the BIODIVERSITY company

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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 75MW BOESMANLAND SOLAR FARM, PORTION 6 (A PORTION OF PORTION 2) FARM 62 ZUURWATER, NEAR AGGENEYS IN THE KHÂI-MA LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE.

Background

Boesmanland Solar Farm (Pty) Ltd is proposing to amend the Environmental Authorization (EA) for the Zuurwater 62 solar facility, 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 7 of the First Issue Environmental Authorisation, Issued on the 16th of July 2013, DEA Reference 14/12/16/3/3/2/222 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:

- 14/12/16/3/3/2/222/AM1 – authorised on the 22 February 2016 extending the validity to commence within two (2) years from the date of expiry of the EA issued on 16 July 2013.
- 14/12/16/3/3/2/222/AM2 – authorised on the 30 July 2018 extending the validity to the 16 July 2020.
- 14/12/16/3/3/2/222/AM3 – authorised on the 12 August 2020 extending the validity to the 16 July 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 16 July 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."*

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The applicant, Boesmanland Solar Farm (Pty) Ltd thus requests that the Competent Authority amends Condition 7 of the original EA (Page 9) as amended (DFFE Reference: 14/12/16/3/3/2/222/AM3; dated 12 August 2020).

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 30th March to the 7th May 2023 for a total of 29 hours which constitutes an austral late summer season survey. We assessed fauna and flora in both the previously approved PAOI and along the option-1 transmission line. Accordingly, flora and fauna that are not active during this period will not be recorded and therefore may influence the results. Nevertheless, based on the previous reports and considering the structure of the habitats and dominant flora species, there is a high level of confidence in the understanding of the present ecological condition.

Results and Outcomes

1. The following assessment was considered for this report:

    Cape Environmental Assessment Practitioners (Pty) Ltd. 2013. Suurwater 62, Boesmanland 75MW solar farm, Aggeneys fauna and flora specialist report for impact assessment

2. Vegetation:

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2.1. "According to the SANBI SIBIS database and Threatened Species Programme, Red List of South African Plants (2011), as many as 22 species of conservation concern (SCC) occur in the broad area surrounding the site. Conspicuous among the list is large number of Mesembryanthemaceae present. These and many of the others are associated with the inselbergs of the area, and do not occur on sandy flats, such as the study area. Therefore, the actual number of species which might occur within the study area is significantly less. Of the species in the list only *Hoodia gordonii* was observed within the site." - Simon Todd 2013, CAPE EAPRAC, Suurwater report.

2.2. Few Species of Conservation Concern (SCC) were encountered during the reassessment site visit. We did however encounter thirteen *Hoodia gordonii* within the proposed study area.

2.3. The absence of other listed species as suggested by the initial report may be attributed to seasonal affects and the fact that the development area is more associated with sandy flats while the majority of protected or listed flora species (e.g. Mesembryanthemaceae) within the general area are associated/dependent on rockier substrate and raised topography (i.e., mountain slopes, inselbergs etc.)

2.4. Dominant vegetation types with the development area largely confirmed that reported by Simon Todd in the initial CAPE EAPRAC 2013 report. The key habitats within the development area are large expanses of gravel plains with low, open shrubby vegetation dominated by species such as *Eriocephalus spinescens*, *Zygophyllum retrofractum*, *Euphorbia spinea*, *Sarcocaulon crassicaule*, *Salsola rabieana*, *Hermannia stricta*, *H.spinosa* and *Ruschia spinosa*. Sandy areas also form a large portion of the development area (dissected by water ways or washes) which are primarily dominated by grass (Poaceae) species. Grass species observed include *Stipagrostis brevifolia*, *S. ciliata*, *S. anomala*, *S. obtusa* and *S. uniplumis*, *S. namaquensis* (primarily in waterways). Across sandy areas, shrubs included *Rhigozum trichotomum, Hermannia affinis*, *Lycium eenii* and *Calabota spinescens*. Within both the gravel plains and sandy habitat-types, *Hoodia gordonii* (at least 13 plants), a nationally protected species was detected. While we invested considerable time into our assessments it is possible that some *Hoodia gordonii* went undetected. A permit would be required to relocate or remove individuals of this species.

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Figure 1 One of thirteen Hoodia gordonii within the Aggeneys Zuurwater 62, PAOI site.

3. Reptiles:

   3.1. A high diversity of reptile species was expected to occur within the PAOI and along the option-transmission line as indicated in the CAPE EAPRAC initial report (approximately 49 species). The expected high levels of reptilian diversity are attributed to the composition and diversity of habitats within and surrounding the PAOI (gravel plains, sandy dunes, scree slopes, rocky outcrops etc.).

   3.2. Due to the location of the proposed PAOI site, species associated with gravel and sandy flats are likely to be most prevalent. High densities of spotted sand-lizard (*Pedioplanis lineoocellata*) were observed with the proposed project area, but few other reptile species were detected during the reassessment during May 2023. This unexpectedly low diversity was undoubtedly due to the cool weather conditions during the survey period, cryptic nature of many of the species that occur at the site and the limited time that we had to search for reptile species.

   3.3. We expect with further more intensive surveys a reptile species assemblage associated with the high diversity in line with that predicted originally would be detected.

4. Mammals:

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4.1. The initial mammal assessment within the CAPE EAPRAC reports indicated that across the habitat types within and surrounding the PAOI some 40 terrestrial species and four bat species were expected, with the possibility of Black-footed cat (*Felis nigripes*) (Vulnerable) and Leopard (*Panthera pardus*) (Near Threatened). Both listed species are notoriously shy and were unlikely to be detected. The nature of habitat and the human/agricultural activity within the project area is also unlikely support a population of *Panthera pardus* but is suitable for *Felis nigripes.*

4.2. Our assessments within the proposed project area confirmed the presence of several other mammals including Aardvark (*Orycteropus afer*), yellow mongoose (*Cynictis penicillate*), Bat-eared fox (*Otocyon megalotis*), Cape Fox (*Vulpes chama*), Steenbok (*Raphicerus campestris*) and numerous small mammals including Hairy-footed Gerbil (*Gerbillurus paeba*), Highveld Gerbil (*Gerbilliscus brantsii*) and South African Ground Squirrel (*Xerus inauris*). We found signs of Cape Porcupine (*Hystrix africaeaustralis*).

4.3. Each of the confirmed terrestrial mammals would be capable of dispersing from the project area at the commencement of the proposed development/construction.

5. Amphibians:

5.1. Due to the aridity of the area, amphibian diversity is low with only four species being expected within the PAOI.

5.2. Most amphibian species distributed in this area are normally associated with inselbergs and mountain slopes and not sandy/gravel plains which is characteristic of the PAOI.

5.3. We detected no amphibians during our surveys which may be attributed to the activity of species distributed in this region being highly seasonal and dependent on rainfall.

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

6.1. Impact Assessment

Impact	Rating after mitigation
Permanent loss of vegetation in development footprint	Medium Negative
Long-term but temporary loss of vegetation in development footprint	Medium Negative
Indirect impacts – Habitat fragmentation	Low Negative

7. The Impact Assessment from the Fauna (mammals, reptile, amphibian) Specialist Study report included the following:

7.1. Impact Assessment

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Impact	Rating after mitigation
Direct mortality during construction	Low Negative
Loss of habitat	Low Negative
Increase in roadkill	Low Negative
Barrier effect of internal roads and fencing	Low Negative

8. The Site Sensitivity Verification (TBC 2023) for the Zuurwater 62, Aggeneys Part 1 Amendment, does not include an impact assessment and associated tables due to its nature as a Site Sensitivity Verification.

9. The conclusions of the Site Sensitivity Verification for the Zuurwater 62 site is as follows:

   9.1. 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, Ecological Support Areas and Protected Areas Expansion Strategy Focus Areas.

   9.2. The Project Area was identified with the Environmental Screening Tool as possessing a mosaic of High and Medium sensitivity within the Animal Theme. This is due to the presence of several listed avian species but no mammalian, reptilian or amphibian species were listed. The avian species of concern are detailed in the avifauna report for the Suurwater 62 PAOI.

   9.3. The Project Area was identified with the Environmental Screening Tool as possessing a Medium sensitivity within Plant Species Theme. This is due to the presence of sensitive species 425, sensitive species 119, sensitive species 12, *Crotalaria pearsonii* and sensitive species 144.

   9.4. 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 multi-species approach was considered for the SEI determination.

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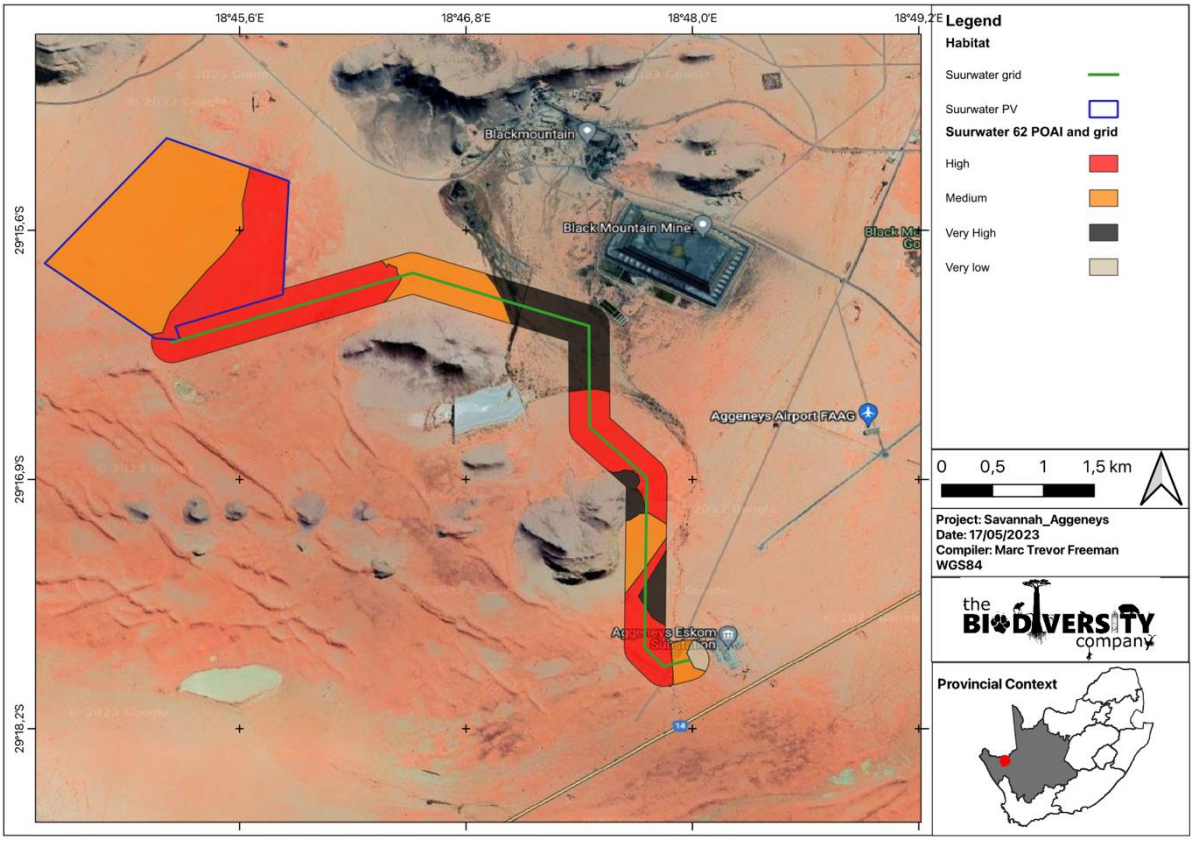

9.5. The Project Area was a mosaic of Very Low to Very High habitats. Habit congruent with the Screening Tool. The Very High SEI areas were due to the presence of SCC, as well as its Functional Integrity and very low Receptor Resilience.

9.6. Based on the layout design, there is overlap of infrastructure with 'High' and 'Very High' SEI areas. Appropriate mitigation measures would be to minimise the footprints of these as much as possible and rehabilitation of degraded areas.

9.6.1. The PV site is a combination of High and Medium SEI habitats.

9.6.2. The proposed transmission lines cross an array of SEI areas some being Very High. Mitigation measures must be implemented to ensure that ecological disturbances are minimised while resilience is maximised.

10. Mitigation measures prescribed by each of the reviewed specialist reports remain applicable and must be adhered to.

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11. 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 335,198 ha, but when considering the transformation (1,285 ha) that has taken place within this radius, 333,913 ha of intact habitat remains, according to the 2018 National Biodiversity Assessment. Therefore, the area within 30 km of the project has experienced approximately 0.38% 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 96,337 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 28.67% (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.

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

	Total Habitat (ha)	Total Loss (ha)	Tot. Remaining Habitat (ha) (Remnants)	Total Historical Loss (%)	Cumulative Projects (ha)	Tot. Remaining Habitat (ha)	Cumulative Habitat Lost (%)
Approximate Solar development cumulative effects (Spatial)	335,198	1,285	333,913	0.38%	96,337	238,180	28.67

The overall cumulative impact assessment is presented in Table 1 and **Error! Reference source not found.**. Approximately 0.38% of the habitat has already been lost, and as discussed above, the proposed solar developments will result in a further cumulative loss of approximately 28.67% 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 (**Error! Reference source not found.**). 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

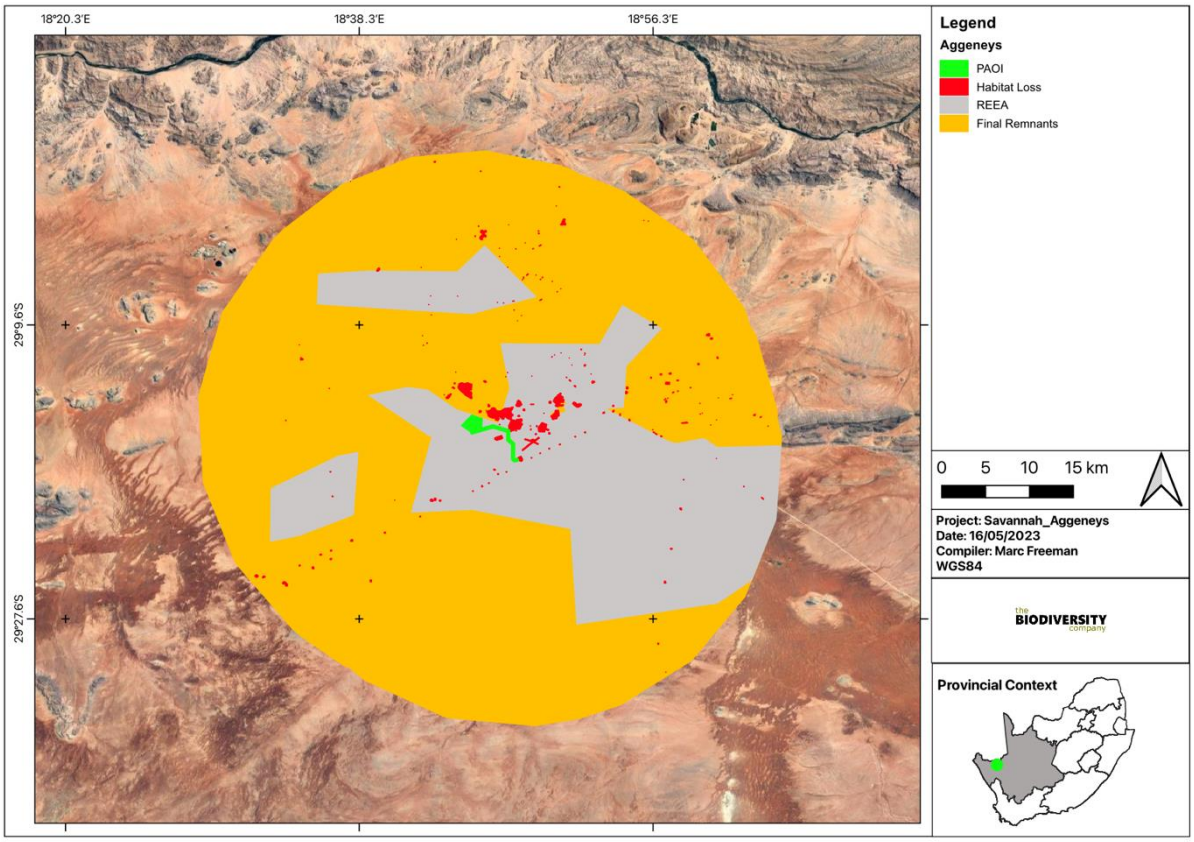

Figure 2 *Cumulative effects within a 30km buffered area of the PAOI*

long term.

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Impact Nature: Cumulative habitat loss within the region		
The development of the proposed infrastructure will contribute to cumulative habitat loss and thereby impact the ecological processes in the region.		
	Overall impact of the proposed development considered in isolation	**Cumulative impact of the project and other projects in the area**
Extent	Very low (1)	High (4)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Moderate (8)
Probability	Probable (3)	Definite (5)
Significance	**Low (27)**	**High (80)**
Status (positive or negative)	Negative	Negative
Reversibility	Moderate	Low
Irreplaceable loss of resources?	No	Yes
Can impacts be mitigated	To some extent, but most of the impacts result from the construction and operation activities of the various facilities that cannot be well mitigated.	
Mitigation:		
• Establish set-aside and offset areas for associated projects. • Development and implementation of Rehabilitation Plans. • Development and implementation of Alien Invasive Plant Control Programmes.		

12. 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.

13. 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:

Impact Management Actions	**Implementation Phase**	**Responsible Party**
Clearing of vegetation should be minimized and avoided where possible. All activities must be restricted to flat areas as far as possible. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. All disturbed footprints to be rehabilitated and landscaped after construction is complete. Rehabilitation of the disturbed areas existing in the project area must be made a priority. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to the project area vegetation type.	Life of operation	Project manager, Environmental Officer
Existing servitudes, access routes, and especially roads must be made use of.	Construction/Operational Phase	Environmental Officer & Design Engineer

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Impact Management Actions	Implementation Phase	Responsible Party
All laydown, chemical toilets etc. should be restricted to outside of the project area. No materials may be stored within the project area, and all materials must be removed from the project area once the construction phase has been concluded. No permanent construction structures/formwork should be permitted. No storage of vehicles or equipment will be allowed outside of the designated project areas.	Construction/Operational Phase	Environmental Officer & Design Engineer
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood and wind events. This will also reduce the likelihood of encroachment by alien invasive plant species. All livestock should always be kept out of the project area, especially areas that have been recently re-planted.	Operational phase	Environmental Officer & Contractor
A hydrocarbon 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. No servicing of equipment to take place within the project area unless necessary. All contaminated soil/yard stone shall be treated in situ or removed and placed in containers. Appropriately contain any diesel or oil storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment. Construction activities and vehicles could cause the spillage of lubricants, fuels and waste material potentially negatively affecting the functioning of the ecosystem. All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas outside of the project area.	Life of operation	Environmental Officer & Contractor
It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.	Life of operation	Project manager, Environmental Officer
A fire management plan needs to be complied and implemented to restrict the impact that fire might have on the surrounding areas.	Life of operation	Environmental Officer & Contractor
Any protected plant that may be present needs a relocation or destruction permit for any individual that may be removed or destroyed due to the development. If left undisturbed the sensitivity and importance of these species needs to be part of the environmental awareness program. All protected and red-list plants should be relocated, along with as many other geophytic and succulent species as possible.	Life of operation	Project manager, Environmental Officer
Plant and animal Search and Rescue must be conducted prior to construction. This is especially important for the local population of local SCC. Species must be relocated to adjacent natural areas.	Planning Phase, Pre-Construction	Project manager, Environmental Officer & Contractor
A qualified environmental control officer must be on site when construction begins. 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. Should any large nests be observed within the project area construction should stop immediately and a qualified specialist must be contacted.	Construction Phase	Environmental Officer, Contractor

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Impact Management Actions	Implementation Phase	Responsible Party
The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into the surrounding environments: • **Signs must be put up to enforce this.**	Construction/Operational Phase	Project manager, Environmental Officer
The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna.	Construction	Project manager, Environmental Officer & Design Engineer
Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to nocturnal mammals.	Construction/Operational Phase	Environmental Officer
No trapping, killing, or poisoning of any wildlife is to be allowed: • **Signs must be put up to enforce this.**	Life of operation	Environmental Officer
All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings, dust and erosion is limited. The speed limits should be restricted to a maximum of 30 km/h within the project area.	Life of operation	Health and Safety Officer
Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible.	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer
Where possible schedule activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons: • **Driving on access roads at night should be restricted in order to reduce or prevent wildlife road mortalities which occur more frequently during this period.**	Life of operation	Project manager, Environmental Officer & Design Engineer
Any holes/deep excavations must be dug and planted in a progressive manner and should not be left open overnight: • **Should the holes remain open overnight they must be covered temporarily to ensure no small fauna species fall in.**	Planning and Construction	Environmental Officer & Contractor, Engineer
Ensure that cables and connections are insulated successfully and adequately to reduce electrocution risk.	Life of project	Environmental Officer & Contractor, Engineer
Compilation of and implementation of an Alien Invasive Plant Management Plan for the project area.	Life of operation	Project manager, Environmental Officer & Contractor
The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. The footprint of the roads must be kept to prescribed widths.	Construction/Operational Phase	Project manager, Environmental Officer & Contractor
Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests from entering the site	Life of operation	Environmental Officer & Health and Safety Officer
Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces: • **No non-environmentally friendly suppressants may be used as this could result in the pollution of valuable water sources.**	Life of operation	Contractor
Litter, spills, fuels, chemical and human waste in and around the project area must be cleared and safely/appropriately stored immediately.	Construction/Operation/Closure Phase	Environmental Officer & Health and Safety Officer

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Impact Management Actions	Implementation Phase	Responsible Party
Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area and provided in the ratio as stipulated in the Health and Safety Act.	Life of operation	Environmental Officer & Health and Safety Officer
The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility.	Life of operation	Environmental Officer & Health and Safety Officer
Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site or stored in pits.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer
Refuse bins will be emptied and secured. Temporary storage of domestic waste shall be in covered waste skips. The recommended maximum domestic waste storage period will be 10 days.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer
All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within and in close proximity to the project area such as the nearby rocky outcrops and to inform contractors and site staff of the presence of red-listed faunal species, their identification, conservation status and importance, biology, habitat requirements and management requirements in line with the Environmental Authorisation and within the EMPr. The avoidance and protection of the high sensitivity areas must be included in a site induction. Contractors and employees must all undergo the induction and be made aware of the "no-go" areas to be avoided.	Life of operation	Health and Safety Officer
Speed limits of 30 km/h must be put in place to reduce erosion: • **Dust generated, especially by earth moving machinery, must be minimised through wetting of the soil surface and putting up signs to enforce speed limits. Speed bumps must be built to force slow speeds;** • **Signs must be put up to enforce this.**	Life of operation	Project manager, Environmental Officer
Where possible, existing access routes and walking paths must be made use of.	Life of operation	Project manager, Environmental Officer
Areas that are denuded during construction must be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds. This is to be done according to the Re-vegetation and Habitat Rehabilitation Plan.	Life of operation	Project manager, Environmental Officer

14. It is the opinion of the specialist that based on the observations made during the field survey, that the ecological importance of the site 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.

15. We trust you find the above in order. If there are any uncertainties or additional information required, please feel free to contact the undersigned.

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Kind regards

Marc Trevor Freeman (PhD)

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Leigh-Ann de Wet (MSc. Pri. Sci. Nat. 400233/12)

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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.

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- 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

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Can impacts be mitigated?	Yes
Mitigation: "Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible. Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind	
Residual Impacts: "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).	