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15 May 2023

**Attention:**

**SAVANNAH ENVIRONMENTAL (Pty) Ltd**

Candy Mahlangu: candy@savannahsa.com

**To whom it may concern:**

**ECOLOGICAL SPECIALIST INPUT FOR THE PART 1 AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION (EA) FOR THE PROPOSED CONSTRUCTION OF THE SKUITDRIFT 2 SOLAR PV ENERGY FACILITY ON THE FARM 426 SKUITDRIF, IN THE KAI GARIB LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE.**

**Background**

Khoi-Sun Development (Pty) Ltd is proposing to amend the Environmental Authorization (EA) for the Skuitdrift 2 Solar PV Energy Facility, on the Farm 426 Skuitdrif in the Northern Cape Province, approximately 68 km north of Pofadder by extending the EA validity by an additional ten (10) years. Extension of the validity of the EA will ensure that the EA remains valid for the undertaking of the authorised activities.

Savannah Environmental have been appointed as the Registered Environmental Assessment Practitioner (EAP) to prepare the Application. The EA Amendment will be completed in terms of Regulation 30(1)(a) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, including additional specialist studies and public participation required by the DFFE. Condition 6 of the First Issue Environmental Authorisation, Issued on the 26th of June 2013, DEA Reference 12/12/20/2600 states that:

*“This activity must commence within a period of three (3) years from the date of issue of this authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.”*

Consequent amendments to extend the validity of the authorisation have been made as follows:

- 12/12/20/2600/AM1 – authorised on the 19 February 2016 extending the validity to commence within two (2) years from the date of expiry of the EA issued on 26 June 2013.
- 12/12/20/2600/AM2 – authorised on the 29 June 2018 extending the validity to commence within seven (7) years from the date of expiry of the EA issued on 26 June 2013.
- 12/12/20/2600 /AM3 – authorised on the 8 June 2020 extending the validity to the 26 June 2023 which states the following:

*“This activity must commence within a period of ten (10) years from the date of issue of this authorisation (i.e. the EA lapses on 26 June 2023). If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.”*

The Biodiversity Company was appointed to provide specialist inputs for this Amendment Application. This report is a component of the Ecological Assessment and the Scope of Work for this report is as follows:

- A single site visit to confirm the status of the environment compared to that at the time of the original assessment. This is required in order to make a statement as to whether the environment has changed since the original assessment supported by a site verification report.
- An indication as to whether the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department.
- An indication as to whether there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report.
- A description and an assessment of any changes to the biophysical environment that has occurred since the initial EA was issued.
- A description and an assessment of the surrounding environment in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
  - similar developments within a 30km radius; and
  - Identified cumulative impacts, and where possible, the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.

### **Assumptions and Limitations**

The field survey for this assessment was undertaken 30<sup>th</sup> of April to the 7<sup>th</sup> of May 2023, constituting an austral late summer season survey. We assessed avifauna within and around the previously approved PAOI. Based on the previous reports and considering the structure of the habitats and dominant avifauna species, there is a high confidence level in understanding the present ecological condition and avifauna community structures.

### **Results and Outcomes**

1. The following assessment was considered for this report:

Cape Environmental Assessment Practitioners (Pty) Ltd. January 2013. Farm 426 Skuitdrift, Khoi-Sun Development solar PV facility, Skuitdrift fauna and flora specialist report for impact assessment

2. Avifauna:

- 2.1. Avifaunal diversity was low within the PAOI, with only six species being confirmed during our site visit. Within and around the general area of the PAOI, 32 species were confirmed, which could be considered high.

2.2. The exposed nature and limited habitat structure within the PAOI are likely the primary drivers of reduced species diversity. With the drainage lines to the east of the PAOI, vegetation structure and diversity increased substantially, and so did avian diversity.

2.3. Only a single potential SCC, the Verreaux's Eagle *Aquila verreauxii* (Not Assessed), was confirmed during our site visit during an incidental observation outside of the PAOI.

3. The Impact Assessment from the Specialist Study report included the following:

3.1. Impact Assessment

Impact	Rating after mitigation
<b>Construction Phase</b>	
Loss of Vegetation within the development footprint	Low
Displacement of faunal (including avifaunal) communities due to habitat loss, direct mortalities, and disturbance	Low
Collection of eggs, nest destruction and poaching	Low
<b>Operational Phase</b>	
Continued fragmentation and degradation of habitats and ecosystems	Low
Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with infrastructure, noise, light, dust, vibration)	Low
Collisions with powerlines and connection lines	Low-Medium
Electrocution by powerlines	Medium

4. The Site Sensitivity Verification (The Biodiversity Company 2023) for the Skuitdrift 2 Solar PV Energy Facility Part 1 Amendment, does not include an impact assessment and associated tables due to its nature as a Site Sensitivity Verification.

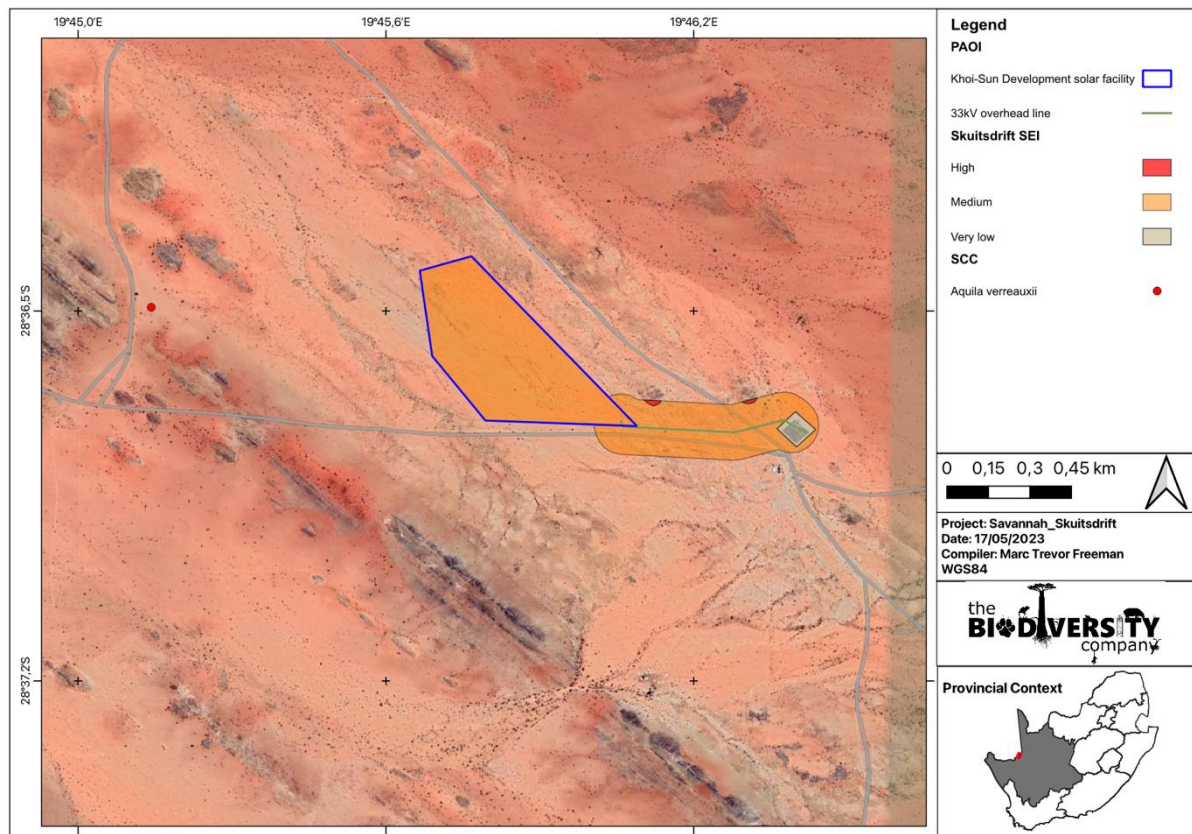
5. The conclusions of the Site Sensitivity Verification for the Skuitdrift 2 Solar PV Energy Facility is as follows:

5.1. The Project Area was identified with the Environmental Screening Tool as possessing a Very High sensitivity within a Terrestrial Biodiversity Theme. This is due to overlap with Critical Biodiversity Areas and Protected Areas Expansion Strategy Focus Areas.

5.2. The Project Area was identified with the Environmental Screening Tool as possessing a Low sensitivity within the Animal Theme. No SCCs were flagged and animal diversity and densities were low within the PAOI.

5.3. The Project Area was identified with the Environmental Screening Tool as possessing a Medium sensitivity within Avian Species Theme. No SCC were flagged during the screening process.

5.4. The Site Ecological Importance (SEI) as provided by the Species Environmental Assessment Guidelines (SANBI, 2020) was determined for the Project Area. This will provide the most appropriate and up to date sensitivity information. A single-species approach was considered for the SEI determination.



5.5. The Project Area had Very Low to High sensitivity habitats, but primarily Medium sensitivity. Habitat congruent with the Screening Tool. The High SEI areas were due to the presence of SCC associated with rocky outcrop habitat.

5.6. Based on the layout design, the overlap of infrastructure within the PAOI is mostly with Medium SEI areas. Appropriate mitigation measures should none the less be employed to minimise the footprints of these as much as possible and rehabilitation of degraded areas.

5.6.1. The PAOI site is a combination of Medium SEI habitats.

5.6.2. The proposed transmission lines cross Medium SEI areas with the buffered 100m area around the transmission line intersecting with small area of High sensitivity habitat. Mitigation measures must be implemented to ensure that ecological disturbances are minimised while resilience is maximised.

6. Mitigation measures prescribed by each of the reviewed specialist reports remain applicable and must be adhered to.
7. Cumulative impacts were not assessed as part of the initial studies however, they are assessed as part of the Sensitivity Verification Report. Impacts of the proposed layout are expected to be low overall and high when considered cumulatively.

Cumulative impacts are assessed within the context of the extent of the proposed PAOI other developments and activities in the area (existing and proposed) and general habitat loss and disturbance resulting from any other anthropogenic activities in the area. The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in areas where baselines have already been affected, or where future development will continue to add to the impacts in an area or region, it is appropriate to consider the cumulative effects of development or disturbance activities. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a specific point in time may actually represent a significant change from the original state of the system. This section describes the potential cumulative impacts of the project on the local and regional avifauna community.

Localised cumulative impacts include those from operations that are close enough to potentially cause additive effects on the local environment or any sensitive receivers (such as nearby large road networks, other solar PV facilities, and power infrastructure). Relevant activities and impacts include dust deposition, noise and vibration, loss of corridors or habitat, disruption of waterways, groundwater drawdown, groundwater and surface water depletion, and transport activities. Long-term cumulative impacts associated with the site development activities can lead to the loss of endemic and threatened species, including natural habitat and vegetation types, and these impacts can even lead to the degradation of conserved areas such as the adjacent game parks and reserves.

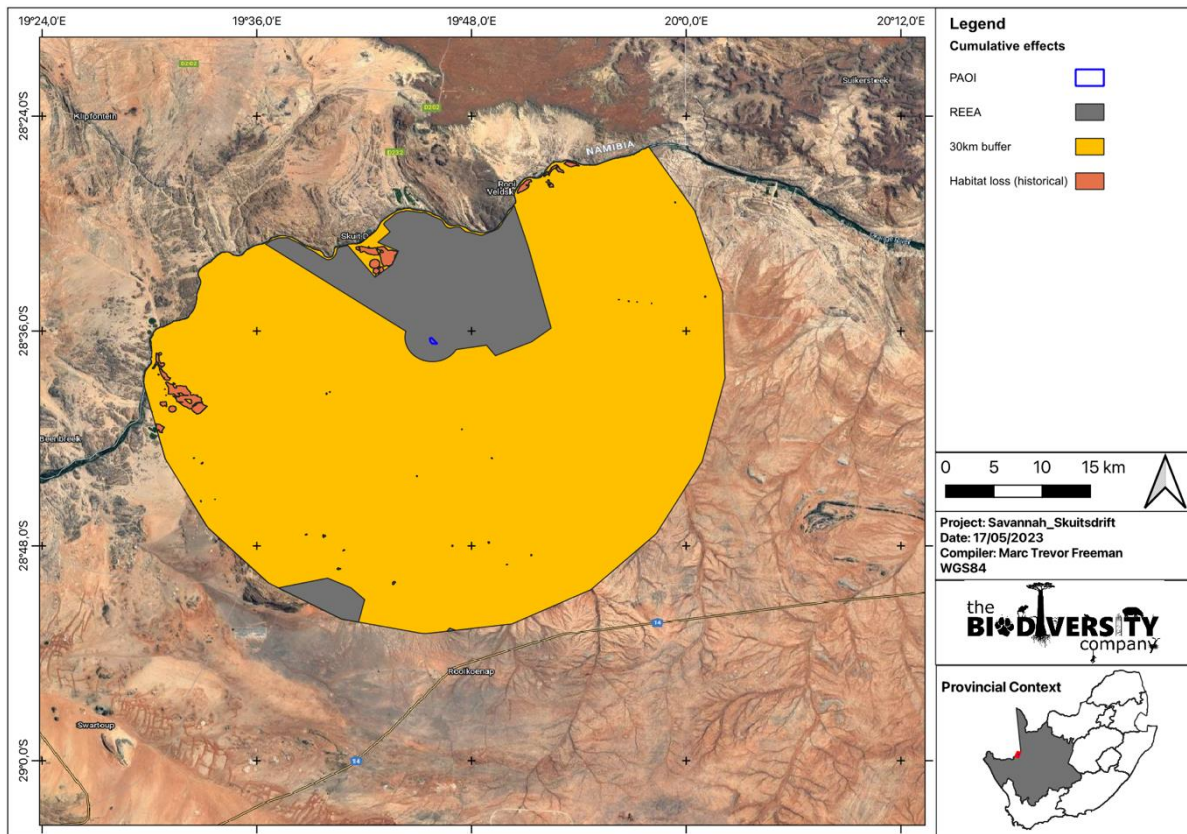
The total area within the 30 km buffer around the project area amounts to 214, 691ha, but when considering the transformation (1,591ha) that has taken place within this radius, 213,100 ha of intact habitat remains, according to the 2018 National Biodiversity Assessment. Therefore, the area within 30 km of the project has experienced approximately 0.74% loss in natural habitat. Considering this context, the project footprint for the proposed development (according to the provided layout), and similar projects that exist in the 30 km region measuring a maximum of 26, 235 ha (as per the latest South African Renewable Energy EIA Application Database). This means that the total amount of remaining habitat lost as a result of solar projects in the region amounts to 12.96% (the sum of all related developments as a percentage of the total remaining habitat). Table outlines the calculation procedure for the spatial assessment of cumulative impacts.



**Table 1** Loss of habitat within a 30 km radius of the project

	Total Habitat (ha)	Total Loss (ha)	Tot. Remaining Habitat (Remnants) (ha)	Total Historical Loss (%)	Cumulative Projects (ha)	Tot. Remaining Habitat (ha)	Cumulative Habitat Lost (%)
Approximate Solar development cumulative effects (Spatial)	214,691	1,591	213,100	0.74%	26, 235	186,865	12.96%

The overall cumulative impact assessment is presented in **Error! Reference source not found.** and **Error! Reference source not found.** below. Approximately 0.74% of the habitat has already been lost, and as discussed above, the proposed solar developments will result in a further cumulative loss of approximately 12.96% from only similar developments (Solar, approved and in process) in the area, as such the cumulative impact from the proposed development is rated as medium. This means that the careful spatial management and planning of the entire region must be a priority, and existing large infrastructure projects must be carefully monitored over the long term.



**Figure 1** Cumulative effects within a 30km buffered area of the PAOI. Buffer has been clipped to the South African national border with Namibia. Calculations for area have been adjusted accordingly – see table 1.

<b>Impact Nature: Cumulative habitat loss within the region</b>		
The development of the proposed infrastructure will contribute to cumulative habitat loss and thereby impact the ecological processes in the region.		
	<b>Overall impact of the proposed development considered in isolation</b>	<b>Cumulative impact of the project and other projects in the area</b>
<b>Extent</b>	Very low (1)	High (3)
<b>Duration</b>	Long term (4)	Long term (4)
<b>Magnitude</b>	Low (2)	Moderate (6)
<b>Probability</b>	Probable (3)	Definite (4)
<b>Significance</b>	<b>Low (21)</b>	<b>Medium (52)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Moderate	Low
<b>Irreplaceable loss of resources?</b>	No	Yes
<b>Can impacts be mitigated</b>	To some extent, but most of the impacts result from the construction and operation activities of the various facilities that cannot be well mitigated.	
<b>Mitigation:</b>		
<ul style="list-style-type: none"> <li>• Establish set-aside and offset areas for associated projects.</li> <li>• Development and implementation of Habitat Rehabilitation Plans.</li> </ul>		

8. All prescribed mitigation measures and supporting recommendations presented will help to achieve an acceptable residual impact. These measures and recommendations will remain applicable for the requested extension of the EA. To this end, these measures have been included in the updated EMPr for this development as per the requirements of the Environmental Authorisation.
9. In order to manage the impacts effectively, the following additional mitigation management should be put into place for the general impacts associated with flora and fauna:

<b>Management Outcome: Habitats</b>				
<b>Impact Management Actions</b>	<b>Implementation</b>		<b>Monitoring</b>	
	<b>Phase</b>	<b>Responsible Party</b>	<b>Aspect</b>	<b>Frequency</b>

All development areas must be clearly demarcated. No development is to occur in areas possessing 'Very High' SEI wherever practicable. Only the 'High' SEI areas that have been authorised for development should be intruded into. Pylons may only be considered in "Very High SEI" areas where it is not feasible to span the area entirely. In such instances the minimum possible number of pylons with the smallest possible footprint must be utilised and the disturbance footprint must be strictly controlled. A service track (jeep track) is permissible in Very High SEI areas only to the extent required to establish and maintain the powerline, and only if no other access options are available in areas of lower sensitivity.	Life of operation	Project Manager	Infringement into these areas	Ongoing
Areas of indigenous vegetation outside of the direct project footprint, should under no circumstances be fragmented or disturbed further.	Life of operation	Project Manager	Natural Areas (Karoo scrub, Rocky outcrops and Riparian thicket)	Ongoing
All activities must make use of existing roads and tracks as far as practically and feasibly possible.	Life of operation	Project Manager	Roads and paths used	Ongoing
All laydown areas, chemical toilets etc. should be restricted to existing transformed areas. Any materials may not be stored for extended periods of time and must be removed from the project area once the construction phase has been concluded. Use of re-usable/recyclable materials are recommended.	Construction	Project Manager Foreman	Laydown areas and material storage & placement.	Ongoing
Progressive rehabilitation of areas that have been cleared of invasive plants will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion.	Life of operation	Project Manager	Site footprint rehabilitation	Ongoing
Areas that have been disturbed but will not undergo development must be revegetated with indigenous vegetation.	Life of operation	Project Manager	Rehabilitated areas	Ongoing
A spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.	Life of operation	Project Manager Contractors Foreman	Spill events, Vehicles dripping.	Ongoing
Eroded areas must be rehabilitated using the appropriate techniques and re-vegetated using indigenous flora.	Life of operation	Project Manager Contractor	Erosion area	Annually
<b>Management Outcome: Avifauna</b>				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency



A qualified ecologist or suitably experienced Environmental Officer must be on site when construction begins to identify avifauna species that will be directly disturbed. The area must be walked though prior to construction to ensure no avifaunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated.	Construction	Project Manager Contractor	Presence of any fauna	Ongoing
Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances nocturnal avifauna.	Construction	Project Manager Contractor Foreman	Noise levels	Ongoing
No trapping, killing, or poisoning of any avifauna is to be allowed	Life of operation	Project Manager Contractor	Evidence of trapping or carcasses	Ongoing
The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on avifauna	Construction Phase	Project Manager Contractor	Construction	Ongoing
The design of the grid lines must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa (Jenkins <i>et al.</i> , 2015).	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of electrocuted birds or bird strikes	During Phase
Infrastructure should be consolidated where possible in order to minimise the amount of ground and air space used.	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of bird collisions	During phase

Powerlines must be fitted with industry standard bird flight diverters in order to make the lines as visible as possible to collision-susceptible species. Shaw et al (2021) demonstrated that large avifauna species mortality was reduced by 51% (95% CI: 23–68%). Recommended bird diverters such as flapping devices (dynamic device) and thickened wire spirals (static device) or similar diverters that increase the visibility of the lines should be fitted 5 m apart. The Inotec BFD88 bird diverter is highly recommended due to its visibility under low light conditions when most species move from roosting to feeding sites.

**Specific mitigation recommendations:**

- Removal of earth wire or increase wire thickness to make it more visible;
- Use 'Self Support' structures and avoid 'Cross Rope' structures;
- Bands or stripes on Conductors (2 black, neoprene bands (35x35cm), crossed, with a bright strip, fixed every 10 m with plastic peg);
- Static vibration damper, spirals, BFDs or 'pig-tails' (White polypropylene spirals, 1 m long, 30 cm diameter, staggd on two static wires to effect marking every 5 m);
- All the parts of the infrastructure must be nest proofed and anti-perched devices placed on areas that can lead to electrocution;
- All exposed parts must be covered (insulated) to reduce electrocution risk;
- All conductor wires in the same horizontal plane.

Planning and construction

Environmental Officer & Contractor, Engineer

Presence of bird collisions

During phase

All the parts of the infrastructure must be nest proofed and anti-perch devices placed on areas that can lead to electrocution

Planning and construction

Environmental Officer & Contractor, Engineer

Presence of electrocuted birds

During phase

Install anti-perch devices such as spikes to prevent Pied Crows from nesting/perching. This is especially important to impede excessive predation on *Psammobates* sp.

Planning and construction

Environmental Officer & Contractor, Engineer

Over predation of tortoise

During phase

Any exposed parts must be covered (insulated) to reduce electrocution risk

Planning and construction

Environmental Officer & Contractor, Engineer

Presence of electrocuted birds

During phase

**Management Outcome: Environmental Awareness Training**

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency

<p>All personnel to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of species, their identification, conservation status and importance, biology, habitat requirements and management requirements within the Environmental Authorisation and the EMPr.</p>	<p>Life of operation</p>	<p>Project Manager Health and Safety Officer Contractor Environmental Officer</p>	<p>Compliance to the training.</p>	<p>As needed</p>
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10. It is the opinion of the specialist that based on the observations made during the May 2023 field survey, that the ecological importance of the site from an avifauna perspective has not decreased. In consideration that the project has been previously authorised the proposed development may proceed, under the condition that all mitigation measures provided in this report and previous reports are adhered to.
11. We trust you find the above in order. If there are any uncertainties or additional information required, please feel free to contact the undersigned.

Kind regards



Marc Trevor Freeman (PHD)  
Avifauna Specialist  
The Biodiversity Company



Ryno Kemp (BSc Hons. Pri. Sci. Nat. 117462/17)  
Avifauna specialist  
The Biodiversity Company

## ENVIRONMENTAL IMPACT METHOD

The impact significance rating methodology, as provided by Nala, is guided by the requirements of the NEMA EIA Regulations 2014 (as amended).

Direct, indirect and cumulative impacts associated with the projects must be assessed in terms of the following criteria:

- » The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- » The **duration**, wherein it will be indicated whether:
  - \* the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - \* the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - \* medium-term (5–15 years) – assigned a score of 3;
  - \* long term (> 15 years) - assigned a score of 4; or
  - \* permanent - assigned a score of 5;
- » The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » the **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- » the **status**, which will be described as either positive, negative or neutral.
- » the degree to which the impact can be reversed.

- » the degree to which the impact may cause irreplaceable loss of resources.
- » the *degree* to which the impact can be *mitigated*.

The **significance** is calculated by combining the criteria in the following formula:

$$S = (E+D+M) P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- » 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- » > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

***Example of Impact table summarising the significance of impacts (with and without mitigation)***

Nature: [Outline and describe fully the impact anticipated as per the assessment undertaken]		
	Without mitigation	With mitigation
Extent	High (3)	Low (1)
Duration	Medium-term (3)	Medium-term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (36)	Low (24)
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No



Can impacts be mitigated?	Yes
<p>Mitigation:</p> <p>"Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.</p> <p>Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind</p>	
<p>Residual Impacts:</p> <p>"Residual Risk", means the risk that will remain after all the recommended measures have been undertaken to mitigate the impact associated with the activity (Green Leaves III, 2014).</p>	