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Environmental Consultants

Impact Assessments - Environmental Management Programs - Compliance Monitoring - Process Review

THE PROPOSED ARLINGTON MULTIPLE-USE DEVELOPMENT ON ERVEN 3988, 4195 AND 6991 ALONG GLENDORE ROAD IN WALMER, GQEBERHA, NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE

AVIAN SPECIES SPECIALIST ASSESSMENT REPORT

MARCH 2024

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GLOSSARY

Avifauna: taken to mean birds (class: Aves) of a specific area (region, habitat etc.) or time period

Class: a principal taxonomic grouping that ranks above order and below phylum, such as Aves

Critical Biodiversity Area (CBA): an area that must be maintained in a good ecological condition (natural or semi-natural state) in order to meet biodiversity targets. CBAs collectively meet biodiversity targets for all ecosystem types, as well as for species and ecological processes that depend on natural or semi-natural habitat that have not already been met in the protected area network. CBAs are identified through a systematic biodiversity planning process in a configuration that is complementary, efficient and avoids conflict with other land uses where possible;

Cumulative impact: in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities

Endemic or near-endemic: Species where >70% of the population occurs in South Africa, or South Africa, Lesotho and Swaziland, as per Birdlife South Africa Checklist 2019.

Environmental Impact Assessment (EIA): a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessments and scoping and environmental impact reporting (S&EIR) (see below for definition).

Extent of occurrence (EOO): the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy; and in short is the species' contemporary distribution range

IUCN Red List Categories and Criteria: the threatened species categories used in Red Data Books and Red Lists have been in place for almost 30 years. The IUCN Red List Categories and Criteria provide an easily and widely understood system for classifying species at high risks of global extinction, so as to focus attention on conservation measures designed to protect them;

IUCN Red List status: the conservation status of species, based on the IUCN Red List categories and criteria;

Migratory species: these are defined as per NEMBA to mean the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant portion of whose members cyclically and predictably cross one or more national jurisdictional boundaries. Furthermore, this includes all species that are native to South Africa and are listed under the Convention on the Conservation of Migratory Species of Wild Animals (CMS) or the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), with the exception of those species in respect of which South Africa has entered reservations;

Mitigation: means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible;

NEMA EIA Regulations – Environmental Impact Assessment Regulations, 2014 (as amended), in terms of Chapter 5 of NEMA

Priority species: Species likely to be impacted on negatively by the proposed development where such an impact could potentially affect the local, regional or global population such as Red Data species, endemic or near-endemic species, range-restricted species, slow-breeding species, and otherwise sensitive species.

Project Area of Influence (POAI): The area that is expected to be influenced by the proposed development.

Ramsar site: a wetland site designated to be of international importance under the Ramsar Convention on Wetlands of International Importance. The Convention on Wetlands, known as the Ramsar Convention, is an intergovernmental environmental treaty, which was adopted in 1971 and entered into force in 1975.

Receptor: in the context of impact assessments on biodiversity, receptors are environmental components (e.g. flora/fauna species/communities or habitat type) that may be affected, adversely or beneficially, by the proposed project activities within the project areas of influence (PAOI);

Red Data species: Species listed as Near-threatened, Vulnerable, Endangered or Critically Endangered in the Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland

Species: a kind of animal, plant or other organism that does not normally interbreed with individuals of another kind, and includes as subsets, any subspecies, cultivar, variety, geographic race, strain, hybrid or geographically separate population.

Species distribution model (SDM): a probability surface representing relative habitat suitability for a species based on known occurrence records for this species and a suite of environmental predictor variables reflecting the ecological requirements of the species. SDMs can therefore be considered to represent the potential geographic distribution of a species based on habitat suitability. The term 'ecological niche model' is often also used interchangeably with SDM;

Species of Conservation Concern (SCC): includes all species that are assessed according to the IUCN Red List Criteria as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Data Deficient (DD) or Near-threatened (NT), as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare (also referred to in some Red Lists as Critically Rare).

1 Introduction

1.1 Background

Afrostructures (Pty) Ltd is proposing to establish a multiple-use development, comprising of 25 clusters as well as an internal road network, on erven 3988, 4195 and 6991 along Glendore Road in Walmer, Gqeberha, Eastern Cape Province. The development footprint would be 61.4 ha. The proposal triggers listed activities published in terms of Section 24 of NEMA and the 2014 EIA Regulations, as amended, and hence require an Environmental Authorisation.

JG Afrika have been appointed to undertake the requisite Environmental Authorisation process for the proposed project in accordance with the National Environmental Management Act (NEMA) (No. 107 of 1998, as amended) Environmental Impact Assessment (EIA) Regulations (2014), as amended.

The National Web-based Screening Tool has identified the proposed development site as of high sensitivity for avian species: Therefore, unless an avian species specialist disputes the land use and sensitivity identified by the Screening Tool, following a site inspection and site sensitivity verification process, a specialist Avian Species Specialist Impact Assessment is required for the proposed development.

Holland & Associates Environmental Consultants has been appointed by JG Afrika to provide the required avian species specialist services.

1.2 The Proposed Project

As per the final scoping Report for the proposed project, the proposed Arlington development is located to the west of the suburb of Walmer in Gqeberha within the Nelson Mandela Bay Municipality (NMBM), on the former Arlington Racecourse property, and comprises three (3) erven spanning a cumulative area of approximately 61.4 Ha (Figure 1).

The Arlington Development in its entirety will include the following components:

- a) Retail/Business Infrastructure.
- b) Office/Storage Facilities.
- c) Medical Use/Office Facilities.
- d) Special Use High Tech Industrial facility/infrastructure.
- e) Warehouse Facilities.
- f) Community Zone (i.e., child aftercare facilities).
- g) Mixed-residential Housing Units including Social Housing – no more than 3 000 units are proposed.
- h) Club House and Sport Facilities.
- i) A Business Incubator.
- j) Parking/Solar Charging Stations.
- k) Special Purposes Infrastructure – solar photovoltaic power park & wastewater treatment plant.

- l) Open spaces.
- m) Installation of internal infrastructure services, such as water, sanitation, irrigation, stormwater, roads, and electricity, to service the proposed infrastructure (see further details below), and;
- n) Installation of external infrastructure services, such as stormwater and sanitation connection lines as well as a pedestrian walkway along Racecourse Road and two traffic circles along Glendore Road. An additional road will be constructed between the south-western corner of the site and the northern circle.

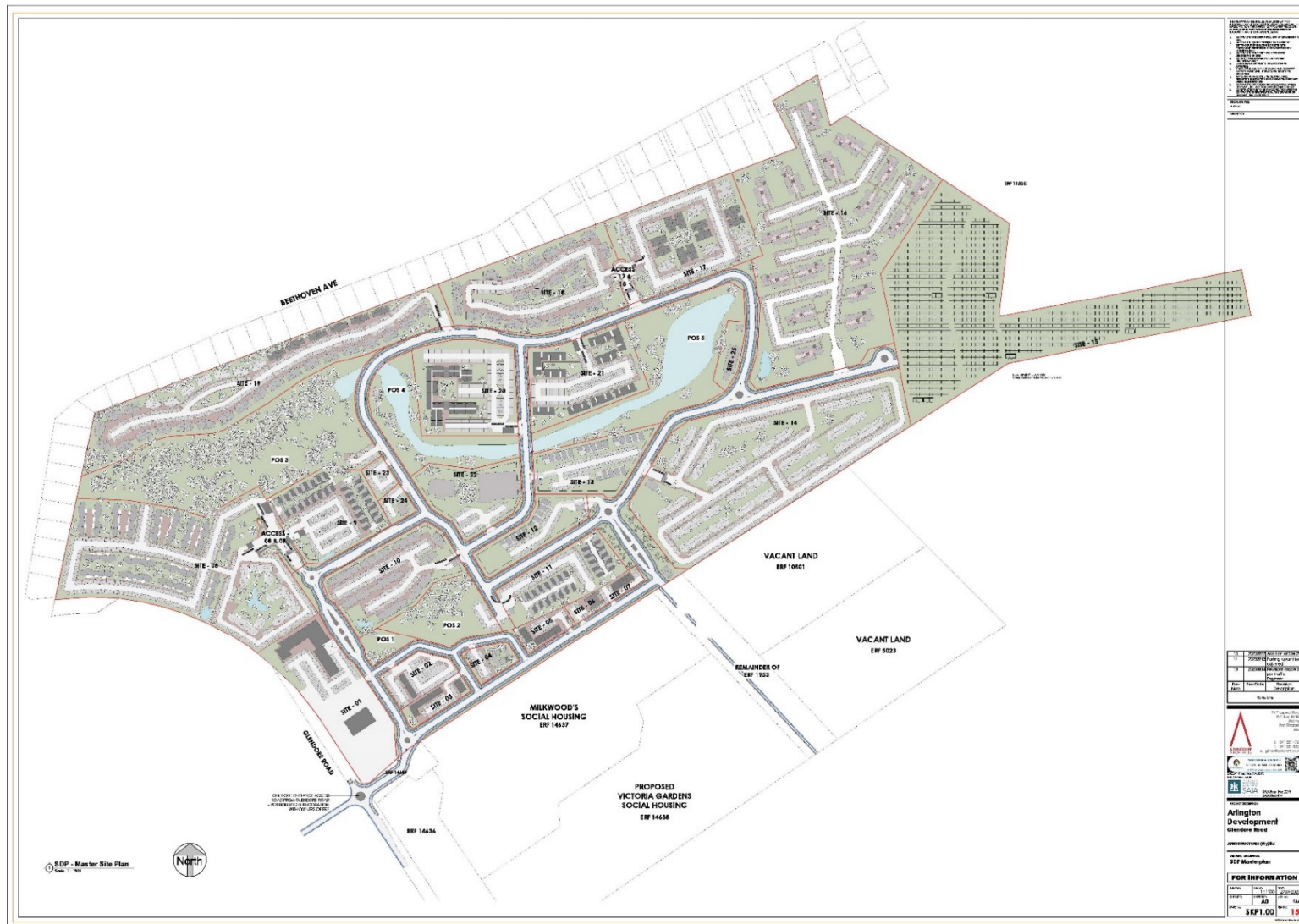


Figure 1: Arlington Site Development Plan

2 Methodology

2.1 Applicable Guidelines

The methodology for this avian species specialist assessment is based on the “*Protocol for the Specialists Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species*” (GN No. 1150 of 30 October 2020, as amended) (the ‘Protocol’), as well as the associated *Species Environmental Assessment Guideline (SANBI 2021)* (the ‘SANBI Guidelines’). The Animal Species Protocol (GN 1150 of 30 October 2020, as amended) sets out the requirements for the assessment of impacts on avian species (Table 1).

Table 1: Terrestrial Species Protocol Assessment Report Content Requirements

Clause	Requirement (as per GN 1150 of 30 October 2020, as amended)	Report
3.1.1	Contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae	Cover Appendix C
3.1.2	A signed statement of independence by the specialist	Appendix C
3.1.3	A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	Section 2.3
3.1.4	A description of the methodology used to undertake the site sensitivity verification, impact assessment and site inspection, including equipment and modelling used where relevant	Section 2.3
3.1.5	A description of the mean density of observations/number of sample sites per unit area and the site inspection observations	Section 2.3 Appendix B
3.1.6	A description of the assumptions made and any uncertainties or gaps in knowledge or data	Section 3.1
3.1.7	Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported	Section 3.3.3
3.1.8	The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area	None recorded
3.1.9	The location of areas not suitable for development and to be avoided during construction where relevant	Figure 4
3.1.10	A discussion of the cumulative impacts	Section 4
3.1.11	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr)	Section 3.8
3.1.12	A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant	Section 4
3.1.13	A motivation must be provided if there were any development footprints identified as per paragraph 3.2.12 above that were identified as having “low” or “medium” terrestrial animal species sensitivity and were not considered appropriate	Not applicable
3.2	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	Appendix C

2.2 Desktop study

The following information sources were used to inform the desktop study:

- The National Web-based Screening Tool;
- Southern African Bird Atlas Project 2 (SABAP-2) obtained from the University of Cape Town (Brooks 2021);
- The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland (Taylor *et al.* 2015);
- National Freshwater Ecosystem Priority Areas (SANBI 2011)

- The Important Bird and Biodiversity Area Initiative (Marnewick et al. 2015);
- A classification of vegetation types by Mucina and Rutherford (2006, updated 2018);
- Eastern Cape Biodiversity Conservation Plan 2019 (DEDEAT 2020)
- Publicly available satellite imagery;
- Peer-reviewed literature of avifauna;
- Publicly available GIS data;
- Habitat Suitability Models (Birdlife SA 2021)
- Specialist knowledge and experience in the area

A desktop-level investigation was conducted using the above listed data. SABAP-2 data for the pentad (which is an area of approximately 8x9 km) covering the project site (3350_2530 and 3400_2530) were investigated. 530 full protocol cards have been submitted for the pentad which is a very high number. The confidence in the SABAP2 data for the pentad is therefore very high. The pentad does however include a much higher habitats which

2.3 The National Web-based Screening Tool

The National Web-based Screening Tool was run for PAOI. The Screening Tool Report refers to the '*Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species (Government Gazette No. 43855 published on 30 October 2020, as amended)*', referred to as 'the Protocol' hereafter.

The Protocol provides the following descriptions of the sensitivity ratings that the Screening Tool determines. It is important to note that these ratings differ from the avifaunal sensitivity levels determined by the specialist during the assessment phase (as per Section 2.8 and 3.6)

'Very High Sensitivity Rating:

- (1) *Critical habitat for range-restricted species of conservation concern, that have a global range of less than 10 km².*
- (2) *SCC listed on the IUCN Red List of Threatened Species or on South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare.*
- (3) *Species aggregations that represent $\geq 1\%$ of the global population size of a species, over a season, and during one or more key stages of its life cycle.*
- (4) *The number of mature individuals that ranks the site among the largest 10 aggregations known for the species.*

These areas are irreplaceable for SCC.

High Sensitivity Rating:

- (1) *Confirmed habitat for SCC.*
- (2) *SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according 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.

Medium Sensitivity Rating

- (1) *Suspected habitat for SCC based either on historical records (prior to 2002) or being a natural area included in a habitat suitability model for this species.*

- (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 the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.

Low Sensitivity Rating

- (1) Areas where no natural habitat remains.
(2) Natural areas where there is no suspected occurrence of SCC.'

The results of the screening were verified by the specialist through the use a desktop analysis using satellite imagery, an on-site inspection. If the site sensitivity verification concludes that the current use of land and environmental sensitivity is different to the outcome of the Screening Tool Report, and the site does not contain suitable habitat for any avian SCCs then an Avian Species Compliance Statement would be required. If the land use is in line with the outcome of the Screening Tool Report, and any area of the site is potentially suitable habitat for SCC, then an Avian Species Specialist Impact Assessment is required.

2.4 Fieldwork

A site inspection of the study area was conducted by the SACNASP registered avifaunal specialist (Appendix C) and an avifaunal observer on 23 February 2022.

The study area (Figure 2) was traversed by the specialist and an assistant by vehicle and on foot and all birds observed during the survey were recorded using Birdlasser software. Notes and photographs of avian habitats in the study area were recorded (Appendix B & D). The study area surveyed was the development site with a 250 m buffer surrounding the proposed development.

2.5 Impact Analysis

Potential impacts on avifauna were first identified through a literature review and desktop study, and further informed by a site survey conducted in February 2022. Impacts were then assessed using an impact assessment methodology supplied by JG Afrika. For each impact, the nature (positive/negative), extent (spatial scale), magnitude duration (time scale), consequence (calculated numerically) and probability of occurrence is ranked and described. These criteria are used to ascertain the significance of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The impact methodology used is presented in Appendix A.

2.6 Defining the Project Area of Influence (PAOI)

The proposed development could potentially cause displacement of avifauna into surrounding areas, but due to the low availability of avifaunal habitats in the urban environment this would be relatively limited to the natural areas immediately surrounding the site. The Project Area of Influence (PAOI) was considered to be the proposed development site footprint with a 250 m buffer.

2.7 Determining Site Ecological Importance (SEI)

As per the Species Assessment guidelines (SANBI, 2021), the Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the Impact Receptor (i.e. SCC or habitat of the SCC) and its resilience to impacts (Receptor Resilience, RR):

$$\text{SEI} = \text{BI} + \text{RR} \text{ (Table 2)}$$

Table 2: Calculation of Site Ecological Importance (taken from SANBI 2021)

Site Ecological Importance		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

Biodiversity importance in turn is a function of conservation importance (CI) and functional integrity (FI):

BI = CI + FI (Table 3)

Table 3: Calculation of Biodiversity Importance (taken from SANBI 2021)

Biodiversity Importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional Integrity	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

2.7.1 Conservation Importance

Conservation importance is defined here as: *‘The importance of a site for supporting biodiversity features of conservation concern present, e.g. populations of IUCN threatened and Near-threatened species (CR, EN, VU and NT), rare species, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.’* (Table 4).

Table 4: Conservation Importance Criteria as per Species Assessment Guidelines (SANBI 2021)

Conservation Importance	Fulfilling Criteria
Very high	Confirmed or highly likely occurrence of CR, EN, VU, or Extremely Rare or Critically Rare species that have a global EOO (Extent of Occurrence) of <10 km ² . Any area of natural habitat of a CR ecosystem type or large area (>0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type.

Conservation Importance	Fulfilling Criteria
	Globally significant populations of congregatory species (>10% of global population).
High	<p>Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of >10km². IUCN threatened species (CR, EN, VU) must be listed under any Criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or <10 000 mature individuals remaining.</p> <p>Small area (>0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (>0.1%) of natural habitat of VU ecosystem type.</p> <p>Presence of Rare species.</p> <p>Globally significant populations of congregatory species (>1% but <10% of global population).</p>
Medium	<p>Confirmed or highly likely occurrence of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals.</p> <p>Any area of natural habitat of threatened ecosystems type with status of VU.</p> <p>Presence of range-restricted species.</p> <p>>50% of receptor contains natural habitat with potential to support SCC.</p>
Low	<p>No confirmed or highly likely populations of SCC.</p> <p>No confirmed or highly likely populations of range-restricted species.</p> <p><50% of receptor contains natural habitat with limited potential to support SCC.</p>
Very low	<p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species.</p> <p>No natural habitat remaining.</p>

2.7.2 Functional Integrity

Functional integrity (FI) of the receptor is defined here as the receptors' current ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions. Simply stated, FI is: *'A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.'* (Table 5).

Table 5: Functional Integrity Criteria as per Species Assessment Guidelines (SANBI 2021)

Functional integrity	Fulfilling Criteria
Very high	<p>Very large (>100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types.</p> <p>High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches.</p>

Functional integrity	Fulfilling Criteria
	No or minimal current negative ecological impacts with no signs of major past disturbances (e.g. ploughing)
High	Large (>20 ha but < 100 ha) intact area for any conservation status of ecosystem type or >10 ha for EN ecosystem types.
Medium	Medium (> 4 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance. Moderate rehabilitation potential.
Low	Small (>1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy road network surrounds the area. Low rehabilitation potential.
Very low	Very small (<1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts

2.7.3 Receptor Resilience

Receptor resilience (RR) is defined here as: *“The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention”*. (Table 6)

Table 6: Receptor Resilience Criteria as per Species Assessment Guidelines (SANBI 2021)

Resilience	Fulfilling Criteria
Very high	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.

Resilience	Fulfilling Criteria
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

2.7.4 Interpretation of Site Ecological Importance

Site Ecological Importance should be described in the above manner for each impact receptor within the PAOI and mapped in relation to development activities and infrastructure and interpreted in the context of the proposed development activities (Table 7).

Table 7: SANBI (2021) Guidelines for the Interpretation of Site Ecological Importance

SEI	Interpretation in relation to proposed development activities
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities
Very low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

2.8 Avifaunal Sensitivity

An avifaunal sensitivity map of the PAOI was developed which considers the following features and buffers:

- NFEPA Wetlands and Rivers
- Critical Biodiversity Areas and Ecological Support Areas
- Avifaunal Habitat Suitability Models
- Avifaunal habitats identified within the PAOI and their status

Areas identified as of high sensitivity should be avoided by development and development within these areas is not supported. Development in areas of medium avifaunal sensitivity should be avoided and minimised as much as possible but may be found acceptable with mitigations

applied. Areas of low avifaunal sensitivity are the preferred areas for development with mitigations applied.

It should be noted that the avifaunal sensitivity described here is not equivalent to the classification of the site sensitivity in terms of the National Web-based Screening Tool, as per Section 2.3.

3 Results

3.1 Sampling Limitations

This report is based on data collected during a single day survey on site. Therefore, seasonal or daily variations are not accounted for, and a precautionary approach was used in the assessment of impacts. A single-day survey is however deemed sufficient for the sensitivity and size of the site.

3.2 Regional Context

The proposed development site is located on the outskirts of the town of Gqeberha, formerly known as Port Elizabeth, in the Eastern Cape Province (Figure 2). The closest Important Bird Area (IBA) to the project is the Swartkops Estuary – Redhouse and Chatty Saltpans (Marnewick et al. 2015), approximately 14.5 km north-north-east of the site. The closest protected area is 3.5 km to the south-west (Sardinia Bay Nature Reserve) and the Nelson Mandela University Private Nature Reserve is located approximately 7 km to the east of the site.

3.3 Local Context and Fieldwork Results

The proposed development site is located on a derelict former racecourse property, within the residential area of Walmer, Gqeberha. The vegetation types of the site are mapped as Algoa Sandstone Fynbos (Critically Endangered) and Sardinia Forest Thicket (Least Concern). There are no NFEPA rivers or wetlands within the proposed development site or the PAOI (Figure 2). The site does not contain any mapped Critical Biodiversity Areas (CBA) or Ecological Support Areas (ESA), but a CBA is mapped in the north-west of the PAOI (Figure 3).

3.3.1 General sampling conditions

A site inspection conducted by the avian species specialist found that the land use on the proposed site appear to be in overall line with the results of the screening tool and online resources, with some intact habitat suitable for SCC present.

Summer is considered to be an appropriate timing for the survey, and relevant to the assessment for the SCC which are at most risk from the proposed development.

3.3.2 Sampling effort

The sampling effort of a single day survey is considered adequate for the type and size of the development and the avifaunal sensitivity of the site. Sampling effort is therefore in line with the Animal Species Protocol (GN 1150 of October 2020, as amended), which refers to the Species Environmental Assessment Guideline (SANBI 2021).

3.3.3 Predicted and observed species, highlighting Species of Conservation Concern (SCC)

SABAP2 has recorded 21 Species of Conservation Concern and 22 endemic or near-endemic species in the pentads covering the study area (Appendix B). A pentad covers an area of

approximately 9x8 km, which is an area much larger than the PAOI, and includes a range of avian habitats that do not occur within the PAOI, in particular shoreline and marine habitats. Therefore, eight species that are deemed as impossible to occur, have been excluded from further analysis. These include shorebirds and seabirds such as penguins, petrels, gannets and shearwaters. Of the remaining 13 SCC two are listed as *Endangered* (African Marsh Harrier and Secretarybird), six are listed as *Vulnerable* (African Pygmy Goose, Caspian Tern, Lanner Falcon, Crowned Eagle, Denham's Bustard, and Knysna Warbler) and five are listed as *Near threatened* (Forest Buzzard, European Roller, Greater Flamingo, Half-collared Kingfisher and Knysna Woodpecker) (Table 8). During the site visit, no SCC were recorded, and one near-endemic species was observed.

None of the potential SCC are confirmed or highly likely to be present. However, two SCC (Table 8) have a likelihood of occurrence of medium, and using the pre-cautionary approach were determined as likely present within the PAOI. The remainder were determined to have a low likelihood of occurrence in the PAOI and were determined as unlikely to be present. The number of SCC recorded during the site visit was nil.

3.4 Current impacts

Large areas of the site have been transformed by previous activities and much of the remaining vegetation appears to be in a degraded condition invaded by alien invasive species with only patches of intact thicket remaining in the western section of the site.

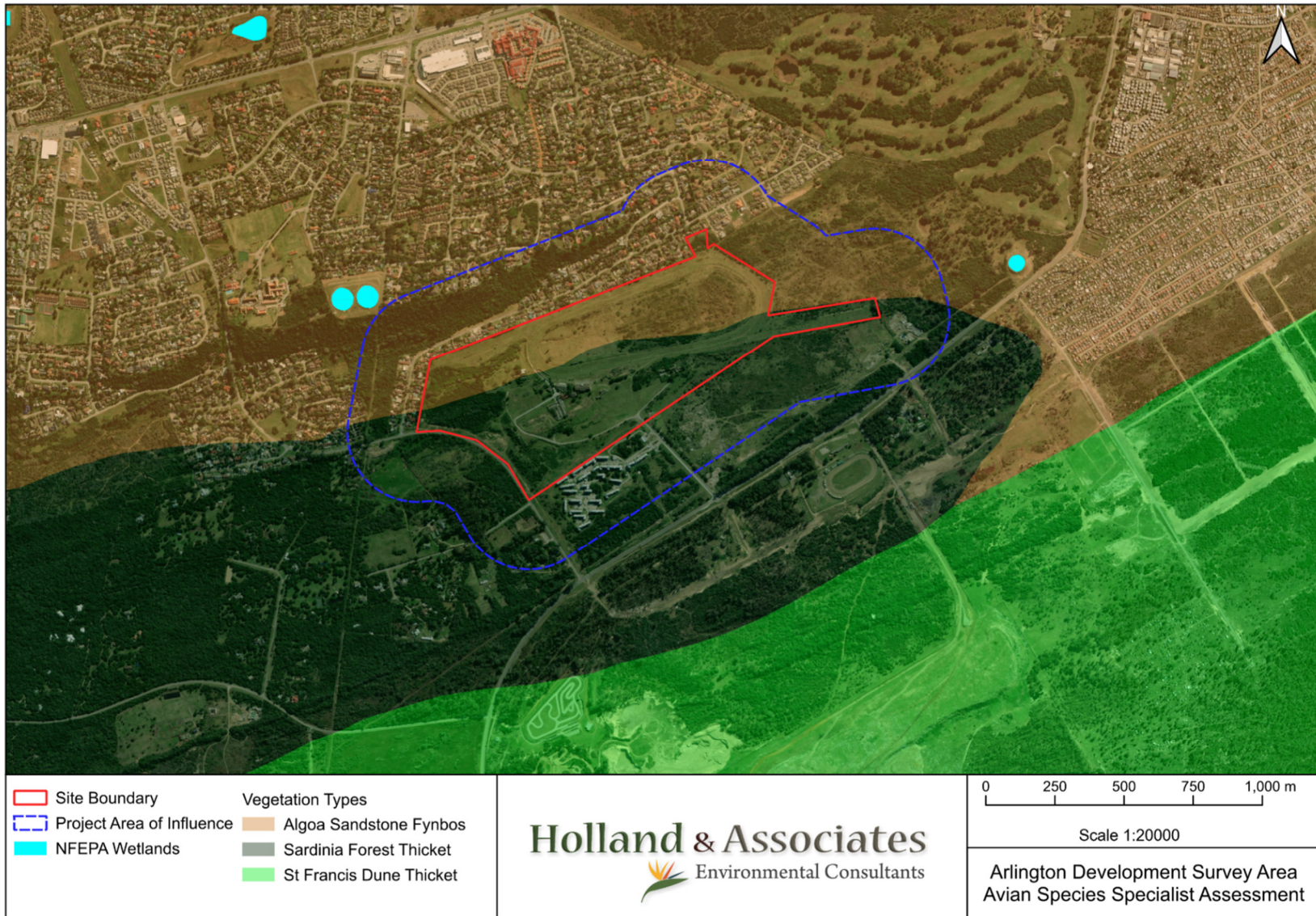


Figure 2: Avian Species Assessment Survey Area

Table 8: Species of Conservation Concern potentially occurring in the primary PAOI and their Probability of Occurrence (PoC)

Alphabetical Name	Scientific name	Red Data Status ¹	Habitat requirement ²	PoC in PAOI	Reason for PoC
African Marsh Harrier	<i>Circus ranivorus</i>	EN	Wetlands. Forages over drier flood plains, grasslands, croplands and fynbos	LOW	Low suitable foraging or breeding habitat in PAOI. Unlikely to occur in urban areas and has a low SABAP2 reporting rate (RR) of 0.34%%
African Pygmy Goose	<i>Nettapus auritus</i>	VU	Swamps, marshes, shallow freshwater lakes, dams and rivers	LOW	No aquatic habitat in PAOI and low RR of 0.11% in pentad.
Caspian Tern	<i>Hydroprogne caspia</i>	VU	Lakes, estuaries, lagoons, rivers	LOW	No aquatic habitat in PAOI and low RR of 1.46% in pentad.
Crowned Eagle	<i>Stephanoaetus coronatus</i>	VU	Forest and dense woodland, montane & riverine forests and rarely in exotic plantations and alien trees	LOW	Low RR of 1.01% in pentad, few suitable trees and no suitable forest.
Denham's Bustard	<i>Neotis denhami</i>	VU	Grasslands, shrublands, fynbos and cultivated fields	LOW	The Birdlife SA habitat suitability model determined a probability of occurrence between 0.2 and 0.7 for the PAOI (on a scale of 0 - 1). However, the reporting rate for Denham's Bustard is however low for the pentad (0.11%) and the species is unlikely to occur in urban areas.
European Roller	<i>Coracias garrulus</i>	NT	Open woodlands, perching on open dead branches, telephone poles and powerlines	LOW	Potentially suitable habitat on site but vagrant to the area with an RR of 0, and a likely rare vagrant to the area.
Forest Buzzard	<i>Buteo trizonatus</i>	NT	Afromontane forest and exotic plantations, mainly pines	LOW	Relatively medium-low RR of 5.6 but no suitably large forest in PAOI.
Greater Flamingo	<i>Phoenicopterus roseus</i>	NT	Saline or brakish shallow water bodies, saltpans, dams and coastal mudflats	LOW	Very low RR of 0.11 and no suitable aquatic habitat in PAOI

¹ speciesstatus.sanbi.org or iucnredlist.org status (whichever is highest)

² [Birdsoftheworld.org](https://birdsoftheworld.org)

Alphabetical Name	Scientific name	Red Data Status ¹	Habitat requirement ²	PoC in PAOI	Reason for PoC
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	NT	Clear, fast-flowing perennial streams, rivers and estuaries,	LOW	No aquatic habitat on site.
Knysna Warbler	<i>Bradypterus sylvaticus</i>	VU	Dense, tangled thickets on edge of forests and along watercourses	MEDIUM	Low RR but difficult to detect when not calling and suitable thicket habitat on site and in PAOI.
Knysna Woodpecker	<i>Camphethera notata</i>	NT	Thickets, forests, thornveld and alien trees	MEDIUM	Available habitat in PAOI and a SABAP2 reporting rate of 13.48%.
Lanner Falcon	<i>Falco biarmicus</i>	VU	Open grassland, open or cleared woodland near cliff or electricity pylons	LOW	Some potentially suitable habitat in PAOI but was recorded at a low reporting rate by SABAP2 in the pentad (2.36%).
Secretarybird	<i>Sagittarius serpentarius</i>	EN	Open grassland, shrubland, open savanna.	LOW	Potentially suitable habitat on site but unlikely to occur in urban area and a low reporting rate in SABAP2 pentad (1.11%).

3.5 Site Ecological Importance

The calculation of the Site Ecological Importance is presented in

Table 9. Two avifaunal habitat types were identified within the PAOI: Forest thickets and fynbos shrub.

3.5.1 *Forest thicket habitat*

Forest thicket is suitable habitat for Knysna Warbler (Vulnerable) and Knysna Woodpecker (Near threatened) which potentially occur in the PAOI. An area of approximately 6.76 ha of intact and semi-intact forest thicket habitat is located within the development footprint.

The Conservation Importance for forest thicket was determined as high due to the likely occurrence of Knysna Warbler, an IUCN threatened species listed as vulnerable under criterion B1 and C2.

The Functional Integrity of the forest thicket habitat is rated as medium as the remaining semi-intact areas are less than 20 ha with poor habitat connectivity and a busy used road network between patches.

The Receptor Resilience of forest thicket habitat has been rated as medium as a recovery to restore >75% of functionality is assumed to be slow, but possible with rehabilitation, over more than 10 years.

The resulting Site Ecological Importance rating for forest thicket was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities (Table 2, Table 9).

3.5.2 *Fynbos shrub habitat*

Fynbos shrub is suitable for a variety of SCC all of which have a low probability of occurrence for the PAOI. This is due to the location of the site within an urban area and the habitat within the site being largely transformed, degraded and invaded with aliens. An area of approximately 22 ha of semi-intact fynbos habitat is located outside of the proposed development footprint within the east of the PAOI, and would not be lost by the proposed development proceeding.

The Conservation Importance for fynbos shrub was determined as low due to no confirmed or highly likely occurrence of SCC and less than 50% of receptor containing natural habitat with limited potential to support SCC.

The Functional Integrity of the fynbos shrub habitat is rated as low as there remains almost no habitat connectivity with a very busy road network surrounding the area.

The Receptor Resilience of fynbos shrub habitat has been rated as medium as a recovery to restore >75% of functionality is assumed to be slow, but possible with rehabilitation, over more than 10 years.

The resulting Site Ecological Importance rating for fynbos shrub was determined as medium, which means that development activities of medium impact would be acceptable if followed by appropriate restoration activities (Table 2, Table 9).

Table 9: Calculation of Site Ecological Importance

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor resilience	Site Ecological Importance
Forest thicket	High	Medium	Medium	Medium	Medium
Fynbos Shrub	Low	Low	Medium	Medium	Medium

3.6 Avifaunal Sensitivity and Constraints

It must be noted that the avifaunal sensitivity of the site discussed in this section is different to the site sensitivity classification of the National Web-based Screening Tool, which is discussed in Section 3.7 below.

Based on the potential occurrence of SCC, available avifaunal habitats and current impacts on the site, the development area is deemed to be of low and medium avifaunal sensitivity. An area of intact forest thicket in the north-west of the PAOI, mapped as a CBA1 was determined as of high avifaunal sensitivity with no development supported (Figure 3).

Development within the intact CBA1 is however not proposed and no areas of high sensitivity and resulting no-go areas were identified within the proposed development site itself. Development within the medium sensitivity areas should be avoided and minimised as much as possible.

The proposed layout avoids all areas of high sensitivity and the majority of areas of medium sensitivity within the PAOI. An area of up to 6.8 ha of forest thicket of medium avifaunal sensitivity within the development footprint could be lost by the proposed development layout, however it appears that the layout partially avoids this area, and parts of this area is mapped to become public open space (POS3) in the proposed development layout (Figure 1).

3.7 Site Sensitivity Verification (in terms of the National Web-based Screening Tool)

The National Web-based Screening Tool identified the PAOI as of high sensitivity for five avian Species of Conservation Concern (SCCs) (Figure 3). The specialist site sensitivity verification confirmed the likely presence of one of these SCC (Knysna Warbler – *Bradypterus sylvaticus*) and determined the remaining four to be unlikely to occur. One further SCC, Knysna Woodpecker (Near threatened), was identified to be potentially present by the specialist site sensitivity verification.

The site sensitivity verification therefore confirms the outcome of the screening tool classification of the site as high due to the potential presence of SCC, and confirms that an avian species specialist impact assessment report (this report) must be submitted with an application for environmental authorisation.

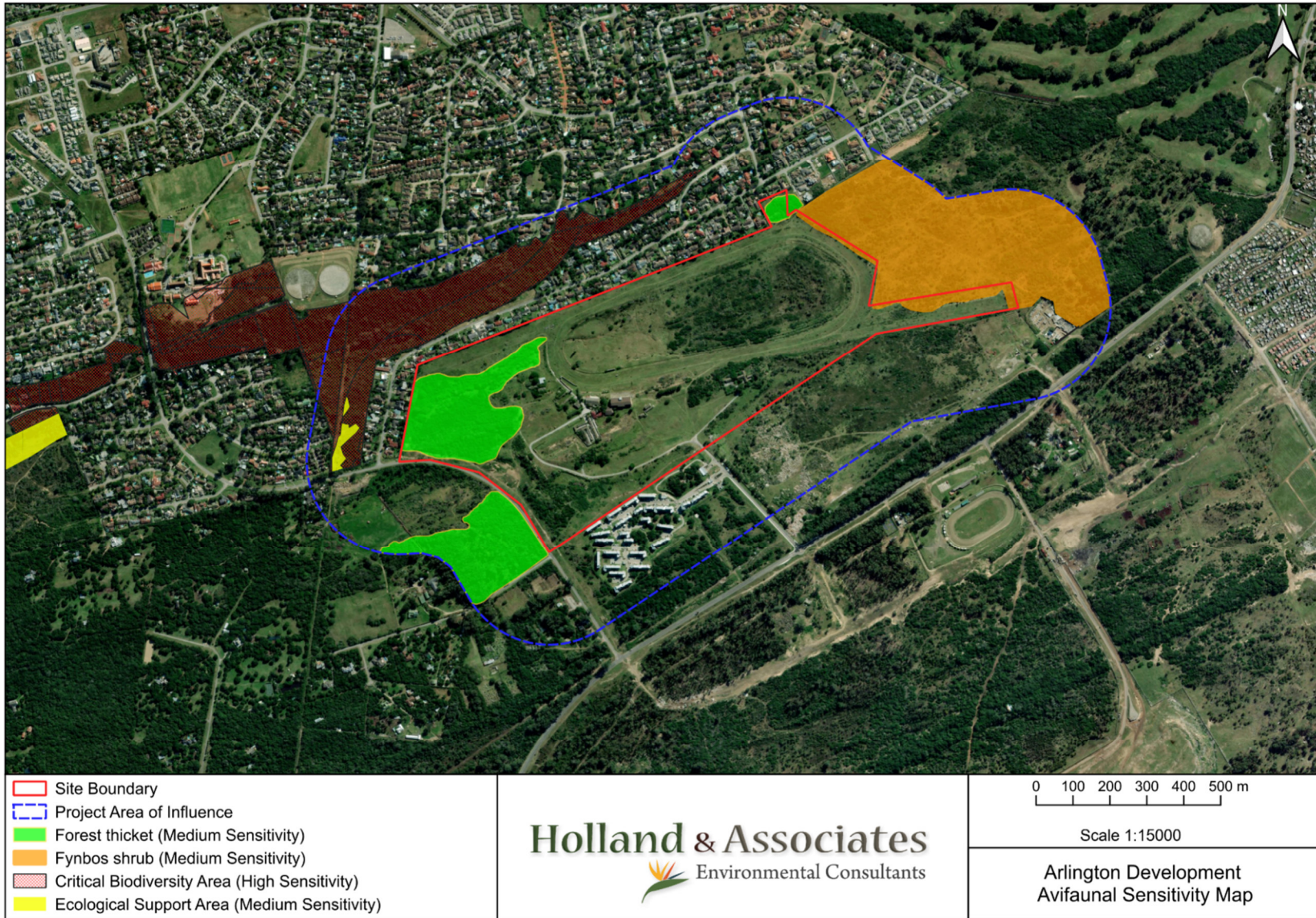
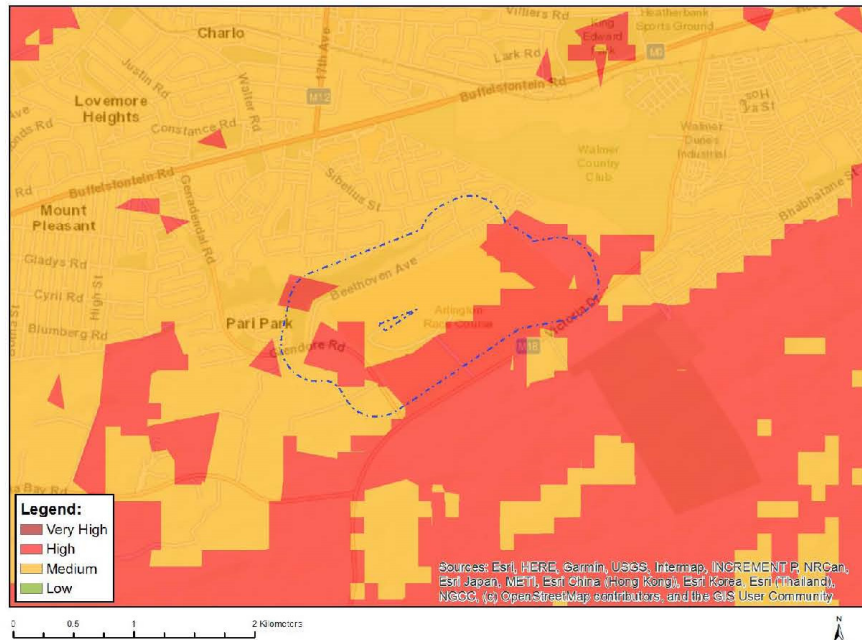


Figure 3: Avifaunal Constraints Map

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



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

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Circus ranivorus
High	Aves-Circus maurus
High	Aves-Stephanoaetus coronatus
High	Aves-Neotis denhami
High	Aves-Bradypterus sylvaticus
Medium	Aves-Stephanoaetus coronatus
Medium	Aves-Neotis denhami
Medium	Aves-Eupodotis senegalensis
Medium	Insecta-Chrysoritis thysbe whitei
Medium	Mammalia-Chlorotalpa duthieae
Medium	Sensitive species 8
Medium	Invertebrate-Aneuryphymus montanus

Figure 4: National Web-based Screening Tool Report Animal Theme Results

3.8 Description of identified impacts and available mitigation measures

The following potential impacts on avifauna by the proposed development were identified for the construction phase:

- Disturbance
- Habitat loss

The following potential impacts on avifauna by the proposed development were identified for the operational phase:

- Disturbance
- Habitat loss

The proposed development is considered to be permanent, therefore a decommissioning phase has not been assessed.

3.8.1 Disturbance

Disturbance during the construction and operational phases can negatively affect all avifauna on an individual or population level by increasing stress, decreasing food and habitat availability, causing displacement into potentially less suitable neighbouring environments, and ultimately potentially decreasing reproductive success. This is particularly true for resident breeding species, some of which are shy, secretive and not habituated to human activities.

Disturbance can be managed and mitigated at the design stage by avoiding important nesting, roosting and foraging areas of sensitive species during site selection and layout design. Landscape features within the site that are potentially frequented by sensitive species or constitute potential or confirmed breeding areas for sensitive species, such as wetlands, ridges, and drainage lines, should be avoided and demarcated as No-go areas. Due to the transformed nature of the majority of the site no high sensitivity (no-go) areas were identified within the proposed development site, and only found in the PAOI. The loss of intact and sensitive avifaunal habitat has thereby been minimised.

The following additional mitigation measures can minimise impacts further:

- The footprint of disturbance must be kept to a minimum surrounding the development footprint, during construction and must be demarcated.
- The CBA area to the north-west of the site within the PAOI must be demarcated as a no-go area during construction and operation.
- In order to ensure no SCCs are breeding within the proposed disturbance footprint prior to the commencement of construction activities, a walkthrough of the site should be conducted by the ECO for the project within two weeks of commencement of construction activities.
- An avian species specialist must train the ECO in the identification of the SCCs (identified as potentially present in the area in this report), if required, and the presence, location and behaviour thereof during any site visits must be reported to the avian species specialist following each site visit.
- Should any SCC be found breeding within the development footprint at any point during construction, all works within 250 m of the breeding site must be halted, and the avian species specialist must be contacted for further instruction.

- Should any SCC be found breeding within the site boundary at any point during operation, the area must be cordoned off and the avian species specialist must be contacted for further instruction.

3.8.2 Habitat loss and displacement

Any transformation of vegetation leads to habitat loss for avian species utilising that vegetation, causing displacement into areas which are potentially less suitable or already occupied by competing individuals or species. No areas of high avifaunal sensitivity were identified and development within areas of medium sensitivity should be minimised as far as possible.

3.9 Impact Assessment Tables

3.9.1 Construction Phase Impact: Disturbance

Construction Phase	Disturbance	
	Without Mitigation	With mitigation
Nature	Negative	Negative
Extent	Local (2)	Site-specific (1)
Magnitude	Low (2)	Minor (1)
Duration	Medium (3)	Short term (1)
Irreplaceable loss of resources	Short-term (1)	Short-term (1)
Reversibility	Medium (3)	Short term (1)
Probability	High (4)	High (4)
Significance	Medium (44)	Low (20)
Confidence	High	High
Cumulative Impact	Low	Low
Degree to which the impact can be avoided	Low	
Degree to which the impact can be managed	High	
Degree to which the impact can be mitigated	High	

3.9.2 Construction & Operational and Phase Impact: Habitat Loss

Construction, Operational & Decommissioning Phase	Habitat Loss	
	Without Mitigation	With mitigation
Nature	Negative	Negative
Extent	Site (1)	Site (1)
Duration	Long term (5)	Long term (5)
Magnitude	Moderate (3)	Low (2)
Irreplaceable loss of resources	Medium term (3)	Medium term (3)
Reversibility	Medium term (3)	Medium term (3)
Probability	Medium (3)	Medium (3)
Significance	Medium (45)	Medium (42)
Confidence	High	High

Cumulative Impact	Low	Low
Degree to which the impact can be avoided	Low	
Degree to which the impact can be managed	Low	
Degree to which the impact can be mitigated	Low	

3.9.3 Operational Phase Impact: Disturbance

Operational Phase	Disturbance	
	Without Mitigation	With mitigation
Nature	Negative	Negative
Extent	Local (2)	Site (1)
Duration	Long-term (5)	Long-term (5)
Magnitude	Minor (1)	Minor (1)
Irreplaceable loss of resources	Loss of an expendable resource (2)	Loss of an expendable resource (2)
Reversibility	Long term (5)	Long term (5)
Probability	Low probability (2)	Low probability (2)
Significance	Low (30)	Low (28)
Confidence	High	High
Cumulative Impact	Low	Low
Degree to which the impact can be avoided	Low	
Degree to which the impact can be managed	Medium	
Degree to which the impact can be mitigated	Medium	

4 Discussion & Conclusion

The Site Ecological Importance rating of medium indicates that the site is potentially suitable for development if appropriate mitigation measures and rehabilitation measures are implemented.

The proposed development footprint avoids all areas identified as of high sensitivity for avian species, which are located outside of the proposed development footprint within the PAOI. The proposed development does include the loss of areas of medium avifaunal sensitivity, but as the footprint of this has been minimised, and some areas will be retained, this is considered acceptable from an avifaunal perspective.

The impact assessment has identified potential impacts to avian species, most of which can be mitigated to a low level. Due to the footprint of the proposed development, some loss of SCC habitat is however unavoidable, and even with mitigation this impact is expected to be of medium negative significance for the SCCs that potentially occur (with a medium probability of occurrence) in the habitat that will be lost and could be displaced. These are Knysna Woodpecker and Knysna Warbler. However, due to none of these species having a high probability of occurrence on the proposed development site, and existing disturbance on the site, this loss of habitat is not deemed to have unacceptably high impacts on these species.

The contribution of the proposed development on the cumulative impact of development in this urban area is considered to be low.

It is therefore the avian species specialist's reasoned opinion that the development can proceed as proposed without unacceptable impacts on avian species if all mitigation measures are implemented as recommended.

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Appendix A: Impact Assessment Methodology

Appendix B: Complete Birdlist of SABAP2 Records in Pentad and Observed Species

Common Name	Scientific Name	Red Data Status	Endemism	SABAP2	Site Visit
Acacia Pied Barbet	<i>Tricholaema leucomelas</i>			X	
African Black Duck	<i>Anas sparsa</i>			X	
African Black Swift	<i>Apus barbatus</i>			X	
African Darter	<i>Anhinga rufa</i>			X	
African Dusky Flycatcher	<i>Muscicapa adusta</i>			X	
African Firefinch	<i>Lagonosticta rubricata</i>			X	
African Fish Eagle	<i>Haliaeetus vocifer</i>			X	
African Goshawk	<i>Accipiter tachiro</i>			X	
African Green Pigeon	<i>Treron calvus</i>			X	
African Harrier-Hawk	<i>Polyboroides typus</i>			X	
African Hoopoe	<i>Upupa africana</i>			X	
African Marsh Harrier	<i>Circus ranivorus</i>	EN		X	
African Olive Pigeon	<i>Columba arquatrix</i>			X	
African Openbill	<i>Anastomus lamelligerus</i>			X	
African Palm Swift	<i>Cypsiurus parvus</i>			X	
African Paradise Flycatcher	<i>Terpsiphone viridis</i>			X	
African Pied Wagtail	<i>Motacilla aguimp</i>			X	
African Pipit	<i>Anthus cinnamomeus</i>			X	X
African Pygmy Kingfisher	<i>Ispidina picta</i>			X	
African Rail	<i>Rallus caerulescens</i>			X	
African Red-eyed Bulbul	<i>Pycnonotus nigricans</i>			X	
African Reed Warbler	<i>Acrocephalus baeticatus</i>			X	
African Sacred Ibis	<i>Threskiornis aethiopicus</i>			X	X
African Scops Owl	<i>Otus senegalensis</i>			X	
African Snipe	<i>Gallinago nigripennis</i>			X	
African Spoonbill	<i>Platalea alba</i>			X	

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African Stonechat	<i>Saxicola torquatus</i>			X	X
African Swamphen	<i>Porphyrio madagascariensis</i>			X	
Alpine Swift	<i>Tachymarptis melba</i>			X	
Amethyst Sunbird	<i>Chalcomitra amethystina</i>			X	
Amur Falcon	<i>Falco amurensis</i>			X	
Ant-eating Chat	<i>Myrmecocichla formicivora</i>			X	
Baillon's Crake	<i>Zapornia pusilla</i>			X	
Barn Swallow	<i>Hirundo rustica</i>			X	X
Barratt's Warbler	<i>Bradypterus barratti</i>		NE	X	
Bar-throated Apalis	<i>Apalis thoracica</i>			X	
Black (Southern Africa) Saw-wing	<i>Psalidoprocne pristoptera</i>			X	
Black Crake	<i>Zapornia flavirostra</i>			X	
Black Cuckoo	<i>Cuculus clamosus</i>			X	
Black Cuckooshrike	<i>Campephaga flava</i>			X	
Black Harrier	<i>Circus maurus</i>	EN	NE	X	
Black Sparrowhawk	<i>Accipiter melanoleucus</i>			X	
Black-backed Puffback	<i>Dryoscopus cubla</i>			X	
Black-bellied Starling	<i>Notopholia corusca</i>			X	
Black-collared Barbet	<i>Lybius torquatus</i>			X	
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>			X	
Black-crowned Tchagra	<i>Tchagra senegalus</i>			X	
Black-headed Heron	<i>Ardea melanocephala</i>			X	
Black-headed Oriole	<i>Oriolus larvatus</i>			X	
Black-necked Grebe	<i>Podiceps nigricollis</i>			X	X
Blacksmith Lapwing	<i>Vanellus armatus</i>			X	X
Black-winged Kite	<i>Elanus caeruleus</i>			X	
Black-winged Stilt	<i>Himantopus himantopus</i>			X	X
Blue Crane	<i>Grus paradisea</i>	NT		X	
Blue-billed Teal	<i>Spatula hottentota</i>			X	

Blue-mantled Crested Flycatcher	<i>Trochocercus cyanomelas</i>			x	
Bokmakierie	<i>Telophorus zeylonus</i>			x	x
Booted Eagle	<i>Hieraaetus pennatus</i>			x	
Brimstone Canary	<i>Crithagra sulphurata</i>			x	
Bronze Mannikin	<i>Spermestes cucullata</i>			x	
Brown Scrub Scrub Robin	<i>Cercotrichas signata</i>		NE	x	
Brown-backed Honeybird	<i>Prodotiscus regulus</i>			x	
Brown-hooded Kingfisher	<i>Halcyon albiventris</i>			x	
Brown-throated Martin	<i>Riparia paludicola</i>			x	
Buff-spotted Flufftail	<i>Sarothrura elegans</i>			x	
Buff-streaked Chat	<i>Campicoloides bifasciatus</i>		SLS	x	
Burchell's Coucal	<i>Centropus burchellii</i>			x	
Cape Batis	<i>Batis capensis</i>			x	
Cape Bulbul	<i>Pycnonotus capensis</i>		E	x	
Cape Bunting	<i>Emberiza capensis</i>			x	
Cape Canary	<i>Serinus canicollis</i>			x	
Cape Clapper Lark	<i>Mirafra apiata</i>		NE	x	
Cape Crow	<i>Corvus capensis</i>			x	x
Cape Eagle-Owl	<i>Bubo capensis</i>			x	
Cape Grassbird	<i>Sphenoeacus afer</i>		NE	x	
Cape Longclaw	<i>Macronyx capensis</i>			x	
Cape Penduline Tit	<i>Anthoscopus minutus</i>			x	
Cape Robin-Chat	<i>Cossypha caffra</i>			x	
Cape Rock Thrush	<i>Monticola rupestris</i>		SLS	x	
Cape Shoveler	<i>Spatula smithii</i>			x	x
Cape Sparrow	<i>Passer melanurus</i>			x	
Cape Starling	<i>Lamprotornis nitens</i>			x	x
Cape Sugarbird	<i>Promerops cafer</i>		E	x	
Cape Teal	<i>Anas capensis</i>			x	x
Cape Turtle Dove	<i>Streptopelia capicola</i>			x	x

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Cape Wagtail	<i>Motacilla capensis</i>			x	x
Cape Weaver	<i>Ploceus capensis</i>		NE	x	
Cape White-eye	<i>Zosterops virens</i>		NE	x	
Cardinal Woodpecker	<i>Dendropicos fuscescens</i>			x	
Chestnut-vented Warbler	<i>Curruca subcoerulea</i>			x	
Chinspot Batis	<i>Batis molitor</i>			x	
Chorister Robin-Chat	<i>Cossypha dichroa</i>		SLS	x	
Cinnamon-breasted Bunting	<i>Emberiza tahapisi</i>			x	
Cloud Cisticola	<i>Cisticola textrix</i>		NE	x	
Collared Sunbird	<i>Hedydipna collaris</i>			x	
Common Buzzard	<i>Buteo buteo</i>			x	
Common Greenshank	<i>Tringa nebularia</i>			x	x
Common House Martin	<i>Delichon urbicum</i>			x	
Common Moorhen	<i>Gallinula chloropus</i>			x	x
Common Quail	<i>Coturnix coturnix</i>			x	
Common Ringed Plover	<i>Charadrius hiaticula</i>			x	
Common Sandpiper	<i>Actitis hypoleucos</i>			x	
Common Starling	<i>Sturnus vulgaris</i>			x	
Common Waxbill	<i>Estrilda astrild</i>			x	
Crowned Eagle	<i>Stephanoaetus coronatus</i>	VU		x	
Crowned Hornbill	<i>Lophoceros alboterminatus</i>			x	
Crowned Lapwing	<i>Vanellus coronatus</i>			x	
Curlew Sandpiper	<i>Calidris ferruginea</i>	LC		x	
Dark-backed Weaver	<i>Ploceus bicolor</i>			x	
Dark-capped Bulbul	<i>Pycnonotus tricolor</i>			x	
Denham's Bustard	<i>Neotis denhami</i>	VU		x	
Diederik Cuckoo	<i>Chrysococcyx caprius</i>			x	x
Dusky Indigobird	<i>Vidua funerea</i>			x	
Eastern Clapper Lark	<i>Mirafra fasciolata</i>			x	
Egyptian Goose	<i>Alopochen aegyptiaca</i>			x	x

Emerald-spotted Wood Dove	<i>Turtur chalcospilos</i>			X	
European Roller	<i>Coracias garrulus</i>	NT		X	
Familiar Chat	<i>Oenanthe familiaris</i>			X	X
Fan-tailed Widowbird	<i>Euplectes axillaris</i>			X	
Fiery-necked Nightjar	<i>Caprimulgus pectoralis</i>			X	
Fiscal Flycatcher	<i>Melaenornis silens</i>		NE	X	X
Forest Canary	<i>Crithagra scotops</i>		SLS	X	
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>			X	
Fulvous Whistling Duck	<i>Dendrocygna bicolor</i>			X	
Fynbos Buttonquail	<i>Turnix hottentottus</i>	EN	E	X	
Gabar Goshawk	<i>Micronisus gabar</i>			X	
Giant Kingfisher	<i>Megaceryle maxima</i>			X	
Glossy Ibis	<i>Plegadis falcinellus</i>				X
Golden-breasted Bunting	<i>Emberiza flaviventris</i>			X	
Goliath Heron	<i>Ardea goliath</i>			X	
Great Egret	<i>Ardea alba</i>			X	
Greater Double-collared Sunbird	<i>Cinnyris afer</i>		SLS	X	
Greater Honeyguide	<i>Indicator indicator</i>			X	
Greater Painted-snipe	<i>Rostratula benghalensis</i>	NT		X	
Greater Striped Swallow	<i>Cecropis cucullata</i>			X	
Green Wood Hoopoe	<i>Phoeniculus purpureus</i>			X	
Green-backed Camaroptera	<i>Camaroptera brachyura</i>			X	
Grey Cuckooshrike	<i>Ceblepyris caesius</i>			X	
Grey Heron	<i>Ardea cinerea</i>			X	X
Grey Sunbird	<i>Cyanomitra veroxii</i>			X	
Grey-backed Cisticola	<i>Cisticola subruficapilla</i>			X	X
Grey-backed Sparrow-Lark	<i>Eremopterix verticalis</i>			X	
Grey-headed Bushshrike	<i>Malaconotus blanchoti</i>			X	
Grey-headed Gull	<i>Chroicocephalus cirrocephalus</i>			X	
Grey-winged Francolin	<i>Scleroptila afra</i>		SLS	X	

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Hadada Ibis	<i>Bostrychia hagedash</i>			X	
Half-collared Kingfisher	<i>Alcedo semitorquata</i>	NT		X	
Hamerkop	<i>Scopus umbretta</i>			X	
Helmeted Guineafowl	<i>Numida meleagris</i>			X	
Horus Swift	<i>Apus horus</i>			X	
House Sparrow	<i>Passer domesticus</i>			X	
Icterine Warbler	<i>Hippolais icterina</i>			X	
Jackal Buzzard	<i>Buteo rufofuscus</i>		NE	X	
Jacobin Cuckoo	<i>Clamator jacobinus</i>			X	
Karoo Prinia	<i>Prinia maculosa</i>		NE	X	X
Karoo Scrub Robin	<i>Cercotrichas coryphoeus</i>			X	
Karoo Thrush	<i>Turdus smithi</i>		NE	X	
Kittlitz's Plover	<i>Charadrius pecuarius</i>			X	
Klaas's Cuckoo	<i>Chrysococcyx klaas</i>			X	
Knysna Turaco	<i>Tauraco corythaix</i>		SLS	X	
Knysna Woodpecker	<i>Campethera notata</i>	NT	E	X	
Kori Bustard	<i>Ardeotis kori</i>	NT		X	
Lanner Falcon	<i>Falco biarmicus</i>	VU		X	
Lark-like Bunting	<i>Emberiza impetواني</i>			X	
Laughing Dove	<i>Spilopelia senegalensis</i>			X	
Lazy Cisticola	<i>Cisticola aberrans</i>			X	
Lemon Dove	<i>Columba larvata</i>			X	
Lesser Flamingo	<i>Phoeniconaias minor</i>	NT		X	
Lesser Honeyguide	<i>Indicator minor</i>			X	
Lesser Kestrel	<i>Falco naumanni</i>			X	
Lesser Striped Swallow	<i>Cecropis abyssinica</i>			X	
Lesser Swamp Warbler	<i>Acrocephalus gracilirostris</i>			X	
Levaillant's Cisticola	<i>Cisticola tinniens</i>			X	
Little Bittern	<i>Ixobrychus minutus</i>			X	
Little Egret	<i>Egretta garzetta</i>			X	

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Little Grebe	<i>Tachybaptus ruficollis</i>			X	
Little Rush Warbler	<i>Bradypterus baboecala</i>			X	
Little Sparrowhawk	<i>Accipiter minullus</i>			X	
Little Stint	<i>Calidris minuta</i>			X	
Little Swift	<i>Apus affinis</i>			X	
Long-billed Crombec	<i>Sylvietta rufescens</i>			X	
Long-crested Eagle	<i>Lophaetus occipitalis</i>			X	
Long-tailed Widowbird	<i>Euplectes progne</i>			X	X
Ludwig's Bustard	<i>Neotis ludwigii</i>	EN		X	
Maccoa Duck	<i>Oxyura maccoa</i>	NT		X	
Malachite Kingfisher	<i>Corythornis cristatus</i>			X	
Malachite Sunbird	<i>Nectarinia famosa</i>			X	X
Marsh Sandpiper	<i>Tringa stagnatilis</i>			X	
Marsh Warbler	<i>Acrocephalus palustris</i>			X	
Martial Eagle	<i>Polemaetus bellicosus</i>	EN		X	
Mocking Cliff Chat	<i>Thamnolaea cinnamomeiventris</i>			X	
Mountain Wagtail	<i>Motacilla clara</i>			X	
Namaqua Dove	<i>Oena capensis</i>			X	
Narina Trogon	<i>Apaloderma narina</i>			X	
Neddicky	<i>Cisticola fulvicapilla</i>			X	
Nicholson's Pipit	<i>Anthus nicholsoni</i>			X	
Olive Bushshrike	<i>Chlorophoneus olivaceus</i>			X	
Olive Thrush	<i>Turdus olivaceus</i>			X	
Olive Woodpecker	<i>Dendropicus griseocephalus</i>			X	
Orange-breasted Bushshrike	<i>Chlorophoneus sulfureopectus</i>			X	
Pale Chanting Goshawk	<i>Melierax canorus</i>			X	
Pearl-breasted Swallow	<i>Hirundo dimidiata</i>			X	
Pectoral Sandpiper	<i>Calidris melanotos</i>			X	
Peregrine Falcon	<i>Falco peregrinus</i>			X	
Pied Crow	<i>Corvus albus</i>			X	

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Pied Kingfisher	<i>Ceryle rudis</i>			X	
Pied Starling	<i>Lamprotornis bicolor</i>		SLS	X	
Pin-tailed Whydah	<i>Vidua macroura</i>			X	X
Plain-backed Pipit	<i>Anthus leucophrys</i>			X	
Purple Heron	<i>Ardea purpurea</i>			X	
Quailfinch	<i>Ortygospiza atricollis</i>			X	
Red-billed Oxpecker	<i>Buphagus erythrorhynchus</i>			X	
Red-billed Quelea	<i>Quelea quelea</i>			X	
Red-billed Teal	<i>Anas erythrorhyncha</i>			X	X
Red-capped Lark	<i>Calandrella cinerea</i>			X	
Red-chested Cuckoo	<i>Cuculus solitarius</i>			X	
Red-chested Flufftail	<i>Sarothrura rufa</i>			X	
Red-collared Widowbird	<i>Euplectes ardens</i>			X	
Red-eyed Dove	<i>Streptopelia semitorquata</i>			X	
Red-faced Mousebird	<i>Urocolius indicus</i>			X	
Red-fronted Tinkerbird	<i>Pogoniulus pusillus</i>			X	
Red-headed Finch	<i>Amadina erythrocephala</i>			X	
Red-knobbed Coot	<i>Fulica cristata</i>			X	
Red-necked Spurfowl	<i>Pternistis afer</i>			X	
Red-throated Wryneck	<i>Jynx ruficollis</i>			X	
Red-winged Francolin	<i>Scleroptila levaillantii</i>			X	
Red-winged Starling	<i>Onychognathus morio</i>			X	
Reed Cormorant	<i>Microcarbo africanus</i>			X	X
Rock Dove	<i>Columba livia</i>			X	
Rock Kestrel	<i>Falco rupicolus</i>			X	
Rock Martin	<i>Ptyonoprogne fuligula</i>			X	
Ruff	<i>Calidris pugnax</i>			X	
Rufous-breasted Sparrowhawk	<i>Accipiter rufiventris</i>			X	
Rufous-naped Lark	<i>Mirafra africana</i>			X	X
Secretarybird	<i>Sagittarius serpentarius</i>	VU		X	

Sentinel Rock Thrush	<i>Monticola explorator</i>	LC	SLS	x	
Sombre Greenbul	<i>Andropadus importunus</i>			x	
South African Shelduck	<i>Tadorna cana</i>			x	x
Southern Black Flycatcher	<i>Melaenornis pammelaina</i>			x	
Southern Black Korhaan	<i>Afrotis afra</i>	VU	E	x	
Southern Black Tit	<i>Melaniparus niger</i>			x	
Southern Boubou	<i>Laniarius ferrugineus</i>			x	
Southern Double-collared Sunbird	<i>Cinnyris chalybeus</i>		NE	x	x
Southern Fiscal	<i>Lanius collaris</i>				x
Southern Grey-headed Sparrow	<i>Passer diffusus</i>			x	
Southern Masked Weaver	<i>Ploceus velatus</i>			x	x
Southern Pochard	<i>Netta erythrophthalma</i>			x	
Southern Red Bishop	<i>Euplectes orix</i>			x	
Southern Tchagra	<i>Tchagra tchagra</i>		NE	x	
Speckled Mousebird	<i>Colius striatus</i>			x	
Speckled Pigeon	<i>Columba guinea</i>			x	x
Spectacled Weaver	<i>Ploceus ocularis</i>			x	
Spike-heeled Lark	<i>Chersomanes albofasciata</i>			x	
Spotted Eagle-Owl	<i>Bubo africanus</i>			x	
Spotted Flycatcher	<i>Muscicapa striata</i>			x	
Spotted Thick-knee	<i>Burhinus capensis</i>			x	
Spur-winged Goose	<i>Plectropterus gambensis</i>			x	
Streaky-headed Seedeater	<i>Crithagra gularis</i>			x	
Striped Flufftail	<i>Sarothrura affinis</i>	VU		x	
Swee Waxbill	<i>Coccygia melanotis</i>		NE	x	
Tambourine Dove	<i>Turtur tympanistria</i>			x	
Tawny-flanked Prinia	<i>Prinia subflava</i>			x	
Terrestrial Brownbul	<i>Phyllastrephus terrestris</i>			x	
Thick-billed Weaver	<i>Amblyospiza albifrons</i>			x	

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Three-banded Plover	<i>Charadrius tricollaris</i>			X	
Trumpeter Hornbill	<i>Bycanistes bucinator</i>			X	
Village Weaver	<i>Ploceus cucullatus</i>			X	
Violet-backed Starling	<i>Cinnyricinclus leucogaster</i>			X	
Wailing Cisticola	<i>Cisticola lais</i>			X	
Water Thick-knee	<i>Burhinus vermiculatus</i>			X	X
Wattled Starling	<i>Creatophora cinerea</i>			X	
Western Barn Owl	<i>Tyto alba</i>			X	
Western Cattle Egret	<i>Bubulcus ibis</i>			X	X
Whiskered Tern	<i>Chlidonias hybrida</i>			X	
White Stork	<i>Ciconia ciconia</i>			X	
White-backed Duck	<i>Thalassornis leuconotus</i>			X	
White-bellied Bustard	<i>Eupodotis senegalensis</i>	VU		X	
White-breasted Cormorant	<i>Phalacrocorax lucidus</i>			X	
White-browed Scrub Robin	<i>Cercotrichas leucophrys</i>			X	
White-faced Whistling Duck	<i>Dendrocygna viduata</i>			X	
White-necked Raven	<i>Corvus albicollis</i>			X	
White-rumped Swift	<i>Apus caffer</i>			X	
White-starred Robin	<i>Pogonocichla stellata</i>			X	
White-throated Canary	<i>Crithagra albogularis</i>			X	
White-throated Swallow	<i>Hirundo albigularis</i>			X	X
Willow Warbler	<i>Phylloscopus trochilus</i>			X	
Wing-snapping Cisticola	<i>Cisticola ayresii</i>			X	
Wood Sandpiper	<i>Tringa glareola</i>			X	X
Yellow Bishop	<i>Euplectes capensis</i>			X	
Yellow Canary	<i>Crithagra flaviventris</i>			X	X
Yellow Weaver	<i>Ploceus subaureus</i>			X	
Yellow-billed Duck	<i>Anas undulata</i>			X	X
Yellow-billed Kite	<i>Milvus aegyptius</i>			X	
Yellow-breasted Apalis	<i>Apalis flavida</i>			X	

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Yellow-breasted Pipit	<i>Anthus chloris</i>	VU	E	x	
Yellow-fronted Canary	<i>Crithagra mozambica</i>			x	
Yellow-throated Bush Sparrow	<i>Gymnoris supercilialis</i>			x	
Yellow-throated Woodland Warbler	<i>Phylloscopus ruficapilla</i>			x	
Zitting Cisticola	<i>Cisticola juncidis</i>			x	

Appendix C: Specialist's Declaration and CV

Appendix D: Site Photographs 22 February 2022