SITE SENSITIVITY VERIFICATION and PLANT BIODIVERSITY COMPLIANCE STATEMENT

PROPOSED CONSTRUCTION OF 132 KV POWERLINES BETWEEN THE AUTHORISED LOERIESFONTEIN 3 PV SOLAR ENERGY FACILITY (12/12/20/2321/2/AM4) AND THE AUTHORISED DWARSRUG WIND ENERGY FACILITY (14/12/16/3/3/2/690/AM4), AND FROM THE DWARSRUG WIND ENERGY FACILITY TO THE AUTHORISED NAROSIES SUBSTATION (12/12/20/2049/3), LOCATED NEAR LOERIESFONTEIN IN THE HANTAM LOCAL MUNICIPALITY, NAMAKWA DISTRICT IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA

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Declaration of Independence

The Environmental Impact Assessment Regulations (Regulation 17 of Government Notice No R354 of 2010), requires that certain information is included in specialist reports. The terms of reference, purpose of the report, methodologies, assumptions and limitations, impact assessment and mitigation (where relevant to the scope of work) and summaries of consultations (where applicable) are included within the main report. Other relevant information is set out below:

Expertise of author:

- Working in the field of ecology since 1996 and in specific vegetation related assessments since 2000.
- Worked in the field of freshwater ecology and wetlands since 2000.
- Involved with visual assessments since 2009.
- Is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (Reg. No. 400109/95).

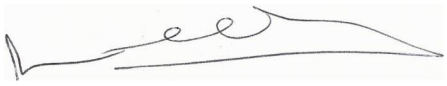
Declaration of independence:

BioAssets CC in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by BioAssets CC is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

BioAssets CC undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to BioAssets CC by the client and in addition to information obtained during the course of this study, BioAssets CC present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



_____ 8 December 2020

Dr Wynand Vlok Date

1 INTRODUCTION

1.1 Project Background and Description of the Activity

South Africa Mainstream Renewable Power Developments (Pty) Ltd (herein after referred to as "Mainstream") appointed SiVEST to undertake a Basic Assessment (BA) Process for the proposed construction of 132 kV overhead powerlines between the proposed (and authorised) 100MW Loeriesfontein 3 Photovoltaic (PV) Solar Energy Facility (SEF) (12/12/20/2321/2/AM4) and proposed (and authorised) 140MW Dwarsrug Wind Energy Facility (WEF) (14/12/16/3/3/2/690/AM4); and between the Dwarsrug WEF and the proposed (and authorised) Narosies Substation (12/12/20/2049/3) located near Loeriesfontein in the Northern Cape Province of South Africa.

Mainstream are proposing the construction of a 132 kV overhead powerlines between the proposed (and authorised) 100 MW Loeriesfontein 3 PV SEF (12/12/20/2321/2/AM4) and proposed (and authorised) 140 MW Dwarsrug WEF (14/12/16/3/3/2/690/AM4); and between the Dwarsrug WEF and the proposed (and authorised) Narosies Substation (12/12/20/2049/3). The powerline from the Loeriesfontein 3 PV SEF to the Dwarsrug WEF is proposed to link the SEF to the WEF in order to create a hybrid renewable energy facility, which will ensure that electricity is constantly supplied to the national grid by at least one or both technologies (namely solar PV and wind), at any given time. The powerline from the Dwarsrug WEF is proposed to tie the, above mentioned, hybrid renewable energy facility into the approved Narosies substation to feed the National grid.

A site sensitivity verification has been undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (Screening Tool). The purpose of this report/statement is to verify the site sensitivity as identified by the screening tool and compile a statement confirming the identified impacts and any changes with the revised layout.

1.2 Terms of Reference

As the results from the screening tool indicate, the environmental sensitivity of the proposed development area is considered to have a medium sensitivity for the "plant species biodiversity theme". As such, the following scope of works are for the three options proposed and therefore require:

1.1. The site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist.

1.2. The site sensitivity verification must be undertaken through the use of:
   (a) A desk top analysis, using satellite imagery;
   (b) A preliminary on-site inspection; and
   (c) Any other available and relevant information.

1.3. The outcome of the site sensitivity verification must be recorded in the form of a report that:
   (a) Confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;

(b) Contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and

(c) Is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations (EIA Regulations).

It is further important that the compliance statement must:

- Be applicable to the preferred site and the proposed development footprint;
- Confirm that the site is of "medium" sensitivity for plant species biodiversity; and
- Indicate whether or not the proposed development will have an impact on the plant species diversity.

The compliance statement must contain, as a minimum, the following information:

- Contact details of the specialist, their SACNASP registration number, their field of expertise and a *curriculum vitae*;
- A signed statement of independence by the specialist;
- A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A baseline profile description of biodiversity and ecosystems of the site;
- The methodology used to verify the sensitivities of the plant biodiversity features on the site including the equipment and modelling used where relevant;
- In the case of a linear activity, confirmation from the plant biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;
- Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;
- A description of the assumptions made as well as any uncertainties or gaps in knowledge or data; and
- Any conditions to which this statement is subjected.
- A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

1.3 Identified Theme Sensitivities

The site sensitivity as identified by the National Web-Based Environmental Screening Tool (Table 1) shows that the plant biodiversity theme is of "**Medium Sensitivity" (Sensitive species 44)**.

Table 1: Summary of the "Site Sensitivity" as determined by the National Web-Based Environmental Screening Tool.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme		X		
Civil Aviation Theme		X		
Defence Theme				X
Palaeontology Theme		X		
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

2 METHODOLOGY

A detailed description of the methods has been provided. The regional context and desktop analysis were used as the point of departure. A detailed area site visit was undertaken by SiVest in 2014 (Todd, 2014), prior to the approval of the PV farm. Much of this information was used to confirm the sensitivity of this site.

The verification assessment of these systems considered the following databases where relevant (Table 2):

Table 2: Data type and source for the site verification assessment.

Data Type	Year	Source/Reference
Aerial Imagery	1984 - present	Google Earth
1:50 000 Topographical	2011	Surveyor General
Land Cover	2014	SANBI
Previous Assessments	2014	SiVest

The following methods were used to undertake the site verification:

- General area desktop site inspection;
- Site photographs from previous studies;
- Satellite imagery (Google Earth/Landsat);
- Review of existing approvals/authorisations for the site.

The following methods were used to undertake the compliance statement:

- Assessment of alternative corridors (two) for the proposed new power line (Figure 1);
- Use previous assessment of the vegetation as the basis for this evaluation;
- Summary of impacts of the new power line; and
- Final recommendations and compliance statement.

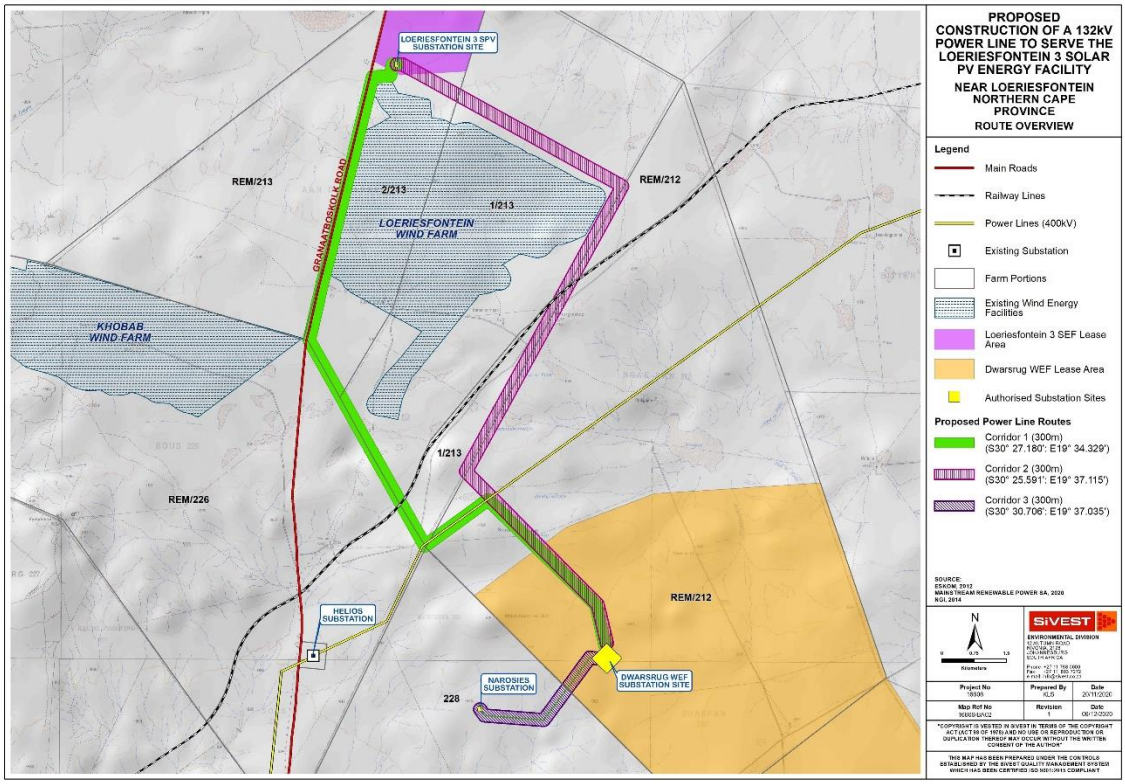


Figure 1: The layout of the proposed 132 kV power lines joining Dwarsrug WEF Substation to Loeriesfontein PV Substation and Dwarsrug WEF Substation to Narosies Substation.

3 LIMITATIONS AND ASSUMPTIONS

In order to apply generalised and often rigid scientific methods or techniques to natural, dynamic environments, a number of assumptions are made. Furthermore, a number of limitations exist when assessing such complex ecological systems. The following constraints may have affected this assessment:

- Although an extensive site visit has already been undertaken by SiVest, an additional site visit was done to confirm any possible habitat constraints that was not included in the original survey.
- The impacts for the site are specific to the proposed corridors (Option 1, 2 and 3) for the power lines.
- The databases used may not, at times, be recent as is the nature of these databases.
- This statement assumes that the work undertaken by SiVest (2014) is unbiased and the methods adopted appropriately followed.

4 SITE DESCRIPTION

The study area is considered to be mostly natural Karoo shrubland where low intensity sheep grazing (low stocking rate of around 1 SSM (small stock unit) per 6 hectares) is the main agricultural activity with some wildlife associated with the area. With regards to the human footprint, it is considered to be relatively low in the larger district. In the landscape the vast grazing land is interspersed with seasonal pans and non-perennial streams. The non-perennial streams feed into the pans and are

considered to be sensitive habitat. Access to the area is along the Loeriesfontein/Granaatboskolk Road and another important feature is the Sishen/Saldanha railway line that traverses the corridor for the proposed new power line.

The landscape is characterised by flat and gently sloping topography and this is one of the important reasons for the development of the alternative energy projects in the area. To the south, the Helios Substation is the link between the proposed development and the national electricity grid.

As far as the climate is concerned, the area has an arid Mediterranean type climate with a winter rainfall regime (mostly from the early autumn to winter). The Mean Annual Precipitation (MAP) is approximately 179 mm/a and the natural rainfall is insufficient to produce sustainable harvests. This is reflected in the lack of dry land crop production within the study area where the average daily temperatures range from 30˚C in the summer to 17˚C in the with the night time temperatures dropping to around 2.4˚C (average) during the winter.

The geology of the area is mainly by Shale parent material and is known as a clastic sedimentary rock that is formed by the settling and accumulation of clay rich minerals and other sediments. This result in the formation of parallel rock layers which lithifies over time. To the west, some non-descript sedimentary geological materials are found and is derived from pre-existing rock and sediments in the area.

5 RESULTS and DISCUSSION – Site verification

The site verification aims to confirm or dispute the **Medium Sensitivity rating** identified by the screening tool for the vegetation component. This is done through a desktop investigation using more recent databases and aerial/remote imaging and a rapid walk down survey.

5.1 Confirmation of Plant Theme Sensitivity (Site sensitivity)

It was clear during the field survey that the recent drought period (more than three years without substantial rain) that the vegetation associated with the study area is in a poor state (very dry and not possible to identify some species). The fact that sufficient rain has not fallen over the last few years further contribute to a low diversity of species present (e.g. geophytic herbs and shrubs) and have no vegetative parts above ground that can be identified. Therefore, one must rely on the detailed vegetation study (Todd, 2014) that was completed for the larger project as the basis of the vegetation on site.

With this climatic conditions in mind, the walk down focused more on the habitat associated with the three options (Figure 1) that was proposed for the new power line. In general, the vegetation cover for the three proposed options were similar (sparse and very dry) with numerous patches devoid of any vegetation. The few exceptions was the more dense vegetation along the drainage lines. In addition, the low hills to the east of the site (Option 2) and the area south of the Sishen/Saldanha railway line are considered to be sensitive (Option 1 and 2 link Dwarsrug WEF to Loeriesfontein 3 PV – Option 3, to link Dwarsrug WEF to the Narosies power line) (Figure 2, 3 and 4).

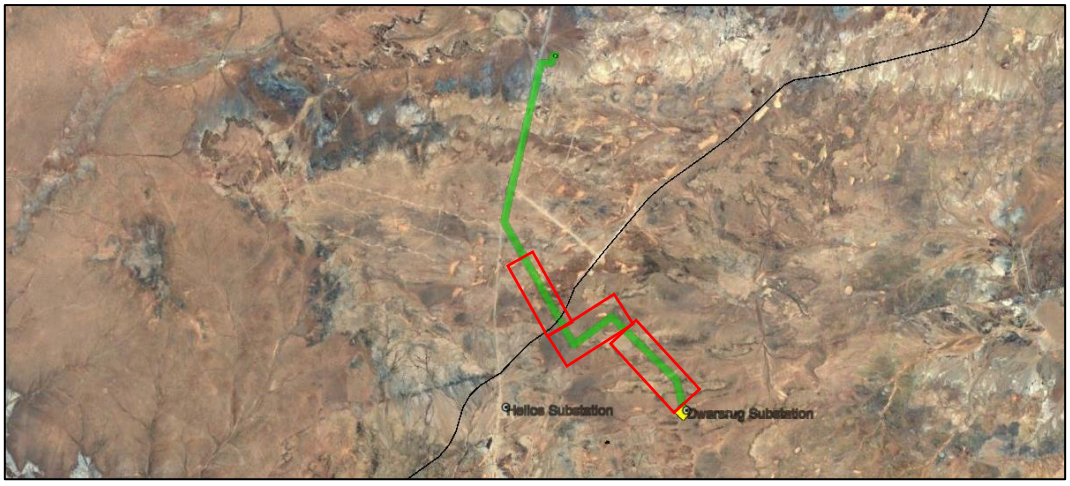


Figure 2: View of the proposed corridor for the new power line to link the Loeriesfontein Substation and the Dwarsrug Substation. The areas blocked in red indicate the low hills and drainage lines that are considered to be sensitive.

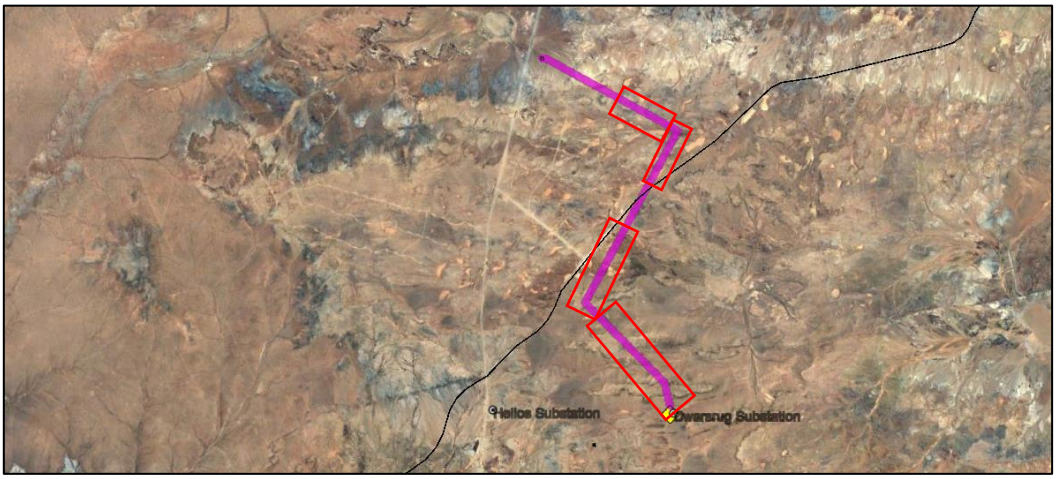


Figure 3: Option 2 – with sensitive low hills and drainage lines indicated in red.

Figure 4: Option 3, the link between the Dwarsrug and the Narosies substations with the low hills and drainage lines blocked in red.

The section south of the railway line (single corridor alignment for Option 1 and 2 to link Dwarsrug WEF to Loeriesfontein 3 PV) and the section proposed to link Dwarsrug WEF to the Narosies substation power line (Option 3) is very similar than the area around the existing wind generating facility. According to Todd (2014) "the open plains of the site are broken by occasional low stony hills. Although the vegetation of the hills are largely similar to the surrounding plains, some species were observed on the hills which were not common or present on the adjacent plains. This includes species such *as Hermannia grandiflora, Aloe claviflora, Sarcocaulon patersonii, Cephalophyllum fulleri, Ruschia abbreviata* and *Aridaria noctiflora subsp straminea*. Of these *Cephalophyllum fulleri* is of significance as it is listed as "Rare". Due to the somewhat higher species richness of the rocky hills and the increased vulnerability of the steeper slopes to erosion, the hills are considered more sensitive than the surrounding plains".

With this in mind, once the final route is determined, a botanist must accompany the surveyors and construction team to ensure no species of concern on these low hills will be affected. The low incidence and abundance of the species will result in a very low impact from the structures. The main concern will be the clearing of the corridor and access road during construction.

It is therefore reasonable to confirm the "Medium Sensitivity" of the plant community as identified in the screening report. The fact that the proposed activity is a linear activity, raises the question of the time needed for the vegetation to return to its current state after construction. One must assume that in an area with the low rainfall at this site, it will be extremely difficult to assume the corridor under the power line will re-grow to the current state. Although the area is impacted by the severe drought conditions of the last few years, higher than average rain will be needed to achieve this goal. It is fair to assume that with the implementation of all mitigation and remedial measures, the corridor can return to the current state within three to five years after of completion of the construction phase.

5.2 Option 1 Corridor for the Power Line to Dwarsrug WEF to Loeriesfontein 3 PV

During the walk down (3 and 4 December 2020) the aim was to evaluate the two proposed options (Option 1 and 2) for the new 132kV power line to link the Loeriesfontein 3PV Substation and the proposed Dwarsrug WEF Substation. In addition, the short 3km power line to link the proposed Dwarsrug WEF Substation (Option 3) with the proposed Narosies Substation was also evaluated.

From an ecological, botanical and habitat perspective it is recommended that Option 1 is the route that must be used for the new proposed 132kV power line. This is based on the following:

- The area is associated with the current activities and disturbances of the project (newly constructed wind generator infrastructure):
    - It is near the Loeriesfontein/Granaatboskolk road and in an area where the vegetation shows the most signs of modification due to the construction of the wind generators
    - There are a few very small drainage lines noted, but the slope are not severe (some erosion was noted during the walk down – associated with the recent construction activities **and urgent rehabilitation must be carried out**
    - There is better access from the wind farm property (access roads) to the proposed corridor (shorter distances)
    - The section south of the Sishen/Saldanha railway line is in a fair to good condition
        - It is recommended to limit traffic during construction
        - The low hills and associated drainage lines are sensitive (Figure 2)

- Access must be planned in conjunction with landowners to limit damage – e.g. use the exiting road associated with the power line (Helios/Aries substation) as access. This will be the shortest route with limited additional damage to the environment
- A single access road must be used
- No clearing of the corridor under the new power line must be done – the current vegetation pose no threat to conductors and stringing can be done without a need to remove any vegetation (it will facilitate a quicker re-grow response)

5.3 Option 2 Corridor for the Power Line Dwarsrug WEF to Loeriesfontein 3 PV

- With regards to Option 2 the following was noted and influenced the recommendation to use Option 1:
  - This corridor will encroach into the least disturbed vegetation areas on the property – limited roads
  - A whole new road access system is needed to get access to the corridor – no current roads from the turbine access roads to the proposed corridor
  - The area to the northeast and east of the existing wind generator network is more undulating compared to the area next to the road (Loeriesfontein/Granaatboskolk) (Option 1)
  - There are a number of small drainage lines along this corridor that will increase the erosion potential and added impacts on the vegetation – these systems drain to the Bitterputs Pan in the northeast. These pans form part of the important Bushmanland Vloere vegetation type (Mucina and Rutherford, 2006) (Figure 3).
  - According to Todd (2014) the drainage lines associated with the study area are not well developed, which can be ascribed to the stony nature of the area and the low rainfall. "The drainage lines are typically dominated by species such as *Phaeoptilum spinosum, Rhigozum trichotomum* and *Osteospermum armatum* along their banks, with *Stipagrostis namaquensis* typically dominating any relatively stable sediments or bed material. Due the ecological role they play and their vulnerability to disturbance, drainage lines are considered sensitive and should be avoided as much as possible" (Figure 3).

5.4 Option 3 Corridor for the Power Line to link Dwarsrug WEF to Narosies Substation

- When looking at Option 3 (Figure 4), the short distance (3km) associated with the sensitive low hills is therefore less impact of the habitat and its associated vegetation.
  - The shorter corridor will have low impacts associated with wind and water erosion.

6 ASSESSMENT OF IMPACTS

6.1 Significance of impacts

The key impacts identified for the proposed 132kV power lines are:

- Clearing of natural vegetation – vehicle traffic on the power line corridor – that will result in an increase in loss of vegetation cover

- With the sensitivity of the vegetation on the low hills, mostly south of the railway line, the status of “medium sensitivity” can be confirmed.
- There will be an increase in storm water runoff from hardened surfaces (roads) that will lead to an increase in flow velocities resulting in erosion
- In addition, there will be an increase of wind erosion on the exposed soils (e.g. access roads and power line corridor)
- A smaller issue will be the potential of oil spills/leaks during construction
- There is a potential for waste material left on site

Table 3: Summary of Impact Rating and Risk Significance (after Taylor, 2012).

Loeries/Dwarsrug/Narosies																					
ENVIRONMENTAL PARAMETER	ISSUE / IMPACT / ENVIRONMENTAL EFFECT/ NATURE	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION									RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION									
		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S		E	P	R	L	D	I / M	TOTAL	STATUS (+ OR -)	S	
Construction Phase																					
Clearing of natural vegetation	Loss of vegetation to clearing of the servitude, vehicle travel outside the corridor, large vehicles turning outside designated areas, possible establishment of alien invasives	1	3	3	3	2	3	36	-	Medium	Ensure rehabilitation of cleared patches, manage any alien invasives, strict monitoring of vehicles to stay on designated roads, limit all vehicle travel during construction	1	2	2	2	2	2	18	-	Low
Increase in storm water runoff	Hardened surfaces will increase run-off potential, this will result in increased erosion potential	2	3	2	2	2	3	33	-	Medium	Rehabilitate all roads and tracks - monitor after rain events	2	2	1	1	2	1	8	-	Low
Increase of water erosion	All roads and exposed surfaces create possible water erosion potential, increased run-off volumes will contribute to erosion in drainage lines	2	3	2	3	2	3	36	-	Medium	Rehabilitate impacts on runoff areas and drainage lines - constant monitoring after rain events	2	2	2	1	2	1	9	-	Low
Increase of wind erosion	All exposed areas will contribute to wind blown particles - increased erosion	1	4	3	2	2	3	36	-	Medium	Rehabilitate exposed corridor - ensure covering of large exposed areas	1	3	2	1	2	2	18	-	Low
Potential oil spills/leaks	Possible leaks of vehicles on site	2	2	4	2	2	2	24	-	Medium	Clean and rehabilitate immediately - vehicle inspections and maintenance prior to access to site (in vehicle pool area)	2	1	1	1	2	1	7	-	Low

Waste material	Waste from construction, food packaging, plastic water bottles	2	2	4	2	2	2	24	-	Medium	Monitoring and cleaning - wind blown materials + on site	1	1	2	1	2	1	7	-	Low
Operational Phase																				
Clearing of natural vegetation	Loss of vegetation - maintenance and driving in the servitude, vehicle travel outside the corridor, possible establishment of alien invasives	1	3	3	2	3	2	24	-	Medium	Ensure rehabilitation of cleared patches, manage any alien invasives, strict monitoring of vehicles to stay on designated roads, limit all vehicle travel	1	2	2	2	3	1	10	-	Low
Increase in storm water runoff	Hardened surfaces will increase run-off potential, this will result in increased erosion potential	2	3	2	3	3	3	39	-	Medium	Rehabilitate all roads, corridor and tracks - monitor after rain events	2	2	1	2	3	1	10	-	Low
Increase of water erosion	All roads and exposed surfaces create possible water erosion potential, increased run-off volumes will contribute to erosion in drainage lines, driving in wet conditions a concern	2	3	3	3	3	3	42	-	Medium/high	Rehabilitate impacts on runoff areas and drainage lines - constant monitoring after rain events, limit driving in wet periods, limit driving on small tracks	2	2	2	1	3	1	10	-	Low
Increase of wind erosion	All exposed areas will contribute to wind blown particles - increased erosion	1	4	3	2	3	3	39	-	Medium	Rehabilitate exposed corridor and access roads - ensure covering of large exposed areas	1	3	2	1	3	2	20	-	Low/medium
Potential oil spills/leaks	Possible leaks of vehicles on site	2	2	4	2	3	2	26	-	Medium	Clean and rehabilitate immediately - vehicle inspections and maintenance prior to access to site (in vehicle pool area)	2	1	1	1	3	1	8	-	Low
Waste material	Waste from maintenance, food packaging, plastic water bottles	2	1	2	1	3	1	9	-	Low	Monitoring and cleaning - wind blown materials + on site	1	1	1	1	3	1	7	-	Low
Decommissioning Phase																				
Clearing of natural vegetation	Loss of vegetation during activities of removal of structures, clearing of storage areas of material, vehicle travel outside the designated roads, large vehicles turning	2	4	4	3	2	3	45	-	High	Strict guidelines for all activities, constant monitoring, external monitoring critical, ensure rehabilitation of cleared patches, manage any alien invasives, strict monitoring of vehicles to stay on designated roads, limit all vehicle travel during decommissioning	1	2	2	2	2	2	18	-	Low

	outside designated areas, possible establishment of alien invasives																			
Increase in storm water runoff	Hardened surfaces will increase run-off potential, this will result in increased erosion potential, increased vehicle travel will be high	2	2	4	2	3	2	26	-	Medium	Rehabilitate all roads and tracks - monitor after rain events	2	1	1	1	3	1	8	-	Low
Increase of water erosion	All roads and exposed surfaces create possible water erosion potential, increased run-off volumes will contribute to erosion in drainage lines	2	4	3	3	2	3	42	-	Medium/high	Rehabilitate impacts on runoff areas and drainage lines - constant monitoring after rain events	2	2	1	2	2	1	9	-	Low
Increase of wind erosion	All exposed areas will contribute to wind blown particles - increased erosion	1	4	3	3	2	3	39	-	Medium	Rehabilitate exposed corridor - ensure covering of large exposed areas	1	3	2	1	2	2	18	-	Low
Potential oil spills/leaks	Possible leaks of vehicles on site	2	2	4	2	2	2	24	-	Medium	Clean and rehabilitate immediately - vehicle inspections and maintenance prior to access to site (in vehicle pool area)	2	1	1	1	2	1	7	-	Low
Waste material	Waste from decommissioning, food packaging, plastic water bottles	2	3	2	2	2	2	22	-	Low/medium	Monitoring and cleaning - wind blown materials + on site	1	2	1	1	2	1	7	-	Low
Cumulative																				
Clearing of natural vegetation	Loss of vegetation	2	3	3	3	2.5	2.5	34	-	Medium	Ensure rehabilitation of cleared patches	1	2	2	2	2.5	2	19	-	Low
Increase in storm water runoff	Hardened surfaces	2	3.5	2.5	3	2.5	3	41	-	Medium/high	Rehabilitate	2	2.5	1.5	2	2	1.5	15	-	Low
Increase of water erosion	All roads and exposed surfaces	2	3.5	2.5	3	2.5	3	41	-	Medium/high	Rehabilitate - constant monitoring after rain events	2	2	2	1.5	2	1	9.5	-	Low
Increase of wind erosion	All exposed areas	1.5	4	3	3	2.5	3	42	-	Medium/high	Rehabilitate	1	3	2	1	2.5	2	19	-	Low

Potential oil spills/leaks	Possible leaks of vehicles on site	2	2	4	2	2.5	2	25	-	Low/medium	Clean and rehabilitate immediately	2	1	1	1	2.5	1	1.5	-	Low
Waste material	Various waste sources	2	2	3	2	2.5	2	23	-	Low/medium	Monitoring and cleaning	1	1.5	1.5	1	2.5	1	7.5	-	Low

IMPACT STATEMENT

The overall impact of the Loeriesfontein 3 PV - Dwarsrug WEF powerline and Dwarsrug WEF Powerline to Narosies substation, on plant biodiversity, is seen as acceptably low after the recommendations have been implemented and therefore, impacts can be mitigated to acceptable levels allowing for all powerlines to be authorised.

7 REFERENCES

Mucina L. and Rutherford M.C. (eds) 2006. *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

Todd, S. 2014. *Mainstream South Africa Dwarsrug Wind Energy Facility: Fauna & Flora Specialist Impact Assessment Report*. SiVEST, Pietermaritzburg.

Figure 5: View of the vegetation (northern section) of Option 2.

Figure 6: Some sections have very little vegetation (northern section – Option 2) and correspond with Todd (2014) observations.

Figure 7: Vegetation on the eastern boundary (Option 2) in the section north of the railway line.

Figure 8: Some sections have very little vegetation (eastern section – Option 2) and correspond with Todd (2014) observations.

Figure 9: Example of a drainage line carrying water to Bitterputs Pan – not well-defined but denser vegetation is noted.

Figure 10: A more defined channel on the north-eastern/eastern sector of the corridor.

Figure 11: South of the railway line, some areas of Option 2 is dominated by hard, stony patches.

Figure 12: Option 2, south of the railway – little more vegetation, but still stony habitat.

Figure 13: The western section (Option 1) with low vegetation cover in areas.

Figure 14: Example of erosion near the Loeriesfontein/Granaatboskolk road – reason for monitoring and rehabilitation.

Figure 15: As was noted along Option 2, some areas along the proposed corridor for Option 1, denser vegetation patches are present.

Figure 16: Along the southern sector of Option 1, some of the low hills are present.

Figure 17: Some areas along this sector is very rocky with low plant cover.

Figure 18: The low hills along the southern portion (Option 1 and 2) towards the BESS site.

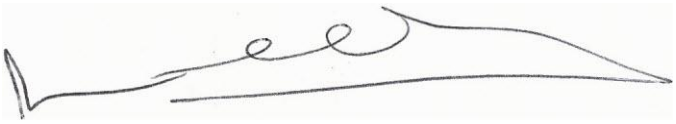
Figure 19: Example of *Aloe claviflora* along this sector – it must be left intact during construction.

8 VEGETATION COMPONENT COMPLIANCE STATEMENT

Through the site verification, background investigation and impact assessment, the following are confirmed by the specialist:

1. The site is medium sensitivity with regards to the vegetation context through the screening tool.
2. The proposed Option 1 is preferred to link the Loeriesfontein 3PV with the Dwarsrug WEF Substation.
    i. This option has the least impacts related to the vegetation (less clearing), is shorter compared to Option 2 and has no low hill north of the railway line. This is confirmed by Taylor (2012) whose study covered the whole larger study area.
    ii. Through an investigation undertaken in this report, it is confirmed that nothing has changed since the previous study and a reassessment is not required.
3. Option 3 (to link the Dwarsrug WEF and Narosies substations) is viable.
    i. It is very short compared to the other two options.
    ii. Although it is exclusively associated with the low hills and it's associated more sensitive vegetation, the shorter distance result in less impacts on the vegetation.
4. Impacts have been identified with proposed mitigation measures.
5. All these should be adhered to ensure all impacts are mitigated, the area associated with the power line would remain in a "medium sensitivity" with regard to the vegetation component.
6. A list of conditions and mitigating measurement has been provided that should be included in the EMPr.
7. It will be important to monitor all areas for erosion (both water and wind) as this will contribute the success of the project.

Yours sincerely



Dr Wynand Vlok