>		
Postal address:	PO. Box 751779, Gardenview		
Postal code:	2047	Fax:	086 724 3132
Telephone:	011 616 7893		
<b>Name / Contact person:</b>	Mathew James Ross		
E-mail:	<a href="mailto:mathew@sasenvgroup.co.za">mathew@sasenvgroup.co.za</a>		
Qualifications	PhD Aquatic Health (University of Johannesburg) MSc Aquatic Health (University of Johannesburg) BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg) BSc Biological Sciences (Zoology & Botany) (University of Johannesburg)		
Registration / Associations	Registered Professional Scientist at South African Council for Natural Scientific Professions (SACNASP – Reg No. 005072): Ecological Sciences & Aquatic Sciences Accredited River Health Practitioner by the South African River Health Program (RHP) Member of the Gauteng Wetland Forum		
<b>Name / Contact person:</b>	Christopher Hooton		
E-mail:	<a href="mailto:chris@sasenvgroup.co.za">chris@sasenvgroup.co.za</a>		
Qualifications	BTech Nature Conservation (Tshwane University of Technology) National Diploma Nature Conservation (Tshwane University of Technology)		
<b>Name / Contact person:</b>	Samantha-Leigh Daniels		
E-mail:	<a href="mailto:samantha@sasenvgroup.co.za">samantha@sasenvgroup.co.za</a>		
Qualifications	PhD (Plant Science) (University of Pretoria) MSc (Plant Science) (University of Pretoria) BSc (Hons) Zoology & Entomology (University of Pretoria) BSc Zoology & Entomology (University of Pretoria)		
Registration / Associations	Member of the South African Association of Botanists (SAAB) Member of the Botanical Society of South Africa (BotSoc) Member of the Association for Tropical Biology and Conservation (ATBC)		

**1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority**

I, Mathew Ross, declare that -

- I act as the **independent specialist (reviewer)** 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 specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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;
- All the particulars furnished by me in this form are true and correct



-----  
Signature of the Specialist

I, Christopher Hooton, declare that -

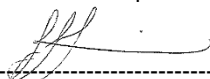
- I act as the **independent specialist (reviewer)** in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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;
- All the particulars furnished by me in this form are true and correct



-----  
Signature of the Specialist

I, Samantha-Leigh Daniels, declare that -

- 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 specialist report relevant to this application, including knowledge of the relevant legislation and any guidelines that have relevance to the proposed activity;
- I will comply with the applicable legislation;
- I have not, 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;
- All the particulars furnished by me in this form are true and correct



-----  
Signature of the Specialist



**SAS ENVIRONMENTAL GROUP OF COMPANIES –  
SPECIALIST CONSULTANT INFORMATION**

**CURRICULUM VITAE OF **MATHEW JAMES ROSS****

**PERSONAL DETAILS**

Position in Company Joined SAS Environmental Group of Companies	Principal Aquatic Ecologist, Ecologist, Discipline Lead, 2024
--	--

**EDUCATION**

**Qualifications**

PhD Aquatic Health (University of Johannesburg)	2015
MSc Aquatic Health (University of Johannesburg)	2005
BSc (Hons) Zoology (Aquatic Ecology) (University of Johannesburg)	2001
BSc Biological Sciences (Zoology & Botany) (University of Johannesburg)	2000

**AREAS OF WORK EXPERIENCE**

South Africa – All Provinces  
 Southern Africa – Botswana, Mozambique, Zimbabwe, Zambia, Namibia, Swaziland  
 Eastern Africa – Tanzania, Uganda, Malawi  
 West Africa – Ghana, Senegal, Angola, Cameroon, Mali, Burkina Fasso, Sierra Leone  
 Central Africa – Democratic Republic of the Congo (DRC)

**KEY SPECIALIST DISCIPLINES**

**Freshwater Assessments**

- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning
- Maintenance and Management Plans

**Aquatic Ecological Assessment and Water Quality Studies**

- Fish migrations analysis
- Fishpass/fishway design and development (2D and 3D design modelling)
- Fishway integration and hydraulic modelling
- Habitat Assessment Indices (IHAS, HCR, IHI & RHAM)
- Aquatic Macro-Invertebrates (SASS5 & MIRAI)
- Fish Response Assessment Index (FRAI)
- Fish Health Assessments
- Riparian Vegetation Integrity (VEGRAI)
- Toxicological analysis
- Water quality monitoring
- Screening Test
- Riverine Rehabilitation Plans
- Floral Assessments

**Biodiversity Assessments**

- Floral Assessments
- Faunal Assessments
- Avifaunal Impact Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Terrestrial Monitoring

**Modelling & Design**

- Proficient in GIS modelling and analysis
- Proficient in AutoCAD design and modelling
- Proficient in hydraulic analysis of fishways and other instream infrastructure



**SAS ENVIRONMENTAL GROUP OF COMPANIES –  
SPECIALIST CONSULTANT INFORMATION**

**CURRICULUM VITAE OF CHRISTOPHER HOOTON**

**PERSONAL DETAILS**

---

Position in Company	Senior Scientist, Member Biodiversity Specialist
Joined SAS Environmental Group of Companies	2013

**EDUCATION**

---

**Qualifications**

BTech Nature Conservation (Tshwane University of Technology)	2013
National Diploma Nature Conservation (Tshwane University of Technology)	2008

**AREAS OF WORK EXPERIENCE**

---

**South Africa** – Gauteng, Mpumalanga, Northwest, Limpopo, KwaZulu-Natal, Eastern Cape, Western Cape, Northern Cape, Free State

**Africa** - Zimbabwe, Sierra Leone, Zambia

**KEY SPECIALIST DISCIPLINES**

---

**Biodiversity Assessments**

- Floral Assessments
- Faunal Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

**Freshwater Assessments**

- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning



**SAS ENVIRONMENTAL GROUP OF COMPANIES –  
SPECIALIST CONSULTANT INFORMATION**

**CURRICULUM VITAE OF SAMANTHA-LEIGH DANIELS**

**PERSONAL DETAILS**

---

Position in Company	Senior Floral Ecologist
Joined SAS Environmental Group of Companies	2020

**MEMBERSHIP IN PROFESSIONAL SOCIETIES**

---

Member of the South African Association of Botanists (SAAB)  
Member of the Botanical Society of South Africa (BotSoc)  
Member of the Association for Tropical Biology and Conservation (ATBC)

**EDUCATION**

---

**Qualifications**

PhD (Plant Science) (University of Pretoria)	2023
MSc (Plant Science) (University of Pretoria)	2017
BSc (Hons) Zoology & Entomology (University of Pretoria)	2014
BSc Zoology & Entomology (University of Pretoria)	2013

**AREAS OF WORK EXPERIENCE**

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**South Africa** – Gauteng, Mpumalanga, North West, Limpopo, KwaZulu-Natal, Free State, Western Cape, Northern Cape

**KEY SPECIALIST DISCIPLINES**

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**Biodiversity Assessments**

- Terrestrial Ecological and Biodiversity Scoping Assessments
- Terrestrial Ecological and Biodiversity Screening Assessments
- Floral Assessments
- Alien and Invasive Control Plan (AICP)
- Terrestrial Monitoring
- Floral Rescue and Relocation Plans
- Biodiversity Offset Plans
- Desktop Studies, Mapping and Background Information Research

**Training**

- Plant species identification
- Herbarium usage and protocols