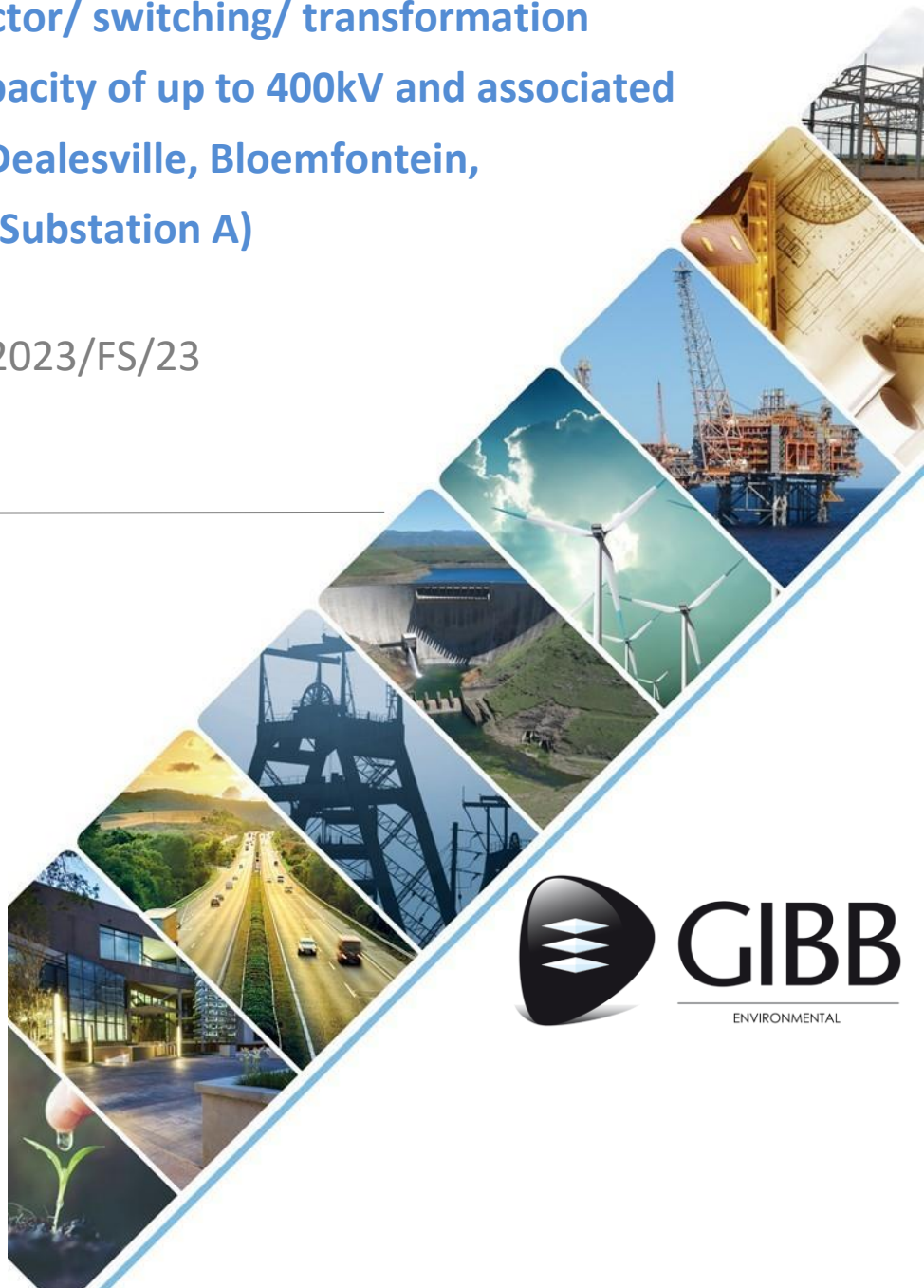

FINAL ENVIRONMENTAL SENSITIVITY REPORT

The proposed construction of Springhaas Collector Substation A, a collector/ switching/ transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State (Collector Substation A)

DFFE Ref: PWRLSTD/2023/FS/23

GE39159

May 2023



GIBB
ENVIRONMENTAL

FINAL ENVIRONMENTAL SENSITIVITY REPORT

The proposed construction of Springhaas Collector substation A, a collector/switching/ transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State

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Preliminary

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Abbreviations / Acronyms / Definitions

List of Abbreviations and Acronyms	
BID	Background Information Document
CA	Competent Authority
CAA	Civil Aviation Authority
CBA	Critical Biodiversity Area
CR	Critically Endangered
CRR	Comments and Responses Report
DESTEA	Department of Economic, Small Business Development, Tourism and Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESR	Environmental Sensitivity Report
ESA	Ecological Support Areas
GA	General Authorisation
GIBB	GIBB Environmental
Ha	Hectare
HIA	Heritage Impact Assessment
HRA	Heritage Resources Authority
I&APs	Interested and Affected Parties
kV	Kilovolt
LiLo	Loop-in-loop-out
LM	Local Municipality
m	Metres
NEM:AQA	National Environmental Management: Air Quality Act 2004 (Act 39 of 2004)
NEM: BA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM:WA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Area
NEMPAA	National Environmental Management: Protected Areas Act(Act No. 57 of 2004)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NBA	National Biodiversity Assessment
NPAES	National Protected Area Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act, 1998 (Act No. 36 of 1998)
OHL	Overhead Lines
PAIA	Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)
PES	Present Ecological State

PPP	Public Participation Process
Pr	Protected
PV	Photo Voltaic
SACAA	South African Civil Aviation Authority
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SSV	Site Sensitivity Verification
WMA	Water Management Area
WML	Water Management Licence
WUA	Water Use Authorisation
WUL	Water Use Licence
WULA	Water Use License Application

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1 Introduction

1.1 Environmental Sensitivity Report History

This is the second version of the final Environmental Sensitivity Report (ESR) for the proposed Collector A Substation.

The first version of the draft ESR was released for public review for 30 days from 21 September 2022 to 21 October 2023. Details of the public participation process and included in Section 5 and Appendix 13 of the Final ESR. The draft ESR which was made available to I&APs for review was not materially different to this version of the draft ESR. In addition, the final ESR was uploaded to the GIBB Environmental (GIBB) website on 02 December 2022 and the availability of the final ESR was communicated to registered interested and affected parties (I&APs).

The draft ESR was uploaded to the Department of Forestry, Fisheries and the Environment (DFFE) sfiler system on 20 September 2022. GIBB, at the request of DFFE withdrew these documents on 21 September 2022.

The draft ESR was made available for I&AP review and DFFE review due to an omission in the initial public participation process (i.e. site notice boards were not placed along the route). Site notice boards have since been placed (07 February 2023) and I&APs were informed of the availability of report for review (via the site notice). I&APs responding to the notice boards were given a 30 day period to review the draft ESR from 07 February 2023 to 08 March 2023. Note that no additional, substantive information that I&APs would not have seen with the first round of review was included in this report review period. The comments received during this period have been included in the revised final ESR (**this report**).

The draft ESR was made available for DFFE to review for 30 days from 16 February 2023 to 17 March 2023, as per their request (which was a new request as DFFE had previously requested (21 September 2022) that the draft ESR was formally withdrawn from the sfiler system and that DFFE would not be commenting on the DESR).

1.1.1 Public Participation Process Summary

All relevant aspects of Chapter 6, Regulation 41 of the EIA Regulations 2014, as amended has been complied with as follows:

Table 1-1: Summary of public participation process undertaken

NEMA PPP requirement	Actions undertaken
(a) Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of (i) the site where the activity to which the application or proposed application relates is or is to be undertaken	This was done on 06 & 07 February 2023, with the 30-day comment period on the DESR from 07 February to 08 March 2023
(b) Giving written notice, in any of the manners provided for in section 47D of the Act, to (i) the occupiers of the site and, if the proponent or applicant is not the owner or	This was done on 11 August 2022, this notification informed potential I&APs of the availability of the BID and the procedure to be followed to register as an I&AP. A second notification was sent to I&APs on 21 September to indicate the availability of the DESR with the 30-day

NEMA PPP requirement	Actions undertaken
<p>person in control of the site where the activity is to be undertaken, the owner or person in control of the site where the activity is or to be undertaken.</p> <p>(iii) the municipal councillor of the ward in which the site and alternative is situated and any organisation of rate payers that represent the community in the area</p> <p>(iv) the municipality which has jurisdiction in the area</p> <p>(v) any organ of state having jurisdiction in the area</p> <p>(vi) any other party as required by the competent authority.</p>	<p>comment period on the DESR from 21 September – 21 October 2022.</p> <p>DFFE were provided with a 30 day period to review the DESR from 07 February to 08 March 2023. This report was no materially different to the version provided to I&APs from 21 September – 21 October 2022.</p> <p>In addition, engagement was undertaken with several parties including VULPRO, BirdLife SA, EWT and DFFE Biodiversity and Conservation Directorate. Where these parties commented within the allocated 30 day period comments have been captured in the comments and responses report (Appendix 13).</p>
<p>(c) Placing an advertisement in-</p> <p>(i) One local newspaper; or</p> <p>(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations</p>	<p>Adverts were placed two local newspapers in both English and Afrikaans:</p> <p>10 August 2022 – Express</p> <p>11 August 2022 – Noordkaap Bulletin</p> <p>These newspaper adverts informed potential I&APs of the availability of the BID and the procedure to be followed to register as an I&AP.</p>

For ease of reference, all changes made to the ESR are shown in red text.

1.2 Background

GIBB Environmental (Pty) Ltd (GIBB) has been appointed as the independent Environmental Assessment Practitioner (EAP) by the Applicant to undertake the required registration process for the proposed Springhaas Grid Connection in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) the *Standard for the Development and Expansion of Power Lines and Substation within Identified Geographical Areas Revision 2* (the Standard).

ABO Wind renewable energies (Pty) Ltd proposes the construction and operation of a grid connection to connect the Springhaas solar PV facilities located south-west of Dealesville in the Free State Province to add new capacity to the national electricity grid. In order for the Springhaas Solar PV facilities to evacuate the generated solar power to the national grid, a connection must be established between the solar PV facilities and the existing Eskom 400kV lines, namely the Beta/Delphi and Beta/Hydra lines located to the east and west of the solar PV facilities respectively.

The project is known as the Springhaas Grid Connection and would include development of the following:

- 1) Up to 2 (two) Collector sub-stations/switching stations and associated auxiliary buildings (i.e. for control/storage/electrical infrastructure/components) each with a development footprint of up to 8Ha for the collector station (this includes auxiliary building), including but not limited to the construction of a new platform with an earth mat and civil works, as well as new infrastructure such as feeder bay/s, line bay/s, busbar/s, circuit breaker/s, bussection/s, and/or transformer/s, with various protection equipment.
- 2) Up to 7 (seven) overhead lines (OHL) connecting the Springhaas Solar PV Facilities to the collector/switching/transformation sub-stations, via single/double-circuit **with a capacity**

of up to 132kV, mono pole lines, complete with structures, foundations, conductor, fibre layout, insulation, and assemblies.

- 3) Up to 2 (two) LiLo connections into the existing Eskom 400kV line, via a single/double-circuit power line of up to 400kV between the collector/switching/transformation substation/s and the Eskom 400kV line, complete with structures, foundations, conductor, fibre layout, insulation, and assemblies.

This revised final ESR is relevant to **Collector Substation A**. The other project components are covered by separate revised final ESRs.

1.3 Project Description

Collector Substation A will be a collector/ switching/ transformation substation with a capacity of up to 400kV. Collector Substation A will be located on the western edge of the farm "Remainder of Farm Corneliasdal No. 45". Further details of Collector Substation A are provided in Table 1-2 below.

Table 1-2: Collector Substation A details

Name	Springhaas Collector/switching/transformation sub-station A (and auxiliary buildings)
Location	Western edge of Remainder of Farm Corneliasdal No. 45
Connection	Will collect multiple up to 132kV overhead lines (located within the grid corridor), potentially step-up to 400kV (if required). Consolidated overhead lines would leave the collector sub-station for connection to the existing Eskom 400kV lines.
Capacity	Up to 400kV
Footprint	Up to approximately 8Ha. This includes auxiliary buildings
Height	Up to approximately 10m
Access	Accessed by an up to 6m wide access road. No new access roads are required. The access road for Springhaas Solar Facility 8 will be used (nothing that this is approved as part of the Environmental Authorisation for the facility).

1.3.1 Project Location

Collector Substation A would be located south-west of Dealesville, Free State, within the jurisdiction of the Tokologo Local Municipality, within the Lejweleputswa District Municipality. The Springhaas grid connection is located in Ward 1.

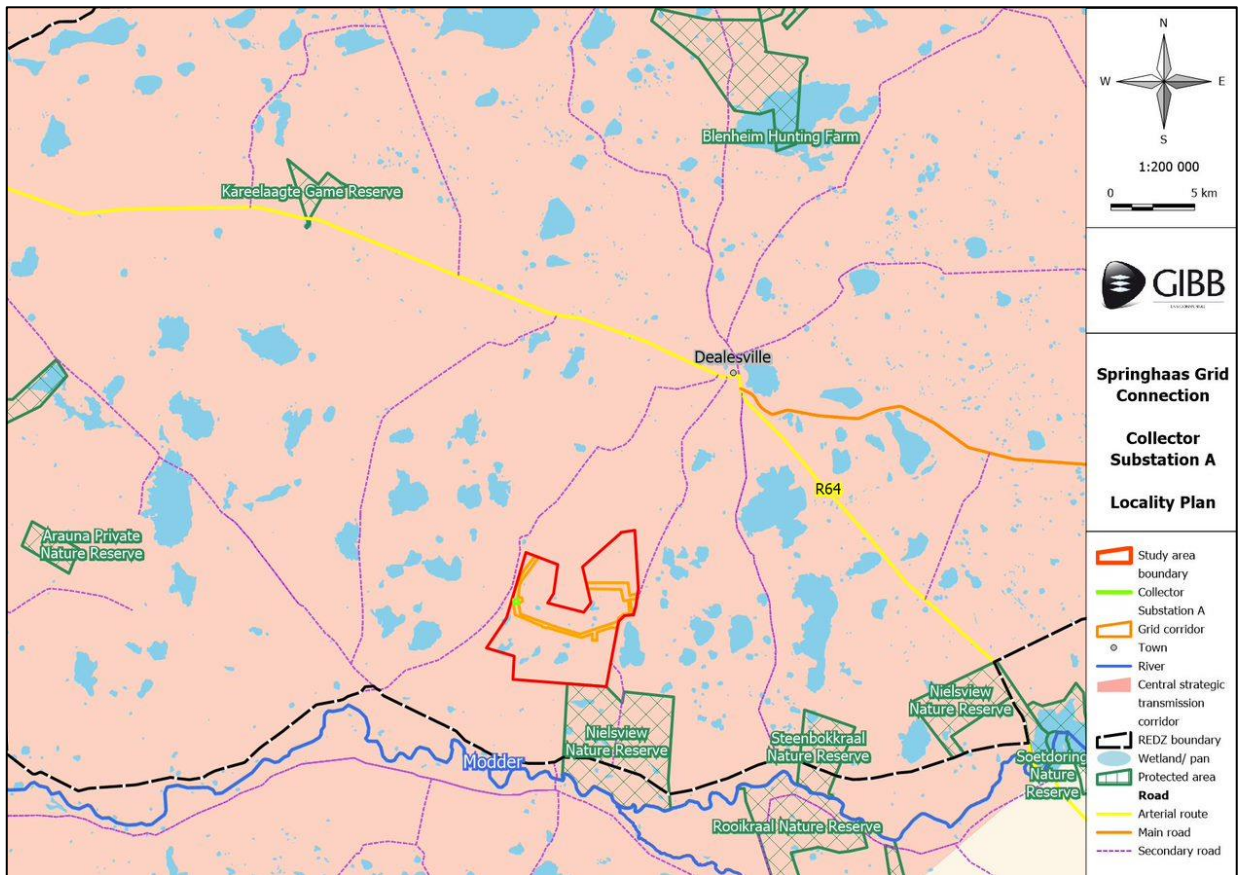


Figure 1-1: Locality plan. The location of Collector Substation A is shown by the green polygon

Collector Substation A is located wholly on the Remainder of Farm Corneliasdal No. 45. The tables below (Table 1-3 and Table 1-4) present further farm details and location information.

Table 1-3: Property details

Farm name	SG 21 digits code
Remainder of Farm Corneliasdal No. 45	F00400000000004500000

Table 1-4: Collector A substation corner points

Corner	Latitude	Longitude
A	28°47'42.46"S	25°37'46.79"E
B	28°47'41.32"S	25°37'57.03"E
C	28°47'50.34"S	25°37'58.33"E
D	28°47'51.49"S	25°37'48.09"E

1.3.2 Legislative Background

Collector Substation A would be located south-west of Dealesville, Free State, within the jurisdiction of the Tokologo Local Municipality, within the Lejweleputswa District Municipality. The site is located within the Kimberley Renewable Energy Development Zone and is also located within the Central Strategic Transmission Corridor, as shown in Figure 1-2 below.

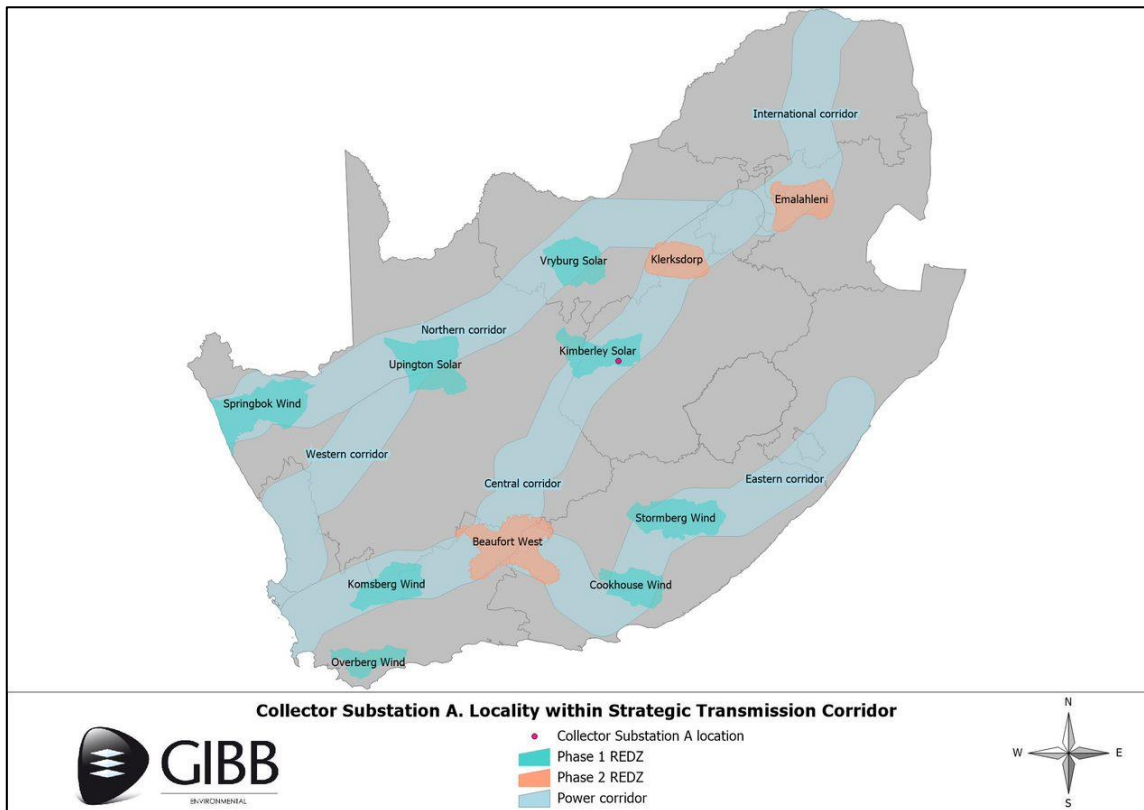


Figure 1-2: Gazetted electrical generation infrastructure corridors. The location of Collector Substation A is indicated by the pink dot (data source DFFE, downloaded from DFFE website on 11 May 2023)

(a) Relevance of the Standard

Prior to the gazetting of the *Standard for the Development and Expansion of Power Lines and Substations within Identified Geographical Areas* the development of Collector Substation A would have triggered the need to undertake an application for environmental authorisation in the format of a basic assessment report. With the promulgation of the new “Standard” in July 2022, an application for environmental authorisation is no longer required. The new standard does however require that the project (Collector Substation A) be subject to a registration process, which includes assessments. Table 1-5 lists the applicable criteria, as defined in the Standard, for determining whether such a registration process is applicable. The applicability of the Collector Substation A is also addressed.

Table 1-5: Criteria for a registration process

No.	Requirement	Applicability of the Proposed Development
1	The site must be located in areas identified by the national web based environmental screening tool as being of medium or low environmental sensitivity and confirmed to be such for identified environmental themes.	All the environmental sensitivity themes are rated as low to medium with the exception of palaeontology (high) and terrestrial biodiversity (very high). Specialists have undertaken site sensitivity verifications (SSV) for all identified environmental themes and all themes were confirmed to be of low or medium sensitivity in the identified grid corridor.
2	The site must be located within a strategic transmission corridor, for the development or expansion of electricity transmission and distribution power line infrastructure and	Collector substation A is located in the Central Strategic Transmission Corridor and constitutes electricity transmission and distribution infrastructure.

No.	Requirement	Applicability of the Proposed Development
	substations	
3	The development triggers Listing Notice 1 activity 11, activity 47 or Listing Notice 2, activity 9.	Collector Substation A will have a capacity of up to 400kV located outside of urban areas. Listing Notice 2, activity 9 is therefore applicable.

The proposed development is, therefore, in alignment with the criteria for registration.

The registration process allows the Proponent to undertake the following listed activities as well as associated activities necessary for the realisation of the infrastructure without undertaking an application for Environmental Authorisation.

Table 1-6: Applicability of listed activities identified in the Standard

Activity No.	Activity description	Project relevance
LN 2, activity 9	The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — a) temporarily required to allow for maintenance of existing infrastructure; b) 2 kilometres or shorter in length; c) within an existing transmission line servitude; and will be removed within 18 months of the commencement of development.	This activity is applicable. The substation will have a capacity in excess of 275kV.

1.4 Process Requirements

Chapter 2 of the Standard details 21 procedural requirements for the registration process. These are listed in Table 1-7 below, as well as an explanation of how the process followed for this project complies.

Table 1-7: Procedural requirements for the registration process, as defined in Chapter 2 of the Standard.

No.	Requirement	Comment
1	The proponent must identify a <i>preliminary corridor</i> and/or the proposed substation sites using the screening tool and additional relevant spatial datasets where available. The provincial department responsible for the environment and local municipality in the area should be contacted in relation to possible additional fine scale data.	Specialist site sensitivity verifications were completed for the authorised Springhaas Solar PV facilities. The sensitivity mapping provided by the specialist team was used to identify a grid corridor which avoids areas of high sensitivity. The Proponent has identified a corridor and proposed site for Collector Substation A, which is confirmed to be of Medium to Low environmental sensitivity. The 2015 Free State Biodiversity Plan data was reviewed to check the location of critical biodiversity areas (CBAs) and ecological support areas (ESAs) The Tokologo Local Municipality and the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs were

No.	Requirement	Comment
		<p>contacted via email on 15 August 2022 to request relevant spatial data sets and follow up phone calls were made on 22, 24 and 26 August</p> <p>DESTEA provided a revised data set for the Free State Biodiversity Plan (2019) on 05 September 2022. This information was not received in a suitable format. Data in a useable format has been requested from DESTEA and follow ups have been made. The lack of this data is not considered as an issue as groundtruthing was undertaken by the specialist and more fine scaling GIS mapping was undertaken. The BGIS website was also checked for local and provincial datasets.</p> <p>A specialist team carried out site assessment and groundtruthing of the site, which considered available information, for Collector Substation A.</p>
2	The proponent must appoint an independent Environmental Assessment Practitioner (EAP) and must ensure that the EAP fulfils the requirements to register the proposed development in accordance with this Standard.	The Proponent (ABO Wind renewable energies (Pty) Ltd) has appointed GIBB Environmental as the EAP.
3	<p>The proponent must ensure that the EAP, as a minimum, follows the public participation process required in Chapter 6 of the EIA Regulations for a linear development during the route determination process, excluding the following requirements which would not be relevant to the Standard:</p> <ul style="list-style-type: none"> • Obtaining written consent from the owner or person in control of the land on which the proposed development is to be undertaken for the powerline development; • Timeframes pertaining to comment periods for basic assessment reports, EMPr, scoping reports, EIA reports, and closure plans; • Notification along alternative routes in the form of notice boards; and • Giving notice of the process being applied (basic assessment or scoping and environmental impact report). 	<p>The following public participation process has been undertaken, with all the necessary steps in terms of the EIA Regulations, 2014 (as amended) with the exception of specific requirements as per the Standard having been undertaken and therefore legally compliant:</p> <ul style="list-style-type: none"> • Notification of stakeholders/ potential I&APs of the project • Placing a newspaper advert in two local newspapers (English and Afrikaans) • Placement of the BID and I&AP registration forms on a publicly accessible website https://gibbenvironmental.co.za/category/projects/. • Placement of site notices along the route of the grid connection corridor and posters in the closest town, Dealesville • Maintaining a register of registered I&APs • Availing the Draft Environmental Sensitivity Report to stakeholders for a 30-day comment period (review period linked to site notice boards and for DFFE has concluded). The report was available electronically on GIBB Environmental's website and as a hardcopy. The location of the hardcopy was communicated to registered I&APs. • Placing a hardcopy of the draft ESR at Tshwaranang (Dealesville) Public Library in Dealesville. • Notifying registered I&APs of the availability of the final ESR (this report)

No.	Requirement	Comment
		<ul style="list-style-type: none"> Informing I&APs within 14 days of a registration number being received and informing them of the opportunity to appeal (pending).
4	<p>As part of the interested and affected parties (I&APs) the EAP must ensure that relevant Non-Governmental Organisations (NGOs) and Community-Based Organisations (CBOs) are effectively consulted during the public participation process. Based on the information provided by the screening tool, additional spatial data and the EAP's professional knowledge, the proponent assisted by the EAP must appoint a specialist team who will assist with the route planning. The proponent must ensure that the EAP prepares a preliminary database of possible stakeholders and interested and affected parties (I&APs) along the <i>preliminary corridor</i> and in the vicinity of the substation site, including relevant government departments and relevant non-governmental stakeholders. The proponent assisted by the EAP must then announce the proposed development by making available a Background Information Document (BID) on a publicly accessible website and distributing the BID to stakeholders and I&APs identified on the database.</p>	<p>The EAP has compiled an I&AP database. This database incorporates parties who requested to be registered on the solar PV facilities and Grid connection projects which were subject to basic assessment and registration processes respectively.</p> <p>A specialist team has been appointed to assess the proposed grid connection corridor.</p> <p>A BID was published on GIBB Environmental's website on 10 August 2022. The project was advertised through newspaper adverts in the Express and Noordkaap Bulletin on 10 and 11 of August 2022 respectively.</p> <p>Site notice boards and posters announcing the project were placed along the grid connection corridor and in Dealesville on 07 February 2023.</p>
5	<p>The proponent assisted by the EAP must appoint a specialist team to undertake the site verification of the relevant environmental themes where relevant as well as a walkthrough of areas that need verification in the opinion of the EAP and specialist. Should a particular specialist not be required, the EAP must motivate their exclusion from the team and include this motivation in the BID. It is anticipated that the following specialist expertise will be required:</p> <p>(a) Terrestrial biodiversity and ecology; (b) Aquatic biodiversity and ecology; (c) Avifauna; (d) Heritage; (e) Agriculture/soil scientist; and (f) Visual (not required for a substation).</p>	<p>A specialist team has been appointed and site investigations are complete. The specialists undertook site sensitivity verification exercises prior to the grid corridor being finalised. Specialist site sensitivity verifications were undertaken for all of the required six specialist themes. In addition to these, further specialist studies were undertaken. The full list of studies undertaken is as follows:</p> <p>a) Agriculture and soils; b) Aquatic biodiversity and species assessment c) Terrestrial biodiversity and animal species; d) Avifauna; e) Bats; f) Botanical; g) Heritage; h) Landscape and visual; i) Palaeontological; j) Socio-economic; k) Transport and l) Geotechnical</p>
6	<p>The BID must include as a minimum the following information:</p> <p>(a) Purpose of the BID; (b) Legal context; (c) Background and project description; (d) Process and timeline; (e) The screening report generated from the screening tool for the <i>Preliminary Corridor</i> and/or proposed substation site; (f) Location of the <i>Preliminary Corridor</i> and/or proposed</p>	<p>A BID was published on GIBB Environmental's website on 10 August 2022. The BID complies with the minimum information requirements as specified in the Standard (refer to Appendix B for the BID).</p>

No.	Requirement	Comment
	substation site, including a map generated at an appropriate scale that displays the extent of the <i>Preliminary Corridor</i> and/or proposed substation as detailed as possible. Where an electronic copy of the BID is distributed, the spatial data of the <i>Preliminary Corridor</i> and/or proposed substation site must be made available; (g) Contact details of the EAP; and (h) I&AP registration forms.	
7	The proponent must ensure that the EAP and specialists identify through their specialist knowledge and site verifications/walkthrough as necessary, a <i>proposed route</i> and/or the substation location/s (where a substation or substations are relevant) within the <i>preliminary corridor</i> based on: <ol style="list-style-type: none"> consideration and implementation of the mitigation hierarchy, environmental sensitivity identified using the methodologies or processes as stipulated in Chapter 3 of this Standard, and engineering constraints. 	The specialists have considered the location of the site through site verifications and walkthroughs. <ol style="list-style-type: none"> The mitigation hierarchy has been considered: <ul style="list-style-type: none"> Avoid: The footprint of Collector Substation A avoids sensitive habitats. Avoidance of high sensitivity areas has been achieved. Minimise: The specialists have provided recommendations to minimise the impact of the development on the environment at all stages of the development. These measures have been incorporated into the generic EMPr. Rehabilitate: The specialists have provided mitigation measures to rehabilitate areas disturbed by construction and operational activities. Offset: No offsets are required as no high sensitivity habitats and resources are impacted by Collector Substation A. Sensitivities were identified using methodologies as stipulated in Chapter 3, General Environmental Processes. This is demonstrated in Table 1-9. Engineering constraints were considered. The overall grid connection corridor is considered appropriate from the perspective of all specialists, and the location of the project therein is also acceptable.
8	As the route is being identified, the initial servitude negotiations are to be undertaken to ensure that the route and/or substation location is not fatally flawed in relation to servitude access.	The landowner has approved the location of Collector Substation A. A copy of landowner consent letter has been submitted to DFFE with the registration form.
9	The process to identify the <i>proposed route</i> and/or substation location and the outcome of the initial servitude negotiations	The draft ESR was made available on GIBB Environmental's website and a

No.	Requirement	Comment
	must be documented in an environmental sensitivity report, which must be subjected to a minimum public comment period of 30 days as part of the public participation process identified in paragraph 3 above.	hardcopy was also made available for review at Tshwaranang (Dealesville) Public Library. All the registered I&APs were notified of the venue.
10	<p>The environmental sensitivity report must include, as a minimum, the following information:</p> <p>(a) The details and relevant expertise of the EAP and specialists preparing the report;</p> <p>(b) The outcome of the screening exercise undertaken using the screening tool, the expert knowledge of the specialists where necessary, results of the site verification, the adoption of the mitigation hierarchy principles and the principles contained in Chapter 3 of this Standard;</p> <p>(c) Location map of the <i>proposed route</i> and/or proposed location of the substation at a scale not more than 1:15000 to identify environmental features;</p> <p>(d) Details of the public participation process undertaken;</p> <p>(e) A discussion by the specialists and/or EAP of the process used to confirm that the <i>proposed route</i> and/or substation location has applied the principles stipulated in Chapter 3, and the process used to confirm that the site sensitivity of the proposed route and/or substation location is of low or medium environmental sensitivity;</p> <p>(f) If applicable, a site specific EMPr as per Part C of the Generic EMPr for overhead power lines and/or substations gazetted in Government Notice 43519 published in Government Gazette No. 42323 of 22 March 2019;</p> <p>(g) The completed generic EMPr pre-approved template which is Part B – Section 1 of the Generic EMPr for overhead power lines and/or substations, and where applicable Part C, gazetted in Government Notice 435 published in Government Gazette No. 42323 of 22 March 2019, for display on the websites of the proponent and the EAP; and</p> <p>(h) The confirming statement by the various specialists in the format as identified in Appendix B.</p>	<p>The ESR meets these requirements. Refer to</p> <p>(a) Section 1.8, Table 1-11 for EAP and specialist details</p> <p>(b) Section 4, Table 4-3</p> <p>(c) Section 2; Figure 2-1</p> <p>(d) Section 5</p> <p>(e) Section 3</p> <p>(f) Appendix 13 of the registration form</p> <p>(g) Appendix 13 of the registration form</p> <p>(h) Appendix 13 of the registration form</p>
11	The <i>proposed route</i> must be finalised to become the final <i>pre-negotiated route</i> and where relevant the final location/s of the substation/s, by taking into consideration comments received during the public participation process and refining the route as relevant.	The location of the substation has been finalised. No changes were required to the location of the substation as assessed in the final ESR. No significant comments were received during the 30-day public commenting period that necessitated changes the route alignment. The current route is considered appropriate (i.e. no need for revisions) from a specialist assessment perspective.
12	A final environmental sensitivity report must be prepared by the EAP supported by the specialists, which locates the final pre-negotiated route and/or the substation location on a map which includes the location of any mitigation devices such as bird flight diverters, a record of comments and responses and, where applicable, Part C of the Generic EMPr and the final confirming statements by the various specialists in the format as identified in Appendix B.	This is the revised version of the final ESR. No significant comments were received during the 30-day public commenting period for the first version of the draft ESR that required changes to the location of the substation. All the organs of state which have jurisdiction in respect of the proposed activity were also contacted during the public participation process via email on the 21 st of September for comment on the first version of the Draft Environmental Sensitivity Report and follow-up emails were sent on the 28 th of September and 21 st of October. Follow-up calls were also made. The location of Collector Substation A is supported by the

No.	Requirement	Comment
		specialist team and the EAP. Furthermore, it should be noted that this report includes specialist findings and the corridor and location of the proposed development are considered appropriate (and do not require revision). All comments received during the 30 day review period for the second version of the draft ESR have been addressed in the revised final ESR (this report).
13	All registered I&APs must be notified of the availability of the final environmental sensitivity report for information	All registered I&APs will be notified in writing of the availability of the revised final ESR (this report).
14	The proponent must submit the relevant registration form contained in Appendix F of this Standard.	A registration form, which was obtained from DFFE, was completed and submitted to DFFE
15	The registration form must be accompanied by: (a) The final pre-negotiated route and the signed declaration by the proponent of commitment to implement the Standard (included as Appendix 9 to the registration form); (b) A signed statement from the proponent that initial servitude negotiations have been concluded; (c) The signed declaration that the proponent will comply with the pre-approved Generic EMPr templates and site specific EMPr if relevant; and (d) All supporting documents stipulated in the registration form.	All required appendices as defined in the Standard have been included in the registration form. The second version of the final ESR was included as Appendix 2 of the Registration Form.
16	On receiving the relevant information identified in paragraph 15 above, the competent authority must issue a registration number within 30 days of receipt of the information submitted or if the information is incomplete, indicate to the proponent that the submission is incomplete and identify the outstanding information. A register of all registrations must be kept by the competent authority.	Noted. This is an activity to be carried out by the Competent Authority.
17	Upon receipt of a registration number, the proponent must inform all registered I&APs within 14 days of the registration and the opportunity to appeal.	Pending. GIBB Environmental will notify registered I&APs of the registration number and opportunity to appeal within 14 days of the number being received.
18	Registration contemplated in paragraph 16 will be valid for a period of 10 years from receipt of the registration number in order for commencement to take place (validity period). If commencement does not take place within the validity period, the process contemplated in Chapter 2 will apply afresh in such instances	Noted.
19	The proponent must provide written notice to the compliance monitoring unit within the competent authority 14 days prior to the date on which the first of the activities contemplated in the scope of this Standard, including site preparation, will commence in order to facilitate compliance inspections.	Noted; this is the responsibility of the proponent.
20	Proof of registration must be: (a) lodged by the proponent with the relevant Local Municipality, as well as the relevant provincial department responsible for the environment, if the national department responsible for the environment is the CA, prior to commencement; (b) made available by the proponent on request by any member of the public or Authority; and (c) made available, where the proponent or owner has a website, on such publicly accessible website.	Noted.
21	Where change of ownership of a development registered in	Noted.

No.	Requirement	Comment
	terms of paragraph 16 occurs during the pre-construction or construction phases of the infrastructure, the registration number is retained by the new owner, however the new owner must submit to the competent authority for re-registration, the declaration by the proponent of commitment to implement the Standard (included as Appendix 9) and the declaration to implement Part B – Section 1 of the Generic EMPr for overhead power lines and/or substations, and where applicable Part C (Appendix 10), within 30 days upon finalisation of such change. There is no requirement for re-registration once the infrastructure has been constructed as the operation of a power line or substation is not an identified activity in terms of the Act.	

The process being undertaken (including activities to-date) is aligned with the requirements for registration, and exceeds them in some cases.

1.5 Environmental Sensitivity Report Content Requirements

The new standard (Chapter 2, point 10) lists the minimum information that the Environmental Sensitivity Report (this report) should contain. The table below (Table 1-8) lists these requirements and indicates how they have been met in this report.

Table 1-8: Minimum content requirements for an Environmental Sensitivity Report

No.	Requirement	Comment
a)	The details and relevant expertise of the EAP and specialists preparing the report;	Section 1.8.2
b)	The outcome of the screening exercise undertaken using the screening tool, the expert knowledge of the specialists where necessary, results of the site verification, the adoption of the mitigation hierarchy principles and the principles contained in Chapter 3 of this Standard;	Refer to Section 3 of the final ESR, and Appendix 1 of the registration form.
c)	Location map of the proposed route and/or proposed location of the substation at a scale not more than 1:15000 to identify environmental features;	Section 3
d)	Details of the public participation process undertaken;	Section 6 and Appendix 14 of the registration form.
e)	A discussion by the specialists and/or EAP of the process used to confirm that the proposed route and/or substation location has applied the principles stipulated in Chapter 3, and the process used to confirm that the site sensitivity of the proposed route and/or substation location is of low or medium environmental sensitivity;	Section 3
f)	If applicable, a site specific EMPr as per Part C of the Generic EMPr for overhead power lines and/or substations gazetted in Government Notice 435 published in Government Gazette No. 42323 of 22 March 2019;	Appendix 13 of the registration form
g)	The completed generic EMPr pre-approved template which is Part B – Section 1 of the Generic EMPr for overhead power lines and/or substations, and where applicable Part C, gazetted in Government Notice 435 published in Government gazette No. 42323 of 22 March 2019, for display on the websites of the proponent and the EAP; and	Appendix 13 of the registration form
h)	The confirming statement by the various specialists in the format as identified in Appendix B.	Appendix 2

1.6 General Environmental Principles

The new standard (Chapter 3) presents general principles that must be adhered to when planning a powerline route or locating a substation position. The table below (Table 1-9) lists these requirements and indicates how they have been met in this report.

Table 1-9: General Environmental Principles that must be adhered to when planning a powerline

No.	Requirement	Comment
22	There must be no removal of threatened plant species.	No threatened plant species were identified within the broader study area during fieldwork by the botanist.
23	There must be no impact on Tier 1 plant species identified through the screening process and site verification process	No Tier 1 plant species were found.
24	Clear-cutting during construction must be kept to a maximum of 8 m.	N/A. No clear cutting will be required for Collector Substation A. All the vegetation in the footprint of Collector Substation A will be cleared.
25	Wetlands must be avoided or, where wetland crossing is unavoidable, the power line should be routed over the narrowest part of the wetland. For the most part, wetlands and rivers can be traversed by the power line with little to no impact by placing the pylons outside of the wetland	N/A there are no powerlines as part of Collector Substation A. The footprint Collector Substation A avoids all wetlands including the 250m buffer.
26	Avoid all known Blue Swallow breeding habitat by a 2.5 km buffer. Should the full extent of the buffering not be practically possible, a thorough investigation must be conducted by a suitably experienced avifaunal specialist with experience of Blue Swallows to identify any potential nesting holes, which must then be appropriately buffered, in consultation with Ezemvelo KwaZulu-Natal Wildlife and BirdLife South Africa to prevent destruction of the nest holes.	The site is not located within the distribution of Blue Swallows.
27	Avoid Cape Vulture and White-backed Vulture breeding colonies by a 5 km buffer. In addition, it would require management of the potential impacts on the breeding birds once construction commences, which would necessitate the involvement of the avifaunal specialist and the environmental control officer (ECO).	No Cape Vulture and White-backed Vulture breeding colonies occur within 5 km of the site.
28	Avoid Lappet-faced Vulture and Bearded Vulture restaurants by a 5 km buffer. Should the full extent of the buffering at vulture restaurants not be practically possible, the vulture restaurant should be relocated in consultation with the owner of the restaurant	No Lappet-faced Vulture or Bearded Vulture restaurants occur within 5 km of the site.
29	The power line alignment or substation footing shall not be located within 500m of the edge of waterbodies found to be suitable for Greater Flamingo, Black Stork, Blue Crane, Great White Pelican, Lesser Flamingo and African Marsh-harrier	The site is not within 500m of waterbodies
30.	The power line alignment or substation shall not be located within 1 km of major piggeries and poultry farms.	No piggeries of poultry farms were identified within 1km of the Collector Substation A

1.7 Project Team

GIBB Environmental was appointed as the EAP to manage the Springhaas Grid Connection registration process. A team of specialists was also appointed to assess the required environmental themes. The specialist investigations were undertaken prior to the gazetting of the new Standards. The reports compiled by specialists contain information and assessments over and above what is required in terms of the Standard. These reports are deemed to comply with the requirements of the Standard.

1.8 Details of Role Players

1.8.1 Details of the Proponent

The details of the Proponent are presented in Table 1-10 below.

Table 1-10: Proponent contact details

Applicant:	ABO Wind renewable energies (Pty) Ltd		
Contact	Marielle Penwarden		
Position	Team Leader		
RSA Identity Number:	8709210086086		
BBEEE Status	N/A, not registered		
Company Registration Number:	2018/062901/07		
Physical Address	Unit B1 Mayfair Square, Century Way, Century City, Western Cape, 7441		
Postal Address	Unit B1 Mayfair Square, Century Way, Century City, Western Cape, 7441		
Postal code	7441	Fax:	--
Telephone	021 276 3620	Cell:	079 862 0033
E-mail	marielle.penwarden@abo-wind.com / capetown@abo-wind.com		

1.8.2 Details of Independent EAP

GIBB Environmental is an integrated group of scientists and project managers providing cost-effective solutions and specialist services in a wide range of environmental disciplines. The multi-disciplinary consulting, management and design approach allows for the execution of projects in a holistic way.

GIBB Environmental has a formidable track record and comprises highly qualified and experienced technical staff *viz*, Environmental Scientists and Specialists, which work together collectively as a national team. The team members have broad experience in terms of working on a range of environmental projects within the public and private sector across South Africa. Refer to Table 1-11 for the contact details of the Environmental Assessment Practitioner (EAP).

Table 1-11: Details of the Independent Environmental Assessment Practitioner (EAP)

Project EAP:	GIBB Environmental (Pty) Ltd		
Contact Person:	Ms. Kate Flood		
Role in Project:	Project Manager Environmental Assessment Practitioner (EAP) Process management Specialist team management Client liaison Public participation		
Physical Address:	Port Elizabeth, 1st Floor, St. George's Corner, 116 Park Drive, Central, Port Elizabeth, 6001		
Postal Address:	PO Box 63703, Greenacres, 6057		
Postal code:	6057	Fax:	-
Telephone:	041 007 0040	Cell:	084 631 1456
Email:	kflood@gibbenvironmental.co.za		
Professional registration	Pr Sci Nat: 120474 EAPASA: 2021/4172		
Expertise:	<p>Ms Kate Flood is an environmental scientist (Pr Sci Nat, EAPASA) and a registered EAP with over eleven years of experience, Kate Flood specialises in various environmental disciplines including environmental impact assessments, environmental management plans, environmental monitoring and waste planning.</p> <p>Kate is a project manager at GIBB Environmental and has successfully completed a wide range of environmental licensing projects.</p> <p>Her key experience includes:</p> <ul style="list-style-type: none"> - Environmental impact assessments and environmental management plans – preparation of environmental impact reports and environmental management plans, in accordance with published guidelines, for construction projects - Public Participation Process in compliance with NEMA 2014 EIA regulations. Public perception survey for waste management plans - Waste Management including waste stream surveys and waste characterisation, integrated waste management plans, waste infrastructure masterplans and waste feasibility studies - Environmental auditing including environmental control officer audits, ISO 14000 audits, audits of waste facilities and landfill sites - Environmental Monitoring, surface water sampling - Project management 		

1.8.3 Details of Competent Authority

The Department of Environment, Forestry and Fisheries is the Competent Authority (CA) of the registration.

Government Notice No. 779 of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) identifies the Minister as the Competent Authority in instances where the activities related to the Integrated Resource Plan (IRP) 2010-2030 as the IRP 2010-2030 is a plan, among others, through which commitments to the United Nations Framework Convention on Climate Change regarding CO₂ mitigation action are being implemented. The IRP for electricity 2010 – 2030 identifies the energy mix balance between renewable and non-renewable energy sources for the generation of electricity. The proposed activity is a grid connection to allow the large scale solar photovoltaic energy development (Springhaas Solar PV facilities) to connect to the national grid. DFFE is therefore the CA for this registration process.

1.8.4 Details of Specialists

In order to comprehensively investigate the impact of the proposed project on the receiving environment, a number of specialist studies were undertaken by independent specialists during the impact assessment phase of the project. The specialist team responsible for the various studies are presented in the Table 1-12 below. Further details of the specialists are provided in the specialist reports in **Appendix 2**. The specialist team was appointed prior to the gazetting of the Standard. The specialist studies were undertaken in accordance with the relevant protocols or Appendix 6 of the EIA Regulations. Preface letters have been compiled by all specialists to demonstrate compliance with the requirements of the Standard.

Table 1-12: Specialist Studies

Discipline	Specialist	Qualification/ Expertise
Studies undertaken as required in terms of Chapter 2, point 5 of the Standard		
Agricultural	Mariné Pienaar -Terra Africa Consult cc	SACNASP registered in the fields of Agricultural Science and Soil Science (Reg No. 400274/10) BSc Degree in Agricultural Science with a specialisation in Plant Production MSc Degree in Environmental Science
Aquatic Biodiversity and Species	Toni Belcher - BlueScience (Pty) Ltd	SACNASP registered in the field of Environmental Science and Ecological Science (Reg No. 400040/10) BSc Mathematics, Applied Mathematics BSc (Hons) Oceanography MSc Environmental Management
Avifauna	Jon Smallie - Wildskies Ecological Services (Pty) Ltd	SACNASP registered in the field of ecological science (Reg No. 400020/06) BSc (Hons) Agriculture MSc Environmental Science
Bat	Craig Campbell - Arcus Consultancy Services South Africa (Pty) Ltd	SACNASP registered in the field of Ecological Sciences (Reg No. 119649) B.Sc (Hons) Conservation Ecology
Botanical	Dave MacDonald - Bergwind Botanical Surveys and Tours cc	SACNASP 400094/06 BSc (Botany) MSc (Botany) PhD (Botany)
Archaeological and Heritage	Dr Jayson Orton - ASHA Consulting (Pty) Ltd	Association of Southern African Professional Archaeologists (ASAPA) (Reg No. 233) Association of Professional Heritage Practitioners (APHP) (Reg No. 043) BA Archaeology, Environmental & Geographical Science BA (Hons) Archaeology MA Archaeology D. Phil Archaeology
Landscape and Visual	Jon Marshall - Afzelia Environmental Consultants (Pty) Ltd	Registered Professional Landscape Architect (SACLAP) Diploma Landscape Architecture CMLI Dip LA
Palaeontology	Prof. Marion Bamford – The Palaeontologist Consultant	FRSSAf ASSAf BSc, majors in Botany and Microbiology BSc (Hons) Botany and Palaeobotany MSc in Palaeobotany PhD in Palaeobotany
Terrestrial Biodiversity and Animal Species	Robyn Phillips – Cossypha Ecological	SACNASP registered in the fields of Zoological and Ecological (Reg No. 400401/12) MSc Zoology
Studies undertaken over and above those required in terms of Chapter 2, point 5 of the Standard		

Discipline	Specialist	Qualification/ Expertise
Socio-Economic	Ruan Oberholzer – Urban-Econ Development Economics	BTRP (Hons); MSc (Real Estate)
Transport	Iris Sigrid Wink – JG Afrika (Pty) Ltd	PrEng, MSc Eng (Civil & Transportation) Registered with the Engineering Council of South Africa No. 20110156 Registered Mentor with ECSA for the Cape Town Office of JG Afrika
Geotechnical	Geotechnical Consultant Services - Carel J de Beer	SACNASP registered in the field of geological science (Reg No. 400211/05)
Socio-Economic	Ruan Oberholzer – Urban-Econ Development Economics	BTRP (Hons); MSc (Real Estate)

2 Identification of the Location of Collector Substation A

The location of Collector Substation A was determined based on the following:

- **Environmental sensitivity verifications** -the specialist team undertook site sensitivity assessments and compiled maps which mapped the broader study area in terms of sensitivity. The Proponent consolidated the environmental sensitivity mapping and designed the grid corridor to avoid areas of high sensitivity, focusing mainly on areas where there is existing disturbance (e.g. roads) or where there would be future disturbance (i.e. proposed roads, proposed fenced areas). The footprint of Collector Substation A is located within the identified corridor
- **Landowner approval** – the site for Collector Substation A has been approved by the landowner
- **Technical considerations** – Collector Substation A will connect some of the Springhaas Solar PV facilities to the national grid. It therefore had to be located within close proximity to existing high voltage (400Kv) powerlines. A loop-in-loop-out (LiLo) connection will link Collector Substation A to the existing Beta/Hydra 400kV overhead line which runs to the west of the broader study area.



Figure 2-1: Collector Substation A Layout Plan

*Note Collector Substation A shown in blue. The co-ordinates of each corner are as follow:

A: 28°47'42.46"S / 25°37'46.79"E

B: 28°47'41.32"S / 25°37'57.03"E

C: 28°47'50.34"S / 25°37'58.33"E

D: 28°47'51.49"S / 25°37'48.09"E

3 Site Sensitivity Verification

3.1 Baseline Sensitivity Assessment

A development area has been identified for the proposed development. Within this identified development area, a development footprint has been defined in a manner which has considered the environmental sensitivities present on the affected property and intentionally remains outside of highly sensitive areas. All affected properties in their entirety have been considered in the specialist site sensitivity verification exercises.

3.2 Environmental Screening Tool Report

A Screening Report for the proposed Collector Substation A was generated using the online DFFE Screening Tool in June 2022. A copy of the Screening Report is available in **Appendix 1 of the Registration Form**.

Table 3-1 lists the sensitivities of the proposed development area as per the Screening Tool and a description of how the themes have been addressed in the registration process.

Table 3-1: Environmental sensitivity as per DFFE screening report

Theme	Screening Tool Sensitivity Rating	Registration Process Approach	Specialist report attached
Agricultural	Medium	An agricultural specialist has completed the site sensitivity verification.	Yes, Appendix 2.1.
Animal species	High	An ecologist has completed the site sensitivity verification.	Yes, Appendix 2.2.
Aquatic biodiversity	Low	An aquatic ecologist has completed the site sensitivity verification.	Yes, Appendix 2.3.
Archaeological and cultural heritage theme	Low	An archaeologist has completed the site sensitivity verification.	Yes, Appendix 2.4.
Avian	N/A	An avifaunal specialist has completed the site sensitivity verification.	Yes, Appendix 2.5.
Bats	N/A	A bat specialist has completed the site sensitivity verification.	Yes, Appendix 2.6
Civil Aviation	Low	N/A. No specialist study necessary	No
Defence theme	Low	N/A. No specialist study necessary	No
Palaeontology	High	A palaeontologist has completed the site sensitivity verification.	Yes, Appendix 2.7
Plant species	Low	A botanist has completed the site sensitivity verification.	Yes, Appendix 2.8
Terrestrial biodiversity	Very High	An ecologist has completed the site sensitivity verification.	Yes, Appendix 2.2
Socio-Economic	N/A	A socio-economic specialist has completed the site sensitivity verification.	Yes, Appendix 2.10
Transport	N/A	A transport specialist has completed the site sensitivity verification.	Yes, Appendix 2.11
Geotechnical	N/A	A Geotechnical specialist has completed the site sensitivity verification.	Yes, Appendix 2.12
Landscape and Visual	N/A	A landscape architect completed the site sensitivity verification	Yes, Appendix 2.9

The appointed specialists undertook a Site Sensitivity Verification (SSV) exercise to confirm the sensitivity ratings listed in the Screening Report. The results are presented in the following sections.

3.3 Agricultural Site Sensitivity

An Agricultural Site Sensitivity Verification was undertaken by TerraAfrica. A full version of the report is available in **Appendix 2.1**.

Site visits were undertaken on 27 to 29 September 2021, 05 - 07 October 2021 and 04 to 05 May 2022. The soil profiles were examined to a maximum depth of 1.5m using a hand-held auger. Observations on site were made regarding soil texture, structure, colour and soil depth at each survey point. The locality of each survey point was recorded. The soils are described using Soil Classification: A Natural and Anthropogenic System for South Africa (Soil Classification Working Group, 2018).

The screening tool report indicates that the site sensitivity for the agricultural theme is **Medium**. Following the on-site sensitivity verification, the entire Collector substation A area is classified as having **Low agricultural sensitivity** in terms of the proposed development. The proposed substation area has Low to Very low agricultural potential with effective soil depth of 0.3m or less and very limited to no suitability for rainfed crop production. The area of up to 8 ha that will be used for the substation, provides grazing to only one herd of cattle.

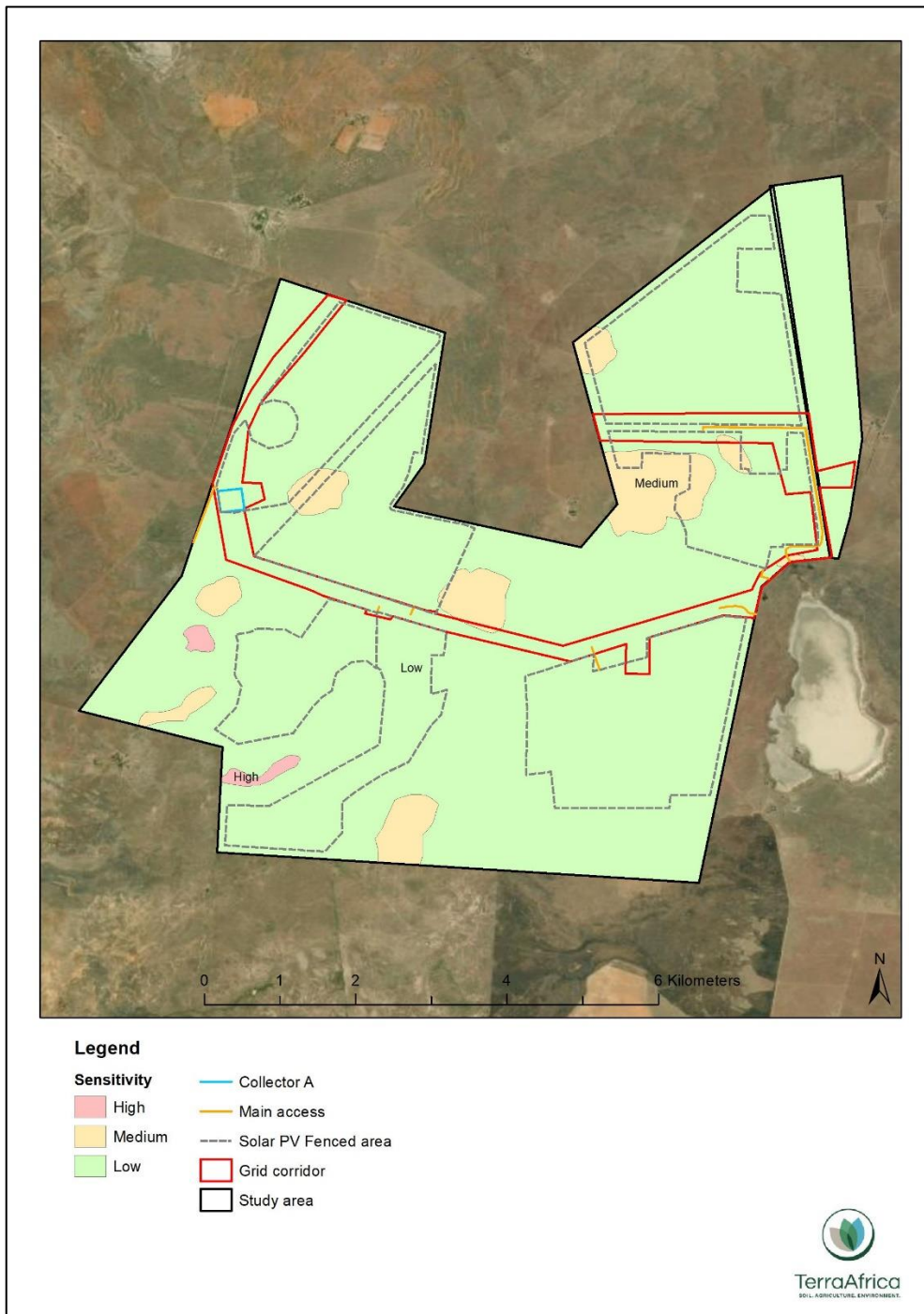


Figure 3-1: Agricultural sensitivity (source TerraAfrica, 2022)

3.3.1 Agricultural Environmental Specifications

The following environmental specifications apply to the agricultural theme:

Table 3-2: Agricultural theme specifications

Standard No.	Specification	Comment
10	The placement of pylons must be avoided in the following areas: a) Land capability evaluation values 11 – 15 b) Demarcated high value agricultural areas with a priority rating of A and/or B	No pylons will be constructed for Collector Substation A. Collector Substation A is located in an area of low to moderate capability (06 – 07). There are no areas with land capability values

		between 11 and 15. The entire proposed grid connection corridor falls outside a high value agricultural area.
11	Where pylons are located in the following areas, the placement must be undertaken in a manner in which the impact on these areas is minimised: a) Land capability and evaluation values 8 -10 b) Irrigated land c) Horticulture and viticulture d) Demarcated high value agricultural areas with a priority rating of C and/or D	No pylons will be constructed for Collector Substation A. Collector Substation A is located in an area of low to moderate capability (06 – 07). Collector Substation A is located outside any irrigated land as well as horticulture and viticulture. Collector Substation A does not affect and high value agricultural areas.
12	Where avoidance of the areas specified in subparagraph 10 of Paragraph A.6 is not possible, the areas disturbed during construction must be returned to the pre-disturbance land capability within two years of the construction.	N/A. There were no areas with high land capability values (11 – 15) or demarcated high value agricultural areas within the entire grid connection corridor.
13	All reasonable measures must be taken through micro-siting of the proposed development to minimize fragmentation and disturbance of agricultural activities.	This has been achieved. Collector Substation A is located on, and immediately surrounded by, land of low agricultural sensitivity. The development of the facility will not result in fragmentation of agricultural activities.
14	Self-supporting lattice or monopole structures are to be used in crop fields, orchards and vineyards.	N/A. Pylons do not form part of the infrastructure for Collector Substation A. There are no crop fields, orchards or vineyards within the footprint of Collector Substation A or in the grid corridor.

3.3.2 Adoption of the Mitigation Hierarchy

The Agricultural report provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-3: Consideration of the mitigation hierarchy

Avoid	Collector Substation A is located in an area of low agricultural sensitivity. Avoidance of high sensitivity areas has been achieved.
Minimise	The specialist has provided recommendations to minimise the impact of the development on agricultural resources. These mitigation measures involve minimising the disturbance footprint and impacts of construction, operation and decommissioning activities.
Rehabilitate	The specialist mitigation measures address rehabilitation of areas beyond the development footprint
Offset	As no high sensitivity agricultural land will be lost through the construction of Collector substation A, no offset is deemed necessary.

3.4 Animal Species Theme and Terrestrial Biodiversity

Cossypha Ecological was appointed to undertake the Terrestrial Biodiversity and Animal Species assessment. A full version of the report is available in **Appendix 2.2**.

Field surveys were undertaken from 27 – 28 October 2021 and 06 to 07 December 2021.

The screening tool report rated the animal species theme as **high sensitivity** and the terrestrial biodiversity theme as **very high sensitivity** for Collector Substation A. The specialist site sensitivity verification confirmed that both themes are **medium sensitivity** for the site.

The different habitats on site were mapped out, and sensitive features such as pans and rocky ridges were prescribed buffers.

The following habitats were identified in the broader study area:

- Rocky ridges – high sensitivity
- Pans – high sensitivity
- Natural grassland – medium sensitivity
- Past cultivation, heavy cattle use – low sensitivity
- Cultivation, buildings and alien trees – very low sensitivity

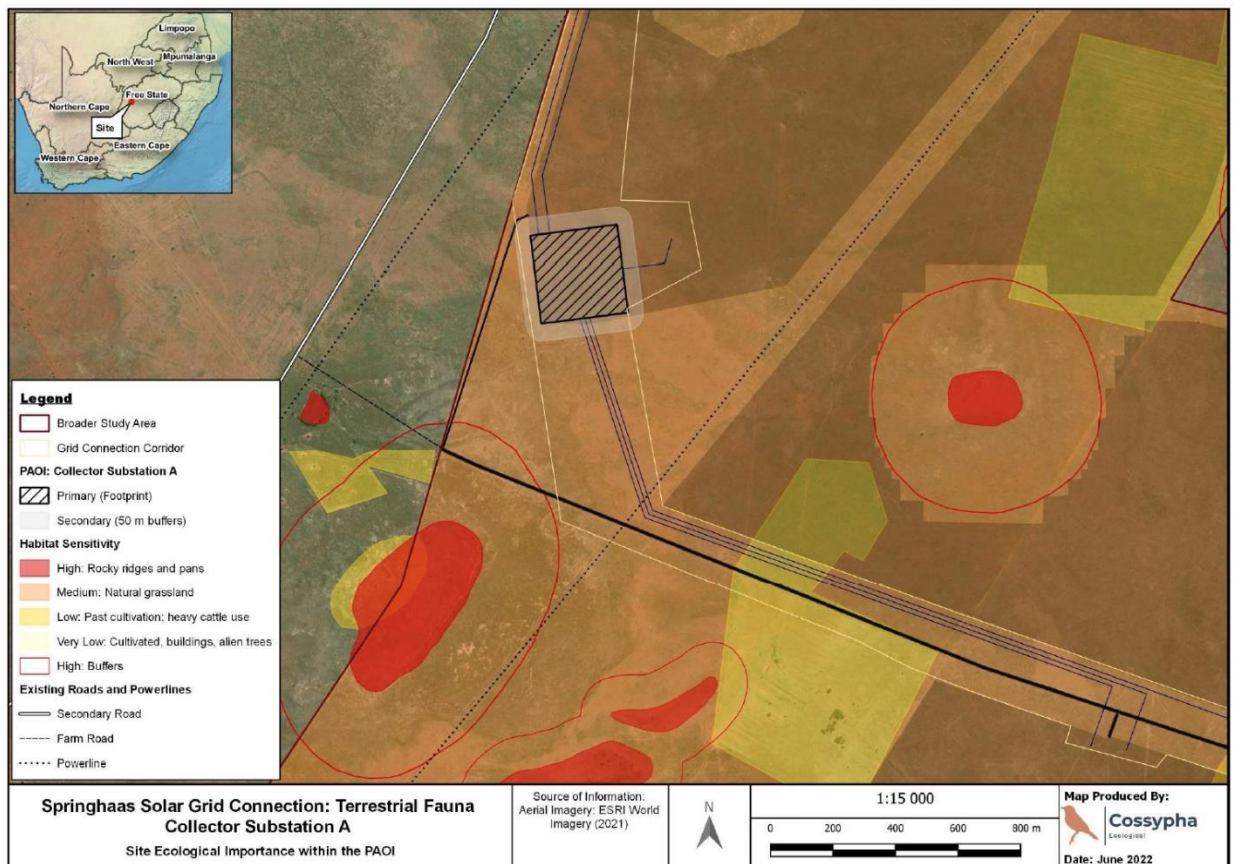


Figure 3-2: Animals species and terrestrial biodiversity site sensitivity (source Cossypha, 2022)

Collector Substation A is located in an area of natural grassland which is classified as medium sensitivity.

3.4.1 Animal Species and Terrestrial Biodiversity Environmental Specifications

The following environmental specifications apply to the animal species and terrestrial biodiversity theme:

Table 3-4: Animal species and terrestrial biodiversity theme specifications

Standard No.	Specification	Comment
The Terrestrial Ecology Specialist must:		
1a)	Use the most recently obtainable and available information (spatial and otherwise) to verify on a desktop level, the environmental sensitivity of the power line routing and/or substation location. This includes, <i>inter alia</i> , most recent version of the provincial or municipal conservation plans.	This was complied with. At a desktop level the following documentation was considered: <ul style="list-style-type: none"> • The South African Vegetation Map (Mucina and Rutherford, 2006; 2018); • National Listed Ecosystems (DEA, 2011); • National Biodiversity Assessment 2018 (NBA; (Skowno et al., 2019); • Free State Biodiversity Plan (FSBP; Collins, 2016); • National Protected Area Database (SAPAD & SACAD Q4 (DFFE, 2021) • National Protected Area Expansion Strategy (NPAES) 2018; • National Freshwater Ecosystem Priority Areas (NFEPA); Nel et al., 2011).
1b)	Identify ecosystem types and faunal species that are prone to the impacts results from power line and/ or substations within the proposed route.	Refer to the following sections in the attached specialist report: Section 3: Field Survey Results Section 3.1: Faunal Habitats Section 3.2 Faunal Species Occurrence Section 4: Site Ecological Importance and Sensitivity
1c)	Verify with a walkthrough, the presence and status of ecosystem type and species.	The field surveys were undertaken from the 27 th to the 28 th of October and the 6 th to the 7 th of December 2021.
1d)	Avoid threatened ecosystem types (CR, EN and VU) or threatened or rare/range restricted species in the final routing and/or substation location if relevant.	The location of Collector Substation A, the entire grid corridor and the broader study area are all located in Western Free State Clay Grassland which is listed as Least Threatened.

3.4.2 Adoption of the Mitigation Hierarchy

The Terrestrial Biodiversity and Animals Species specialist study provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-5: Consideration of the mitigation hierarchy

Avoid	Collector Substation A is located in an area of medium sensitivity. Avoidance of high sensitivity areas has been achieved.
Minimise	The specialist has provided recommendations to minimise the impact of the development on fauna and terrestrial biodiversity resources. These mitigation measures involve minimising the disturbance footprint and impacts of construction, operation and decommissioning activities.
Rehabilitate	The specialist mitigation measures address rehabilitation of areas beyond the development footprint
Offset	As no high sensitivity terrestrial biodiversity features will be lost through the construction of Collector substation A no offset is deemed necessary.

3.5 Aquatic Ecology Site Sensitivity

An Aquatic Biodiversity and Species assessment was undertaken by BlueScience. A full version of the report is available in **Appendix 2.3**.

Site visits were undertaken on 08 October 2021. During the field visit, the delineation, characterisation and integrity assessments of the freshwater features in and adjacent to the study area were undertaken.

The following aquatic features were identified in the broader study area:

- Pans and wetlands – high sensitivity
- Broad drainage regions – low sensitivity

A 250m buffer was prescribed to the pans and wetlands. The buffer areas were rated as medium sensitivity. The proposed Collector A substation avoided all aquatic features and their 250m buffers. The aquatic biodiversity sensitivity was confirmed to be of **low sensitivity** in-line with the rating given on the screening tool report.

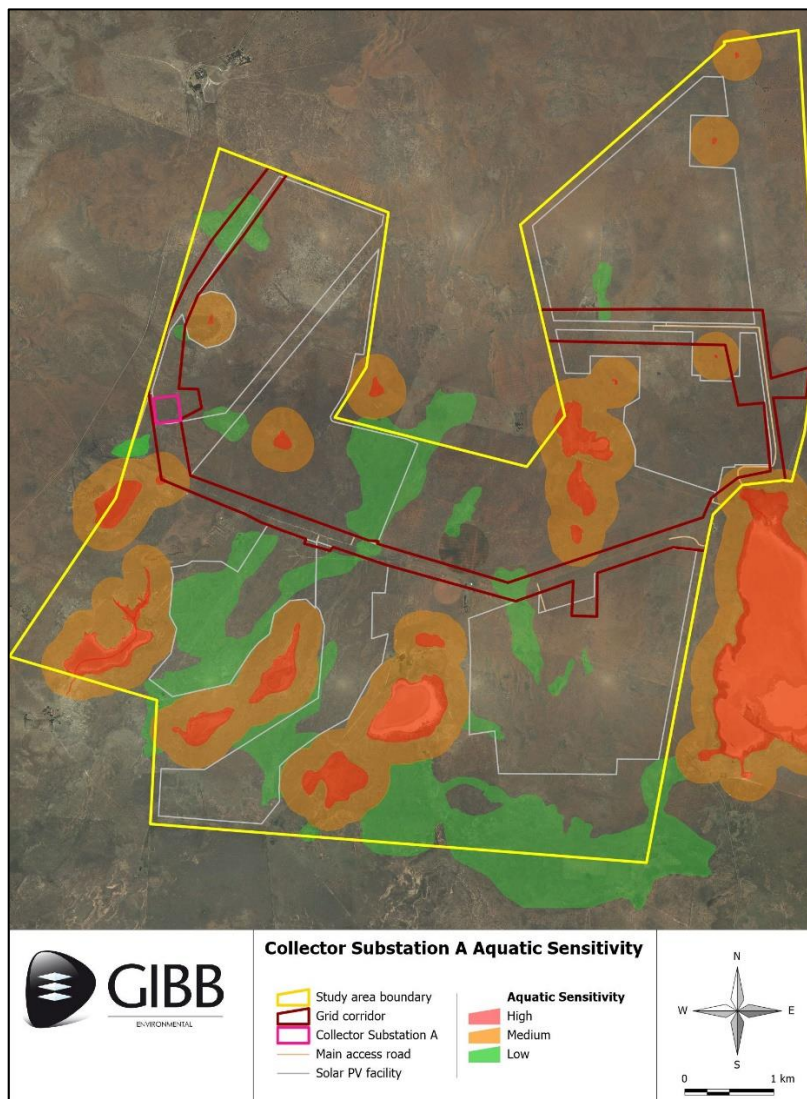


Figure 3-2: Aquatic sensitivity

3.5.1 Aquatic Ecology Specifications

The following environmental specifications apply to the aquatic ecology theme:

Table 3-6: Aquatic ecology theme specifications

Standard No.	Specification	Comment
3	Engage with the department responsible for water affairs to discuss the requirements of a General Authorisation or Water Use Licence.	The potential aquatic ecosystem impacts of the proposed powerline are deemed to be low such that the proposed activities fall within the ambit of the General Authorisations for Section 21c & i water uses. The Aquatic Ecologist will engage with the Department of Water and Sanitation.
4	The outcomes of the engagement process contemplated in subparagraph 3 of Paragraph A.3, where required, must be documented in the final environmental sensitivity report, including any restrictions or design requirements.	The Department of Water and Sanitation (DWS) was contacted during the public participation process via email on the 21 st of September for comment on the first Draft ESR and follow-up emails were sent on the 28 th of September and 20 th of October. A follow-up call was also made, but no comment was received within the 30 day public commenting period.
5	Identify freshwater features that are prone to impacts resulting from the construction of power lines within the proposed route.	All the aquatic features in the broader study area have been identified and mapped and a buffer of 250m is recommended to protect these features from impacts.
6	Avoid the freshwater features in the final routing.	The layout avoids all aquatic features.

3.5.2 Adoption of the Mitigation Hierarchy

The Aquatic report provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-7: Consideration of the mitigation hierarchy

Avoid	Collector Substation A is located in an area of low aquatic ecology sensitivity. Avoidance of high sensitivity areas has been achieved.
Minimise	The specialist has provided recommendations to minimise the impact of the development on aquatic resources. These mitigation measures involve minimising the disturbance footprint and impacts of construction, operation and decommissioning activities such as pollution of water resources.
Rehabilitate	The specialist mitigation measures address rehabilitation of areas beyond the development footprint
Offset	As no aquatic features will be lost through the construction of Collector substation A no offset is deemed necessary.

3.6 Archaeological and Cultural Heritage Site Sensitivity

A Heritage Impact Assessment in-line with the requirement of the National Heritage Resources Act (No. 25 of 1999) was undertaken by ASHA Consulting. A full version of the report is available in **Appendix 2.4**.

A field survey was undertaken from 03 – 07 October 2021. The survey was undertaken in spring when visibility was slightly better than summer when the grass is denser.

No heritage resources were found in the footprint of Collector Substation A. The site is therefore rated as low sensitivity, which is in-line with the findings of the screening tool report. It should be noted that the broader study area as a whole is rated as low sensitivity in terms of the screening tool but the specialist disputes this finding as within the broader study area there are heritage resources such as graves of medium to high sensitivity. No known artefacts are however located in the footprint of Collector Substation A.

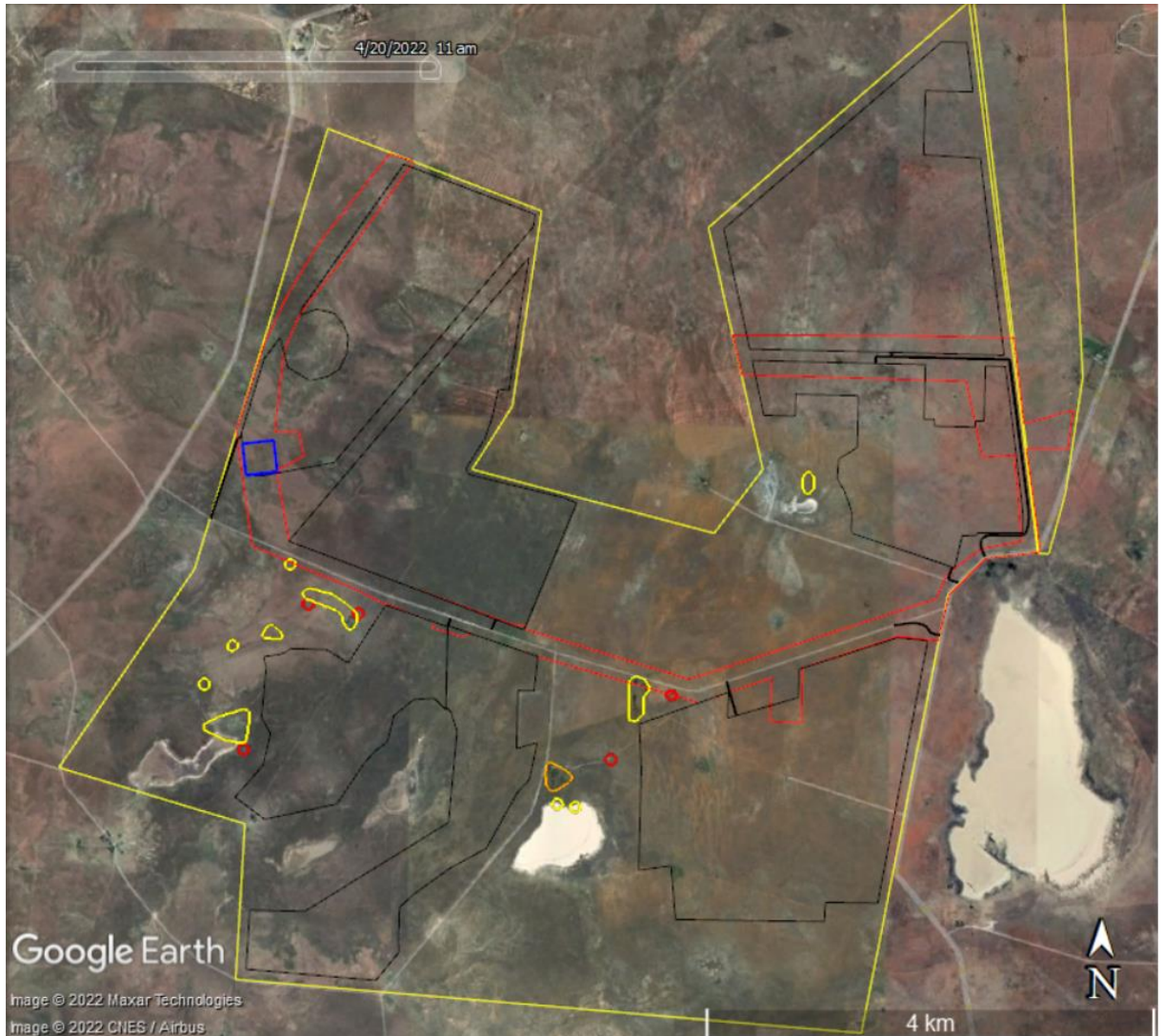


Figure 3-3: Archaeological and heritage sensitivity (red polygons – high sensitivity, orange polygons – medium sensitivity, yellow polygons – low sensitivity (data, ASHA, 2022)). Note no sensitive areas within the footprint of Collector Substation A (blue square).

3.6.1 Heritage Specifications

The following environmental specifications apply to the heritage theme:

Table 3-8: Heritage resources specifications

Standard No.	Specification	Comment
18	Where required, a heritage impact assessment (HIA) will be undertaken in compliance with Section 38(1) to 38(4) of the National Heritage Resources Act, 1999	A HIA has been undertaken by the specialist.

Standard No.	Specification	Comment
	(Act No. 25 of 1999) as well as any Minimum Standards or Guidelines published in relation to Section 38(3)	
19	The HIA must be submitted to the South African Heritage Resources Agency (SAHRA) and applicable Provincial Heritage Authorities for decision making procedures.	The HIA report was submitted to the South African Heritage Resources Agency and applicable Provincial Heritage Authorities for decision making. Comment was received from SAHRA on 07 November 2022 . No objections to the development were raised by SAHRA. SAHRA included recommendations and requirements for the development in the letter received. All the recommendations and requirements that have been prescribed by SAHRA have been incorporated in the final EMPr. The revised final ESR (this report) will be submitted to SAHRA and they will also be notified of the registration of the document.
20	The applicable recommendations or requirements from the South African Heritage Resources Agency and applicable Provincial Heritage Authorities must be documented in the final environmental sensitivity report.	The HIA report was submitted to the South African Heritage Resources Agency and Free State Provincial Heritage Resources Agency for comment. Comment was received from SAHRA on 07 November 2022 . No objections to the development were raised by SAHRA and no changes to the location of Collector Substation A were required. All the recommendations and requirements that have been prescribed by SAHRA have been incorporated in the EMPr .

3.6.2 Adoption of the Mitigation Hierarchy

The Heritage impact assessment report provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-9: Consideration of the mitigation hierarchy

Avoid	No heritage resources were identified in the footprint of Collector Substation A during fieldwork. The site avoids all known heritage resources. Avoidance of high sensitivity areas has been achieved.
Minimise	The specialist has provided recommendations to minimise the impact of the development on the visible landscape.
Rehabilitate	The specialist mitigation measures address rehabilitation of areas not needed during operation.
Offset	No offsets are required.

3.7 Avifauna Species Site Sensitivity

An Avifaunal assessment was undertaken by WildSkies. A full version of the report is available in **Appendix 2.5**.

A site assessment (28 to 30 September 2021) and two pre-construction bird monitoring site visits over two different seasons (spring (November 2021) and summer (January 2022)) were conducted on site.

No site sensitivity rating for the avian theme was provided for Collector Substation A by the DFFE Online Screening Tool. The tool identifies the grid corridor and site of Collector Substation A site as High sensitivity for the Animal Species Theme and Very High for the Terrestrial Biodiversity. The avifaunal specialist assessment confirmed that the site is of **low – medium sensitivity**.

The avifauna specialist provided further clarification on the confirmed sensitivity rating: “Ludwig’s Bustard is a nomadic species, which ranges over wide areas in response to local conditions. It is also a partial migrant, moving into the winter rainfall western parts of SA in winter and spring. The presence of the species on the Springhaas site cannot alone be considered to constitute the site sensitivity as High. The screening tool has mapped the entire distribution of the species (based on Southern African Bird Atlas Project 2), not hotspots or breeding locations. We do not agree that the entire species range can be considered High sensitivity. We have not recorded the species on the Springhaas site in any remarkable numbers or with any consistent frequency, nor has any evidence of breeding behaviour been recorded. “

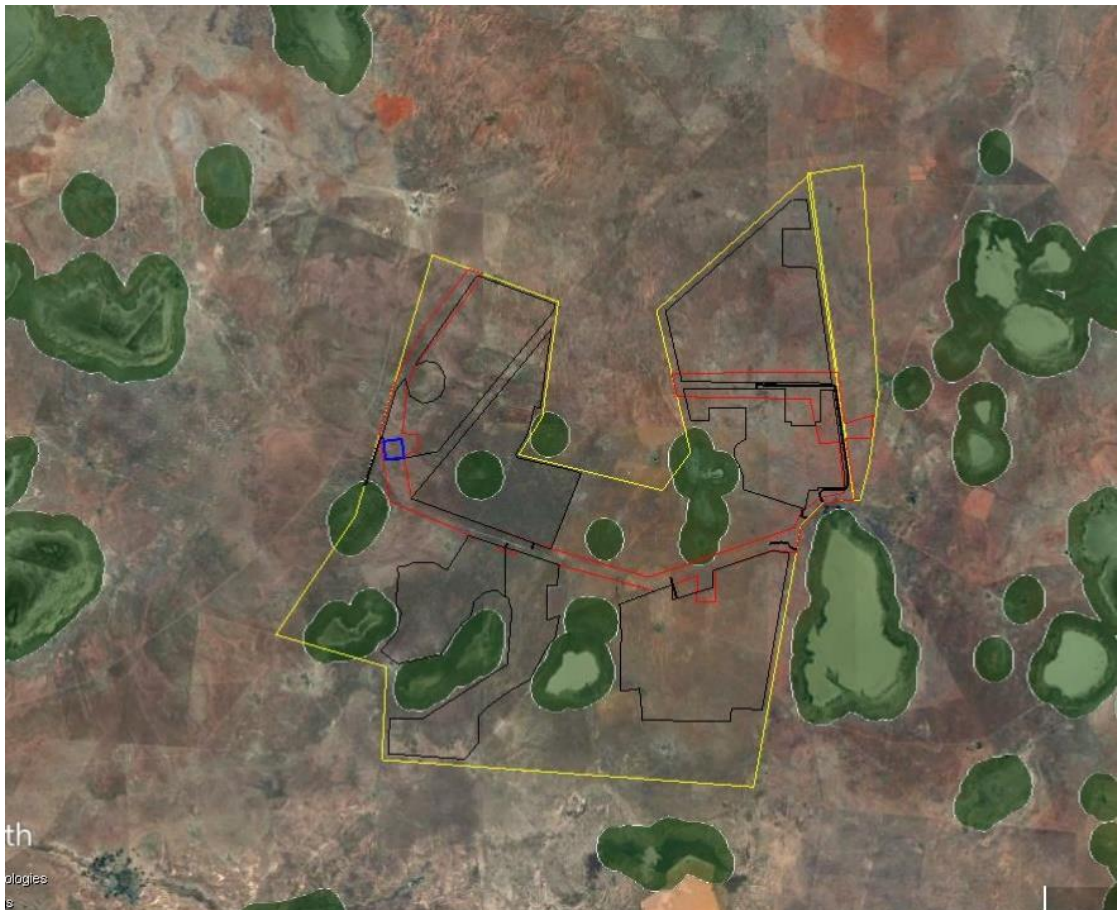


Figure 3-4: Avifaunal sensitivity on site (source Wildskies, 2022). The only sensitive spatial features identified were the pans. These, together with a 250m added buffer, are shown as green. Note that the footprint of Collector Substation A falls well outside these features

3.7.1 Avian Specifications

The following environmental specifications apply to the avifauna theme:

Table 3-10: Avian theme specifications

Standard No.	Specification	Comment
During planning		
a)	A 2 km buffer either side of the centre line of the proposed route of the power line alignment falling within the <i>preliminary corridor</i> must be drawn for verification of avifaunal sensitivity.	N/A. No power lines are required for Collector Substation A. The overhead line and LiLo connections, which form part of the grid connection infrastructure, are assessed in separate ESRs.
b) The avifauna specialist must		
i)	Use the most recently obtainable and available information (spatial and otherwise) as well as the screening tool, professional knowledge of the EAP and the avifauna specialist to determine, on a desktop level, the habitat sensitivity for avifaunal species along the power line route and/or substation location. BirdLife South Africa, WWF, the Endangered Wildlife Trust and VULPRO, must be contacted for their input.	<p>These data sources were used</p> <p>Birdlife South Africa was contacted during the public participation process via email on the 21st September for comment on the Draft Environmental Sensitivity Report and follow-up emails were sent on the 28th September and 20th October. A follow-up call was also made, but no comment was received within the 30-day public commenting period. Endangered Wildlife Trust was also contacted and no comment was received from them during the public commenting period.</p> <p>VulPro was contacted for input via email on the 18 April 2023 for the second version of the Draft Environmental Sensitivity Report. VulPro stated they have no further comments on the 26th April 2023.</p> <p>WWF was contacted via telephone to request the contact details of the relevant person on the 18th April 2023. A request for comment on the second version of the Draft Environmental Sensitivity Report was sent via email on the 18th April 2023. A follow-up email was sent on the 24th April 2023, but no comment was received.</p>
ii)	The power line bird mortality incident database of the Endangered Wildlife Trust must be consulted to determine which of the species occurring in the broader study area are typically impacted upon by power lines (EWT unpublished data).	N/A. No power lines are required for Collector Substation A. The overhead line and LiLo connections, which form part of the grid connection infrastructure, are assessed in separate ESRs.
iii)	Establish habitat and migratory routes and likely flight paths based on the most recently obtainable and available desktop data and site verification.	This was done
iv)	The conservation status of all avifaunal species recorded by the most recent iteration of the SABAP in the broader study area must be determined as per the most recent iteration of the list of threatened species and the IUCN Red Data List of Birds.	This was done
v)	Based on the information collected on birds typically impacted upon by power lines, identify the presence of threatened species which include, as a minimum, Cranes, Flamingos, Vultures, Kori Bustards, and Pelicans.	N/A. No power lines are required for Collector Substation A. The overhead line and LiLo connections, which form part of the grid connection infrastructure, are assessed in separate ESRs. White backed vultures and Blue

Standard No.	Specification	Comment
		Cranes were observed within the broader study area during surveys.
vi)	Where high risk areas are identified these areas must be confirmed with EWT by using their risk assessment tool	No high-risk areas were identified for the site.
vii)	Where the risk assessment tool identifies that mitigation measures can be applied, apply these mitigation measures in consultation with EWT, BirdLife South Africa and the local conservation agency.	This was done. No additional mitigation requirements were received from these parties.
viii)	Where no acceptable mitigation measures can be applied, re-routing options or engineering solution, for example routing under the risk area identified or increasing the height of the power line in order to avoid potential collision risk areas, must be applied. Where engineering options are considered, these must be discussed with EWT, BirdLife South Africa and the local conservation agency.	N/A. No power lines are required for Collector Substation A. The overhead line and LiLo connections, which form part of the grid connection infrastructure, are assessed in separate ESRs. Collector Substation A falls outside of identified sensitive areas.

3.7.2 Adoption of the Mitigation Hierarchy

The Avifauna impact assessment report provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-11: Consideration of the mitigation hierarchy

Avoid	The footprint of Collector Substation A avoids sensitive avifaunal habitats. Avoidance of high sensitivity areas has been achieved.
Minimise	The specialist has provided recommendations to minimise the impact of the development on the avifauna species at all stages of the development. These measures have been incorporated into the generic EMPr. .
Rehabilitate	The specialist mitigation measures address rehabilitation of the site.
Offset	No offsets are required as no high sensitivity avifauna habitat is impacted by Collector Substation A.

3.8 Bat Site Sensitivity

A bat specialist assessment was undertaken. Arcus was appointed to undertake a site sensitivity verification for the bat theme. A copy of the site sensitivity verification report is available in **Appendix 2.6**.

The key findings of the study are as follows:

“No active bat roosts were found during the respective site visit, and no overlap of the development with identified important foraging areas have been identified.

*The site is considered to have a **low sensitivity** for bats, considering the type of infrastructure being proposed, as well as the likely impacts expected to occur. A site visit to the area (5 to 9 December 2021) confirmed a homogenous low grassland landscape, primarily used for cattle grazing, with very few features (bat roosts and important foraging areas) that could be identified as being relevant in terms of impacts to bats, particularly relating to the certain type of infrastructure being assessed, as described above” (Arcus, 2022).*

3.8.1 Bat Specifications

The following environmental specifications apply to the bat theme:

Table 3-12: Bat resources specifications

Standard No.	Specification	Comment
2	Avoid bat roosts that are known and/or have been identified within a 500 m buffer of the proposed alignment.	N/A. Power lines do not form part of the infrastructure for Collector Substation A. In addition, no bat roosts were identified in the broader study area.

3.8.2 Adoption of the Mitigation Hierarchy

The bat site sensitivity verification report confirms that the first level of the mitigation hierarchy, 'avoid', has been achieved as the site of Collector Substation A avoids areas which are sensitive from a bat perspective.

3.9 Civil Aviation Theme

The Civil Aviation theme is rated as low sensitivity by the DFFE screening tool report. The EAP is in agreement with this rating as there are no airfields in close proximity to the site. The South African Civil Aviation Authority (SACAA) have been included in the I&AP database. An application with all relevant supporting documents was submitted by the applicant on the 26th August 2022 via email. A follow-up email was sent on 6th of September. **Note that this application is made outside of NEMA-related processes as it is executed in terms of the Civil Aviation Act (No. 13 of 2009).**

During the public participation process, another email was sent on the 21st of September for comment on the Draft Environmental Sensitivity Report and follow-up emails were sent on the 28th September and 20th October. A follow-up call was also made, but no comment was received within the 30-day public commenting period.

3.9.1 Civil Aviation Specifications

The following environmental specifications apply to the civil aviation theme:

Table 3-13: Civil aviation theme specifications

Standard No.	Specification	Comment
21	Engage with Civil Aviation Authority to identify potential hazards and obstacles to civil aviation installations and conditions as described in the South African Civil Aviation Regulations of 2011.	<p>The Civil Aviation Authority (CAA) is listed as an I&AP. They will be informed of the proposed development and requested to provide comment on the draft ESR. A CAA Obstacles Application was submitted to CAA on 26 August 2022, a follow up on the application was made on 06 September. No response has been received to date. Note that this application is made outside of NEMA-related processes as it is executed in terms of the Civil Aviation Act (No. 13 of 2009).</p> <p>During the public participation process, another email was sent on the 21st September for comment</p>

Standard No.	Specification	Comment
		on the Draft Environmental Sensitivity Report and follow-up emails were sent on the 28 th of September and 20 th of October. A follow-up call was also made, but no comment was received within the 30-day public commenting period. A CAA obstacles application was lodged with the CAA on 26 August 2022. No response to the application has yet been received.
22	The outcomes of the engagement process must be documented in the final environmental sensitivity report, including any restrictions or design requirements.	Copies of correspondence with the CAA have been included in the public participation report (Appendix B).

3.10 Defence Theme

The defence theme was rated as low by the DFFE screening tool. There is no military infrastructure in close proximity to the site, thus a study was not required.

Table 3-14: Defence theme specifications

Standard No.	Specification	Comment
23	Engage with the defence authorities in the event of the power line being located within: <ul style="list-style-type: none"> (a) 1 km of forward airfields, high sites, operational military bases, military training areas, shooting ranges, border posts, all other Department of defence features (including naval bases, housing, offices, workshops); (b) 8 km from air force bases; (c) 10 km from ammunition depots; or (d) 56 km from bombing ranges. 	N/A. Power lines do not form part of the infrastructure for Collector Substation A. A notification on the intent to register the project was however submitted to the Air Force Base Bloemspruit on 11 th August 2022 and a follow up email was sent on 23 rd August 2022. On the 20 th of September, Airforce Bloemspruit confirmed in an email that South African National Defence Force (SANDF) is the commenting authority. During the public participation process, an email was sent to the SANDF on 21 st of September for comment on the Draft Environmental Sensitivity Report and follow-up emails were sent on the 28 th September and 20 th October. A follow-up call was also made, but no comment was received within the 30-day public commenting period
24	The outcomes of the engagement process, where required, must be documented in the final environmental sensitivity report, including any restrictions or design requirements.	Copies of correspondence with SANDF have been included in the public participation report (Appendix B).

3.11 Palaeontology Theme

A Palaeontological Impact Assessment in-line with the requirement of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) was undertaken by ASHA Consulting. A full version of the report is available in **Appendix 2.7**.

Even though only a desktop study was deemed necessary for the study, a site walk through was undertaken by the Archaeologist during the Heritage Impact Assessment field visit from 03 – 07 October 2021.

The screening tool report rated the palaeontology theme as **high sensitivity** for Collector Substation A. Following the on-site sensitivity verification, the footprint for Collector substation A was classified as having **Low** palaeontological sensitivity. If fossils are found during the construction and operation phase, they should be however photographed, removed and handles as per the Fossil Chance Find Protocol which will be incorporated into the EMPr as recommended in the specialist study.



Figure 3-5: Palaeontological sensitivity map (source ASHA Consulting, 2022) showing the footprint of the Collector substation A (blue box). Colours show areas of heritage sensitivity: red (very highly sensitive), orange/yellow (high), green (moderate), blue (low), grey (insignificant/zero).

3.11.1 Adoption of the Mitigation Hierarchy

The Palaeontological specialist study provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-15: Consideration of the mitigation hierarchy

Avoid	Collector Substation A is located in an area of low sensitivity. There are no areas with high paleontological sensitivities in the footprint and therefore no no-go areas have to be considered.
Minimise	The specialist has provided recommendations to minimise the impact of the development on palaeontological resources. These mitigation measures involve minimising the disturbance footprint and impacts of construction, operation and decommissioning activities.
Rehabilitate	The specialist mitigation measures address rehabilitation of areas beyond the development footprint
Offset	As no high sensitivity palaeontological areas will be lost through the construction of Collector substation A, no offset is deemed necessary.

3.11.2 Palaeontological Specifications

The following environmental specifications apply to the Palaeontological theme:

Table 3-16: Palaeontological theme specifications

Standard No.	Specification	Comment
18	Where required, a heritage impact assessment (HIA) will be undertaken in compliance with Section 38(1) to 38(4) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) as well as any Minimum Standards or Guidelines published in relation to Section 38(3) 31 .	A HIA has been undertaken by a specialist (Asha Consulting). A Palaeontological Impact Assessment (Phase 1) was undertaken by a specialist (Prof Bamford) in support of the HIA.
19	The HIA must be submitted to the South African Heritage Resources Agency and applicable Provincial Heritage Authorities for decision making procedures.	The HIA report was uploaded to SAHRIS on 19 th September 2022. No comments have been received from SAHRA to date.
20	The applicable recommendations or requirements from the South African Heritage Resources Agency and applicable Provincial Heritage Authorities must be documented in the final environmental sensitivity report.	The HIA report was uploaded to SAHRIS on 19 th September 2022. No comments have been received from SAHRA to date. The EMPr was however updated with comments provided on Collector Substation B. If comments are received from SAHRA the EMPr will be updated accordingly.

3.12 Plant Species Sensitivity

A botanical assessment was undertaken by Bergwind. A full version of the report is available in **Appendix 2.8**. A site assessment was undertaken when vegetation was in its optimal condition / season from the 20th to 27th of January 2022.

The online screening tool report identifies the grid corridor and site of Collector Substation A footprint as Low sensitivity for the Plant Species Theme. The botanist confirmed that the site is of **low sensitivity**. *No species of conservation concern (SCC), sometimes called Red Data or Red List species were found in the area surveyed (Bergwind, 2022).*

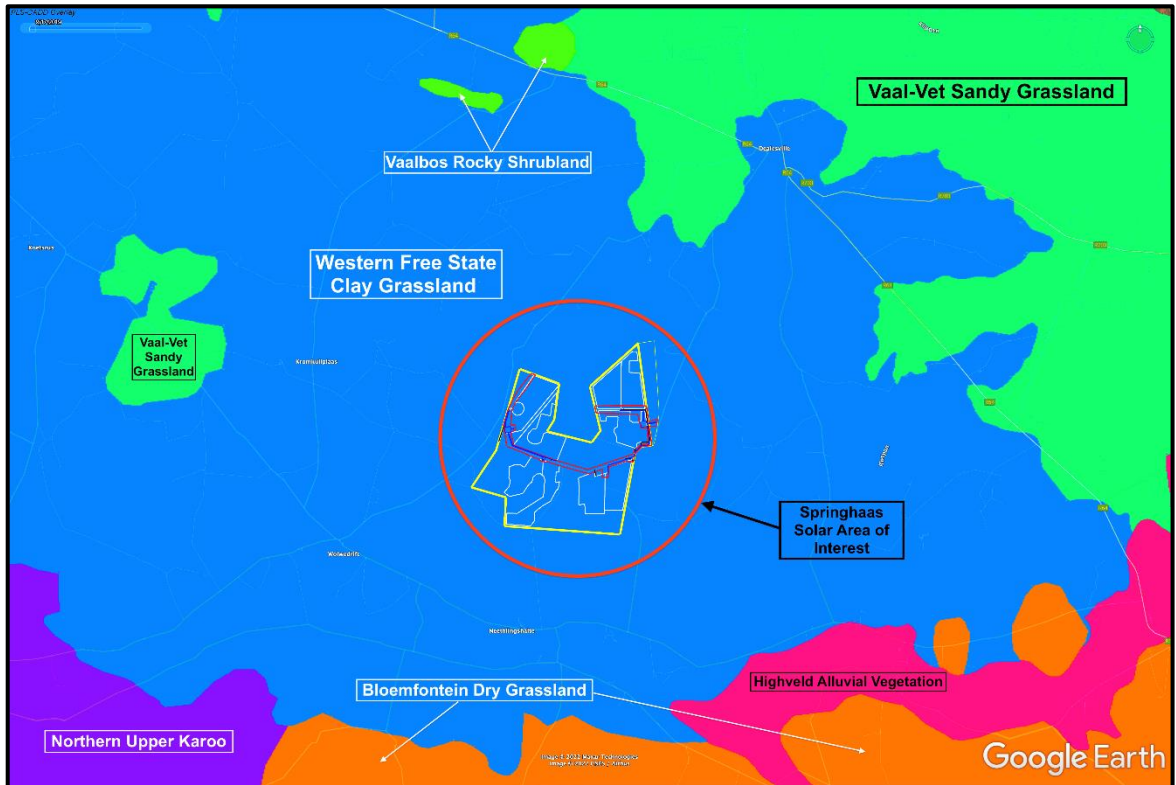


Figure 3-6: A portion of VEGMAP overlaid on Google Earth (source Bergwind, 2022) indicating that the entire Springhaas study area is located in Western Free State Clay Grasslands.

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Figure 3-7: The specialist assessment confirmed that the “low sensitivity” as indicated by the National Environmental Screening Tool (above) was correct.

3.12.1 Adoption of the Mitigation Hierarchy

The botanical assessment report provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 3-17: Consideration of the mitigation hierarchy

Avoid	The footprint of Collector Substation A avoids sensitive plant species. Where <i>Ammocharis coranica</i> bulbs cannot be avoided, they should be relocated.
Minimise	The specialist has provided recommendations to minimise the impact of the development on the avifauna species at all stages of the development. These measures have been incorporated into the generic EMPr. .
Rehabilitate	The specialist mitigation measures address rehabilitation of the site.
Offset	No offsets are required as no high sensitivity habitat is impacted by Collector Substation A.

3.13 Landscape and Visual Sensitivity

A landscape and visual specialist assessment was undertaken. Afzelia Environmental Consultants & Environmental Planning and Design was appointed to undertake a site sensitivity verification for the landscape and visual theme. A site visit was undertaken on 1st and 2nd of October 2021. Seasonality has no impact on the findings. A copy of the site sensitivity verification report is available in **Appendix 2.9**.

No sensitivity rating for the landscape/ visual theme was provided for Collector A by the DFFE Online Screening Tool. Based on the specialist findings in **Appendix 2.9**, Collector A is located in an area of low sensitivity from a landscape/ visual perspective which borders on an area of medium sensitivity.

The development of Collector A will result in relatively low levels of impact post mitigation and the project is anticipated to have a low contribution to cumulative visual impacts. Provided that the proposed mitigation measures are implemented there is no reason from a landscape and visual perspective why Collector Substation A should not be authorised (Afzelia, 2022)

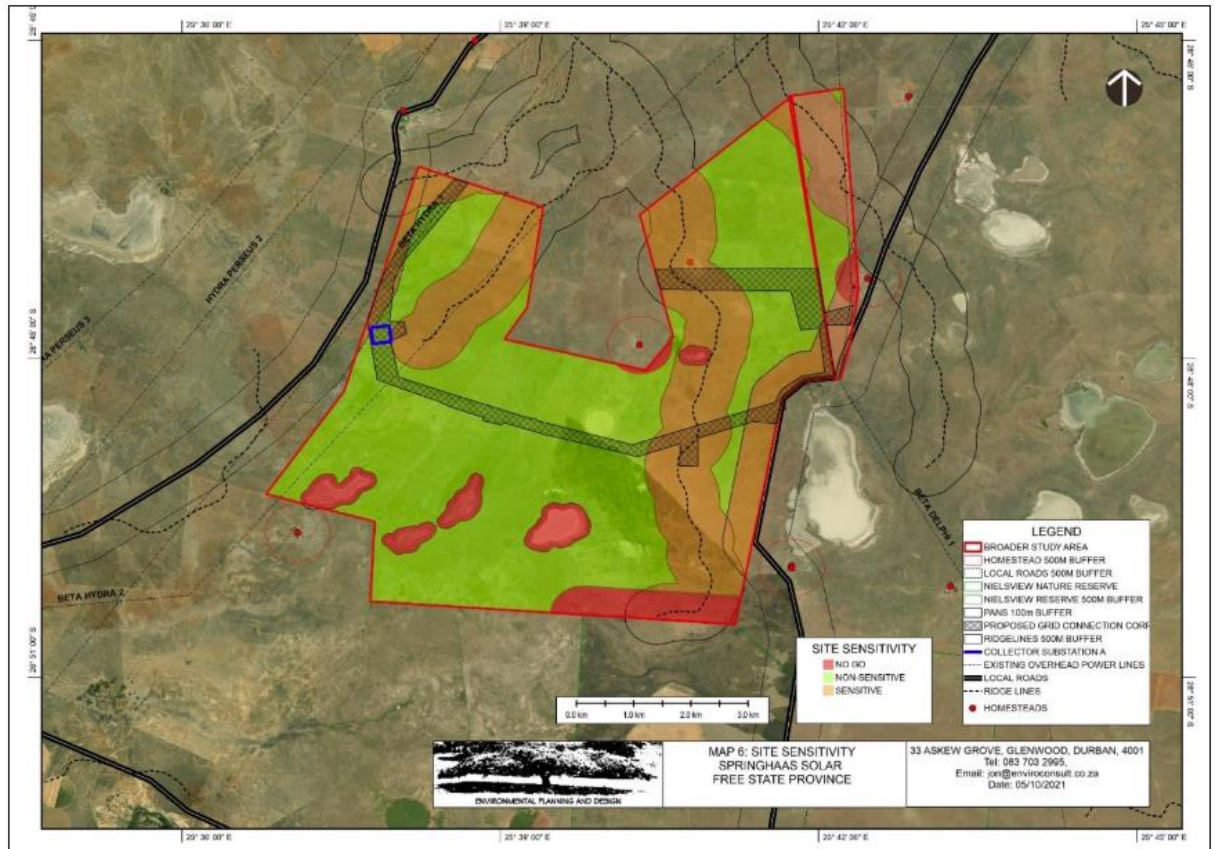


Figure 3-8: Landscape & Visual sensitivity map (source Afzelia, 2022) showing the footprint of the Collector substation A (blue box). Colours show areas of landscape & visual sensitivity: red (no go), orange (sensitive), green (non-sensitive).

3.13.1 Adoption of the Mitigation Hierarchy

The following environmental specifications apply to the Landscape and Visual theme:

Table 3-18: Landscape and visual theme specifications

Standard No.	Specification	Comment
15	Sensitive receptors - including, but not limited to human receptors such as residents, commuters, visitors and tourists, as well as sensitive scenic routes such as wilderness zones 30 must be identified. A visual sensitivity map must be compiled to inform the location of the proposed route of the power line.	This is included in the Landscape and Visual Impact Assessment (LVIA)
16	The precautionary principle must be followed, whereby negotiations must be undertaken with the sensitive human receptors.	The precautionary principle was not applied as the impacts were relatively obvious and there was no concern regarding either significant impact on or loss of a valuable / sensitive landscape highlighted during the assessment process or the public participation process.
17	If the negotiations stipulated in subparagraph 16 of Paragraph A.7 are unsuccessful, the power line must avoid sensitive human receptors and sensitive scenic routes.	Negotiations were not required. It was obvious from the site visit that there were unlikely to be significant sensitivities, and furthermore the public participation process did not highlight significant landscape or visual concerns.

3.13.2 Adoption of the Mitigation Hierarchy

Table 3-19: Landscape and visual theme specifications

Avoid	Collector Substation A is located in an area of low visual impact sensitivity. Avoidance of high sensitivity areas has been achieved.
Minimise	The specialist has provided recommendations to minimise the impact of the development on agricultural resources. These mitigation measures involve minimising the disturbance footprint and impacts of construction, operation and decommissioning activities. These mitigation measures have been incorporated into Part C of the generic EMPr (Appendix 13 of the Registration Form).
Rehabilitate	The specialist mitigation measures address rehabilitation of areas beyond the development footprint
Offset	As no high visual sensitivity land will be lost through the construction of Collector substation A, no offset is deemed necessary.

4 Additional Specialist Studies

In addition to the specialist studies required in terms of the Standard, summarised in Section 3 additional studies were undertaken to confirm the suitability of the site for the development of a Collector Substation. These studies are over and above the requirements of the Standard. As these studies are not required in terms of the Standard preface letters have not been compiled for all of them.

4.1 Socio-Economic Site Sensitivity

A socio-economic assessment was undertaken by Urban-Econ Development Economists. A full version of the report is available in **Appendix 2.10**. The site assessment was undertaken on the 12th October 2021 where the site and its surrounding were visited, seasonality does not impact the findings of this assessment.

No sensitivity rating for the socio-economic theme was provided for Collector A by the DFFE Online Screening Tool. Based on the specialist findings in **Appendix 2.10**, the development of Collector Substation A and associated infrastructure has the potential to stimulate the local economy, create new jobs and contribute to sustainable development.

The development will sterilise some agricultural land currently used for grazing, however the project will not impact on the production of the farm.

From a socio-economic perspective, no objections are made with regard to the proposed project, and it should be approved for development (Urban-Econ, 2022).

4.1.1 Adoption of the Mitigation Hierarchy

The socio-economic assessment report provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr

Table 4-1: Consideration of the mitigation hierarchy

Avoid	The project developer should avoid procuring goods and services outside the local municipality where possible
Minimise	The specialist has provided recommendations to minimise outsourcing of goods and services beyond the local economy. These mitigation measures have been incorporated into Part C of the generic EMPr (Appendix 13 of the Registration Form).
Rehabilitate	No rehabilitation is required.
Offset	No offsets are required.

4.2 Transport Sensitivity

A transport impact assessment was undertaken by the JG Afrika. A full version of the report is available in **Appendix 2.11**. Only a desktop study was undertaken for the assessment as a site visit was not deemed necessary.

No sensitivity rating for the traffic theme was provided for Collector A by the DFFE Online Screening Tool. Based on the specialist findings in **Appendix 2.11**, the significance of the transport impact without mitigation measures throughout all project phases can be rated as very low. The traffic generated during the construction phase, although very low, will be temporary and impacts are considered to be negative and of very low significance after mitigation. The traffic generated during the decommissioning phase will be less than the construction phase traffic and the impact on the surrounding road network will also be considered negative and of very low significance after mitigation.

The potential impacts associated with proposed Springhaas Grid Connection Collector A and associated infrastructure are acceptable from a transport perspective and it is therefore recommended that the proposed facility be authorised (JG Afrika, 2022).

4.2.1 Adoption of the Mitigation Hierarchy

The Traffic specialist study provides mitigation measures to reduce the negative impacts of all project phases. These mitigation measures have been incorporated into Part C of the generic EMPr.

Table 4-2: Consideration of the mitigation hierarchy

Avoid	No roads or access points which are deemed unsuitable for use in the construction, operation or decommissioning of Collector Substation A were identified. The project therefore avoid unsuitable road.
Minimise	The specialist has provided recommendations to minimise the traffic impact of the development. These mitigation measures involve minimising the disturbance footprint and impacts of construction, operation and decommissioning activities. These mitigation measures have been incorporated into Part C of the generic EMPr (Appendix 13 of the Registration Form).
Rehabilitate	The specialist mitigation measures address rehabilitation of areas beyond the development footprint
Offset	As no high traffic and transport related impacts will be caused through the construction of Collector substation A, no offset is deemed necessary.

4.3 Geotechnical Sensitivity

A geotechnical specialist assessment was undertaken. Geotechnical Consult Services was appointed to undertake a site sensitivity verification for the geotechnical theme. A copy of the site sensitivity verification report is available in **Appendix 2.12**.

The key findings of the study are as follows:

The specialist confirms that the DFFE Screening Tool Report for the proposed Springhaas Grid Connection does not identify unfavourable ground conditions as a sensitivity for further assessment. In addition, it is confirmed that the geotechnical impacts of the proposed Springhaas Collector Substation A, will be limited. The substation site is underlain by loose to

medium dense transported soil overlying calcrete and siltstone and or dolerite bedrock, with refusal ranging from 0.5m to 1.5m. The expected excavatability for service trenches and foundations is soft to intermediate to 1.50m across the site as determined during a detailed site investigation. The geotechnical land use potential for the proposed Collector Substation A is developable with precautions due to variable calcrete. Based on the above, it is unlikely that the proposed Springhaas Collector Substation A will have a negative impact on the environment from a geotechnical perspective and the proposed area is regarded as developable with minor precautions due to variable founding and excavatability conditions (Geotechnical Consult, 2022).

4.4 Sensitivity Mapping & Specialist Input

The table below shows the online screening tool rating and the site sensitivity verifications undertaken by various specialists, including comment for each theme.

Table 4-3: Sensitivity mapping and specialist input

Theme	Screening Tool Sensitivity Rating	Specialist Rating	Registration approach	Specialist comment regarding sensitivity
Agricultural	Medium	Low	A specialist was appointed to undertake an agricultural impact assessment including a site sensitivity verification.	Low sensitivity: Collector Substation A area is fully located within an area with low to very low agricultural potential.
Animal species*	High	Medium	A specialist was appointed to undertake an animal species impact assessment including a site sensitivity verification.	Medium sensitivity: The site is situated in continuous natural grassland that has been grazed in places but is classified as medium sensitivity. The chance of <i>Neotis ludwigii</i> occurring on the site is medium-high, noting that this equates to a medium site sensitivity.
Terrestrial biodiversity	Very High	Medium	A specialist was appointed to undertake a terrestrial biodiversity impact assessment including a site sensitivity verification.	Medium: The site is largely located in Western Free State Clay Grassland which is listed as least threatened. All highly sensitive features, pans, wetlands, and rocky outcrops have been avoided.
Aquatic biodiversity	Low	Low	A specialist was appointed to undertake an aquatic biodiversity impact assessment including a site sensitivity verification.	Low sensitivity: The site verification assessment confirmed that there are no aquatic constraints within the area. This assessment thus concurs with the screening tool mapping, that the proposed development area is an area of low Aquatic Biodiversity Combined Sensitivity.
Archaeological and cultural heritage theme	Low	Low	A specialist was appointed to undertake a heritage impact assessment including a site sensitivity verification.	Low sensitivity: No heritage resources were found in the footprint of Collector Substation A. The site is therefore rated as low sensitivity, which is in-line with the findings of the screening tool report.

Theme	Screening Tool Sensitivity Rating	Specialist Rating	Registration approach	Specialist comment regarding sensitivity
Avian	Non provided	Low – Medium	A specialist was appointed to undertake an avifaunal impact assessment including a site sensitivity verification.	Low- Medium: Avifaunal Specialist confirmed the site is of low – medium sensitivity for avifauna. The site has avoided all sensitive spatial features such as pans (including a 250m buffer)
Bats	Non provided	Low	A specialist was appointed to undertake an animals species impact assessment including a site sensitivity verification.	Low: The Ecological Specialist confirmed the site is of Low sensitivity for bats. A site visit confirmed the site has very few features (bat roosts and important foraging areas) that could be identified as being relevant in terms of impacts to bats.
Civil Aviation	Low	N/A	Civil Aviation Authority was notified and an obstacles application was submitted.	N/A. No specialist study necessary
Defence theme	Low	N/A	A notification on the intent to register the project was submitted to the Air Force Base Bloemspruit and the South African National Defence Force	N/A. No specialist study necessary
Palaeontology	High	Low	A specialist was appointed to undertake a palaeontology impact assessment including a site sensitivity verification.	Low: Palaeontologists identified the site to be of low sensitivity as there is lack of any previously recorded fossils from the area.
Plant species	Low	Low	A specialist was appointed to undertake a plant species impact assessment including a site sensitivity verification.	Low: Specialist concluded from field observations that the site is of low sensitivity. No species of conservation concern were noted.
Landscape and visual	N/A	Low	A specialist was appointed to undertake a terrestrial biodiversity impact assessment including a site sensitivity verification.	No sensitivity rating from the DFFE Screening Tool Report. Collector substation A is located in an area classified as low-sensitivity.
Socio-Economic	N/A	Low	A specialist was appointed to undertake a desktop socio-economic impact assessment.	Collector A will have positive socio-economic impacts. No objections to the project were raised.
Transport	N/A	Low	A specialist was appointed to undertake a transport impact assessment including a site	The potential impacts associated with the development of Collector A are acceptable from a transport perspective.

Theme	Screening Tool Sensitivity Rating	Specialist Rating	Registration approach	Specialist comment regarding sensitivity
			sensitivity verification.	
Geotechnical	N/A	Low	A specialist was appointed to undertake a Geotech site sensitivity verification.	The specialist confirms that the DFFE Screening Tool Report for the proposed Springhaas Grid Connection does not identify unfavourable ground conditions as a sensitivity for further assessment.

All the relevant environmental sensitivity themes were evaluated by specialists and all themes were confirmed to be of low, low-medium, or medium sensitivity for Collector substation A.

As indicated in Table 1-12, a number of specialist studies were undertaken that were over and above those required in terms of the Standard. None of these studies presented any reason why the proposed project could not be developed.

5 Impact Assessment

The following section provides an overview of the impacts identified in the various specialist studies. Full impact assessments are available in the specialist reports in Appendix 2.

Note, the information provided below is not new information, it is an amalgamation of the impact assessments as provided in the specialist reports in Appendix 2.

5.1 Pre-Construction

No significant pre-construction impacts were identified by any of the specialist studies.

5.2 Construction Phase

The following impacts will occur during the construction phase of the project.

Table 5-1: Construction phase impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Change in land use from livestock farming to renewable energy transmission	Negative	Low	Very low
Impaired soil health	Negative	Low	Very low
Terrestrial biodiversity and animal species			
Destruction of natural faunal habitat	Negative	Low	Very low
Injury or death to animals	Negative	Low	Very low
Pollution and contamination of natural areas including pans and wetlands	Negative	Low	Very low
Disturbance and displacement to fauna and edge effects to natural grassland	Negative	Low	Very low
Spread of invasive alien plant species	Negative	Low	Very low
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the rural landscape character through the introduction of construction equipment and vehicles and all the associated activities on site	Negative	Very low	Very low

Impact	Status	Pre-mitigation	Post mitigation
Avifauna			
Habitat destruction	Negative	Low	Low
Disturbance of birds	Negative	Very low	Very low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Landscape and visual			
Change of character due to industrialisation of a rural landscape	Negative	Moderate	Moderate
Industrialisation of the view from Nielsview NR due to this project.	Negative	Very low	Very low
Industrialisation of the landscape as seen from local roads	Negative	Very low	Very low
Industrialisation of the landscape as seen from local homesteads	Negative	Low	Low
Light pollution	Negative	Moderate	Very low
Socio-economic			
Increase in production and GDP-R during construction	Positive	Very low	Very low
Creation of employment due to construction activities	Positive	Very low	Very low
Traffic			
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site	Negative	Very low	Very low

5.3 Operation Phase

The following impacts will occur during the operation phase of the project.

Table 5-2: Operation phase impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Soil loss through erosion	Negative	Moderate	Very low
Impaired soil health	Negative	Low	Very low
Terrestrial biodiversity and animal species			
Injury or death to animals (collisions and electrocution)	Negative	Low	Very low
Disturbance to and displacement to fauna and edge effects	Negative	Low	Very low
Spread of invasive alien plant species	Negative	Low	Very low
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the rural landscape through the presence of a powerline	Negative	Low	Low
Avifauna			
Bird electrocutions	Negative	Very low	Very low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Landscape and visual			
Change of character due to industrialisation of a rural landscape	Negative	Moderate	Moderate
Industrialisation of the view from Nielsview NR due to this project.	Negative	Very low	Very low
Industrialisation of the landscape as seen from local roads	Negative	Very low	Very low
Industrialisation of the landscape as seen from local homesteads	Negative	Low	Low

Impact	Status	Pre-mitigation	Post mitigation
Light pollution	Negative	Moderate	Very low
Socio-economic			
Creation of long term employment due to operations	Positive	Very low	Very low
Traffic			
Traffic congestion due to trips generated by the operation of the facility	Negative	Very low	Very low

5.4 Decommissioning Phase

The following impacts will occur during the decommissioning phase of the project.

Table 5-3: Decommissioning phase impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Land use reverting to grazing land	Positive	Very low	Low
Soil loss through erosion	Negative	Moderate	Very low
Impaired soil health due to pollution	Negative	Low	Very low
Terrestrial biodiversity and animal species			
Destruction of natural faunal habitat	Negative	Low	Very low
Injury or death to animals	Negative	Low	Very low
Pollution and contamination of natural areas including pans and wetlands	Negative	Low	Very low
Disturbance and displacement to fauna and edge effects to natural grassland	Negative	Low	Very low
Spread of invasive alien plant species	Negative	Low	Very low
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the rural landscape character through the introduction of construction equipment and vehicles and all the associated activities on site	Negative/ Positive	Very low	Very low
Avifauna			
Disturbance of birds	Negative	Very low	Very low
Palaeontology			
Destruction of fossils in the footprint	Negative	Very low (negative)	Very low (positive)
Landscape and visual			
Change of character due to industrialisation of a rural landscape	Negative	Moderate	Moderate
Industrialisation of the view from Nielsview NR due to this project.	Negative	Very low	Very low
Industrialisation of the landscape as seen from local roads	Negative	Very low	Very low
Industrialisation of the landscape as seen from local homesteads	Negative	Low	Low
Light pollution	Negative	Moderate	Very low
Socio-economic			
Creation of long term employment due to decommissioning activities	Positive	Very low	Very low
Traffic			
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site	Negative	Very low	Very low

5.5 Cumulative Impacts

Cumulative impact assessments take into consideration the impact of the proposed development in addition to other proposed developments in the immediate surrounding area.

In the case of Collector Substation A, the cumulative impact assessment was undertaken at two levels

1. The impact of development of all the proposed Springhaas grid connection infrastructure
2. The impact of the development of six solar PV clusters consisting of 23 individual solar PV facilities within a 30km radius of the grid connection corridor.

In addition to Collector Substation A there is one further collector substation (Collector Substation B), 7 overhead powerlines each with a capacity of up to 132kV and two LiLo connections with a capacity of up to 400kV which form part of the Springhaas grid connection infrastructure. The cumulative impact assessment assesses the impact of the development of all the proposed grid infrastructure.

5.5.1 Cumulative Impact Assessment – Grid Connection

(a) Pre-construction

No significant pre-construction impacts were identified.

(b) Construction

The following impacts will occur during the construction phase of the project.

Table 5-4: Construction phase cumulative impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Increased areas of land use change from livestock farming to energy transmission	Negative	Moderate	Low
Soil loss through erosion	Negative	Moderate	Very low
Larger areas affected by soil compaction	Negative	Moderate	Very low
Increased risk of soil pollution	Negative	Moderate	Very low
Terrestrial biodiversity and animal species			
Environmental degradation, disturbance to fauna and loss of habitat connectivity	Negative	Moderate	Low
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the cultural landscape	Negative	Moderate	Low
Avifauna			
Habitat destruction	Negative	Low	Low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Socio-economic			
Socio-economic impact - employment	Positive	Low	Low
Traffic			
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site	Negative	Moderate	Low

(c) Operation Phase

The following impacts will occur during the operation phase of the project.

Table 5-5: Operation phase cumulative impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Soil loss through erosion	Negative	Moderate	Very low
Impaired soil health	Negative	Very low	Very low
Terrestrial biodiversity and animal species			
Environmental degradation, disturbance to fauna and loss of habitat connectivity	Negative	Moderate	Low
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the cultural landscape	Negative	Moderate	Low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Landscape and visual			
Change of character due to industrialisation of a rural landscape	Negative	High*	High*
Industrialisation of the view from Nielsview NR due to this project.	Negative	High*	High*
Industrialisation of the landscape as seen from local roads	Negative	High*	High*
Industrialisation of the landscape as seen from local homesteads	Negative	High*	High*
Light pollution	Negative	High*	High*
Socio-economic			
Socio-economic impact - employment	Positive	Low	Low
Traffic			
Traffic congestion due to trips generated for facility operations	Negative	Moderate	Low

*visual impacts are rated as high significance for site and a 10km radius due to the visibility of infrastructure. The contribution of Collector Substation A to the cumulative visual impact ranges from very low negative to low negative.

(d) Decommissioning Phase

The following impacts will occur during the decommissioning phase of the project.

Table 5-6: Decommissioning phase cumulative impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Land use reverting to grazing land	Positive	Very low	Low
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the cultural landscape	Negative	Low	Very low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Socio-economic			
Socio-economic impact - employment	Positive	Low	Low
Traffic			

Impact	Status	Pre-mitigation	Post mitigation
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site	Negative	Moderate	Low

5.5.2 Cumulative Impact Assessment – 30km Radius

(a) Pre-construction

No significant pre-construction impacts were identified.

(b) Construction

The following impacts will occur during the construction phase of the project.

Table 5-7: Construction phase cumulative impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Increased areas of land use change from livestock farming to energy transmission	Negative	Moderate	Low
Soil loss through erosion	Negative	Moderate	Very low
Larger areas affected by soil compaction	Negative	Moderate	Very low
Increased risk of soil pollution	Negative	Moderate	Very low
Terrestrial biodiversity and animal species			
Environmental degradation, disturbance to fauna and loss of habitat connectivity	Negative	High	Moderate
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the cultural landscape	Negative	Moderate	Low
Avifauna			
Habitat destruction	Negative	Moderate	Moderate
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Socio-economic			
Socio-economic impact - employment	Positive	Moderate	Moderate
Traffic			
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site	Negative	High	Moderate

(c) Operation Phase

The following impacts will occur during the operation phase of the project.

Table 5-8: Operation phase cumulative impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Soil loss through erosion	Negative	Moderate	Very low
Impaired soil health	Negative	Low	Very low
Terrestrial biodiversity and animal species			
Environmental degradation, disturbance to fauna and loss of habitat connectivity	Negative	High	Moderate
Aquatic biodiversity and species			

Impact	Status	Pre-mitigation	Post mitigation
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the cultural landscape	Negative	Moderate	Low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Landscape and visual			
Landscape change	Negative	Moderate	Moderate
Impact on protected areas	Negative	Moderate	Moderate
Impact on local roads	Negative	Moderate	Moderate
Socio-economic			
Socio-economic impact - employment	Positive	Moderate	Moderate
Traffic			
Traffic congestion due to trips generated for facility operations	Negative	Moderate	Low

(d) Decommissioning Phase

The following impacts will occur during the decommissioning phase of the project.

Table 5-9: Decommissioning phase cumulative impacts

Impact	Status	Pre-mitigation	Post mitigation
Agriculture and soils			
Land use reverting to grazing land	Positive	Very low	Low
Terrestrial biodiversity and animal species			
Environmental degradation, disturbance to fauna and loss of habitat connectivity	Negative	High	Moderate
Aquatic biodiversity and species			
Aquatic habitat disturbance	Negative	Very low	Very low
Archaeological and heritage resources			
Alteration of the cultural landscape through the presence of construction vehicles and activities	Negative	Moderate	Low
Palaeontology			
Destruction of fossils in the footprint	Negative/ Positive	Very low (negative)	Very low (positive)
Socio-economic			
Socio-economic impact - employment	Positive	Moderate	Moderate
Traffic			
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site	Negative	High	Moderate

5.6 Impact Statement

5.6.1 Pre-Construction Phase

No significant pre-construction impacts were identified by the specialist team or EAP.

5.6.2 Construction Phase

Construction phase impacts would be short term in duration, 6 – 18 months. All of the negative construction phase impacts were rated as low or very low post mitigation with the exception of the visual impact associated with the change in character of the area due to industrialisation which was rated as a moderate negative impact.

The impact on palaeontological resources, destruction of fossils within the footprint of the development as a result of construction activities was rated as a negative impact of very low significance pre-mitigation and as a positive impact of very low significant post mitigation. If mitigation is correctly implemented any fossils uncovered would be reported via a palaeontologist and curated and stored at a museum or palaeontology department at a university. This would be a positive impact as it would contribute to a fossil record.

The construction phase of the project would result in an increase in spend on gross domestic product and increased short term local employment. Both of these impacts are rated as positive impacts of very low significance. It is important to note that the purpose of Collector Substation A is to connect Springhaas Solar Facility 1,3 and 6 to the national grid. In order to realise the positive impacts associated with the solar PV facilities, Collector Substation A is required.

No fatal flaws were identified with the construction phase of the project.

5.6.3 Operational Phase

Operational phase impacts would be long term in duration, in excess of 5 years. All of the negative operational phase impacts were rated as low or very low post mitigation with the exception of the visual impact associated with the change in character of the area due to industrialisation which was rated as a moderate negative impact. No fatal flaws were identified with the construction phase of the project.

Impacts on palaeontological resources, destruction of fossils within the footprint of development as a result of maintenance activities was rated as a negative impact of very low significance pre-mitigation and as a positive impact of very low significant post mitigation. If mitigation is correctly implemented any fossils uncovered would be reported via a palaeontologist and curated and stored at a museum or palaeontology department at a university. This would be a positive impact as it would contribute to a fossil record.

The operational phase would result in long term local employment. This impact is rated as positive of very low significance. It is important to note that the purpose of Collector Substation A is to connect Springhaas Solar Facilities 1, 3 and 6 to the national grid. In order to realise the positive impacts associated with the solar PV facilities Collector Substation A is required.

5.6.4 Cumulative Impact – Grid Connection Level

The cumulative impact at a grid level refers to the combined impact of all eleven grid connection components being developed simultaneously. In reality not all of the grid connection infrastructure may be required. The grid connection infrastructure is required to connect the proposed Springhaas Solar PV facilities to the national grid. If these projects are not awarded preferred bidder status, move forward to financial close and are constructed the grid infrastructure would not be required.

The negative cumulative impacts associated with the construction and decommissioning phases of the development were all rated as low or very low significance post mitigation.

The negative cumulative impacts of the operation phase of the grid connection projects were also all rated as low or very significance post mitigation with the exception of visual impacts which all remained as high significance impacts post mitigation.

The cumulative impact of job creation was rated as a positive impact of low significance at each of the project phases due to short term job creation during the construction and decommissioning phases and long-term job creation during the operational phase.

5.6.5 Cumulative Impact – 30km radius

The cumulative impact was assessed for an area of 30km surrounding the grid connection corridor. There are six solar PV clusters consisting of 23 individual solar PV facilities and within a 30km radius of the Springhaas grid connection corridor. Each of the 23 solar PV facilities would also require supporting infrastructure (powerlines, substations, access roads) to allow them to connect into the national grid. The cumulative impact assessment is undertaken on the assumption that all 23 solar PV facilities and supporting infrastructure would be constructed. It is unlikely that this would happen as each of the solar PV facilities, if going through the Independent Power Producer Procurement Programme would need to be selected as a preferred bidder and reach financial close. In reality, it is highly unlikely that all of the project would be constructed.

The post mitigation ratings of negative cumulative impacts of the construction, operation and decommissioning phases of the various proposed development within a 30km radius of the grid connection corridor ranged from very low to moderate significance. The impacts rated as moderate relate to ecological impacts from loss of habitat and disturbance of fauna which would occur if all the solar PV facilities and associated infrastructure was developed. Traffic impacts were also rated as a negative impact of moderate significance, if all 23 solar PV facilities and associated infrastructure were constructed simultaneously there would be moderate traffic impact.

A positive socio-economic impact of moderate significance is anticipated for all project phases due to the combined employment opportunities from the various developments.

6 Public Participation Process

The Public Participation Process (PPP) **has concluded**. Public participation is the involvement of all parties who potentially have an interest in a development or project or may be affected by it.

The principal objective of public participation is to inform and enrich decision-making. These principles include the provision of sufficient and transparent information to I&APs on an on-

going basis, to allow them to comment and ensure the participation of historically disadvantaged individuals, including women, the disabled and the youth.

The PPP aimed to:

- Ensure all relevant key stakeholders and I&APs have been identified and invited to engage in the ESR Process;
- Raise awareness, educate and increase understanding of stakeholders about the proposed project, the affected environment and the environmental process being undertaken;
- Create open channels of communication between key stakeholders and I&APs and the project team;
- Provide opportunities for key stakeholders and I&APs to identify issues or concerns and propose suggestions for enhancing potential benefits;
- Provide opportunities for key stakeholders and I&APs to provide suggestions in terms of mitigating the severity of potential impacts that may result from the project; and
- Accurately document all opinions, concerns and queries raised regarding the project.

6.1.1 Identification of Key Stakeholders and I&APs

The identification and registration of I&APs is an on-going activity during the course of the ESR Process. GIBB Environmental has developed, and will maintain and update, an electronic I&AP database for the project during the ESR phase (see **Appendix B**, note the I&AP database is excluded from document made available to the public). As such, I&APs were identified using the following:

- Existing I&AP databases obtained from the Applicant (where available / applicable);
- Existing I&AP databases for other projects within the study area (where available);
- Placement of an advertisement in two local newspapers (The Express 10 August 2022 and Noordkaap Bulletin 11 August 2022) in English and Afrikaans;
- Placement of site notice boards around the grid connection corridor and posters in Dealesville on 07 February 2023

As indicated above an I&AP database is included in **Appendix B**. I&APs representing the following sectors of society were identified:

- National, provincial and local government;
- Affected landowners/ occupiers
- Adjacent landowners/ occupiers
- Ward councillors and committees;
- Community Based Organisations;
- Non-Governmental Organisations;
- Business, Religious and Civic Organisations;
- Service Providers; and
- Relevant Parastatals.

6.1.2 Public Announcement of the Project

Interested and Affected Parties (I&APs), as listed above, were informed of the Proposed Development and were requested to register, review the BID and Draft Environmental Sensitivity Report and submit their comments to GIBB Environmental by means of the following:

- Publication of newspaper advertisements in the Express and Noordkaap Bulletin (**Appendix B**);
- Placement of site notice boards and posters; and
- Distribution of notification letters by email.

6.1.3 Environmental Sensitivity Report for Public Review

The BID was made available on GIBB's website on 11 August 2022 and potential I&APs were informed in writing of the availability thereof and procedure to follow to register as an I&AP. The draft ESR were made available electronically on GIBB's website for the 30-day public participation period from 21 September – 22 October 2022.

A hard copy of the DESR was also made available at Tshwaranang (Dealesville) Public Library.

6.1.4 Draft Environmental Sensitivity Report

The draft ESR was made available for a 30-day review period from 21st September – 21st October 2022 and from 07 February 2023 to 08 March 2023.

A hardcopy of the draft ESR was made available at the Tshwaranang (Dealesville) Primary Library, Potlaki Street, Tshwaranang, Dealesville, 9341

The draft ESR was available electronically for download from the GIBB Environmental website. It was communicated to I&APs that CD copies of the report could be made available. No requests were received.

All comments made on the draft ESR during the first public review period have been captured and adequately responded to in the Comments and Response Report (CRR) (Appendix B).

All comments received during the second review period from I&APs have been addressed in the revised final ESR (**this report**).

6.1.5 Final Environmental Sensitivity Report

The revised final ESR (**this report**) has been compiled and submitted to the DFFE for decision making upon completion of the public participation process of the draft ESR.

The revised final ESR (**this report**) has been made available for I&APs for information purposes.

Registered I&APs will be notified of the availability of the revised final ESR. Registered I&APs will then be notified of the decision issued by the DFFE within the legislated timeframe.

6.1.6 Compliance of Public Participation Process with NEMA EIA Regulation Requirements

All relevant aspects of Chapter 6, Regulation 41 of the EIA Regulations 2014, as amended has been complied with as follows:

Table 6-1: Summary of public participation process undertaken

NEMA PPP requirement	Actions undertaken
(d) Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of (i) the site where the activity to which the application or proposed application relates is or is to be undertaken	This was done on 06 & 07 February 2023, with the 30-day comment period on the DESR from 07 February to 08 March 2023
(e) Giving written notice, in any of the manners provided for in section 47D of the Act, to (i) the occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site where the activity is to be undertaken, the owner or person in control of the site where the activity is or to be undertaken. (iii) the municipal councillor of the ward in which the site and alternative is situated and any organisation of rate payers that represent the community in the area (iv) the municipality which has jurisdiction in the area (v) any organ of state having jurisdiction in the area (vi) any other party as required by the competent authority.	This was done on 11 August 2022, this notification informed potential I&APs of the availability of the BID and the procedure to be followed to register as an I&AP. A second notification was sent to I&APs on 21 September to indicate the availability of the DESR with the 30-day comment period on the DESR from 21 September – 21 October 2022. DFFE were provided with a 30 day period to review the DESR from 07 February to 08 March 2023. This report was no materially different to the version provided to I&APs from 21 September – 21 October 2022. In addition, engagement was undertaken with several parties including VULPRO, BirdLife SA, EWT and DFFE Biodiversity and Conservation Directorate. Where these parties commented within the allocated 30 day period comments have been captured in the comments and responses report (Appendix 14).
(f) Placing an advertisement in- (j) One local newspaper; or (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations	Adverts were placed two local newspapers in both English and Afrikaans: 10 August 2022 – Express 11 August 2022 – Noordkaap Bulletin These newspaper adverts informed potential I&APs of the availability of the BID and the procedure to be followed to register as an I&AP.

7 References

- Afzelia Environmental Consultants & Environmental Planning and Design (2022). Landscape & visual Impact assessment report: The proposed construction of Springhaas collector A substation a collector/ switching/ transformation substation with a capacity of up to 400kV and associated infrastructure, Bloemfontein, Free State.
- Arcus Consultancy Services (2022). Basic assessment letter for the proposed construction of Springhaas Collector A substation, a collector/switching/transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State
- ASHA Consulting (2022). Heritage impact assessment: Proposed development of Collector Substation A within the proposed Springhaas grid connection corridor near Dealesville in the Free State province.
- Bergwind Botanical Surveys & Tours (2022). Botanical compliance statement for Springhaas collector substation A, a collector/switching/transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Free State
- BlueScience (2022). Aquatic biodiversity and species specialist assessment: The proposed development of the Springhaas Collector sub-station A, a collector/switching/transformation substation with a capacity of up to 400 kV near Dealesville, Bloemfontein, Free State
- Cossypha Ecological (2022). Terrestrial Biodiversity Assessment and Animal Species Impact Assessment Report: Proposed construction of the Springhaas and associated infrastructure near Dealesville in the Free State Province.
- Department of Forestry, Fisheries and the Environment (2022). Standard for the Development and Expansion of Power Lines and Substations within Identified Geographical Areas Revision 2. Prepared by the CSIR and SANBI for the Strategic Environmental Assessment for the Expansion of Electricity Grid Infrastructure Corridors in South Africa.
- Geotechnical Consult Services (2022). Geotechnical site sensitivity assessment: The proposed construction of Springhaas collector substation A collector/ switching/ transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State
- JG Afrika (2022). Transport impact assessment: The proposed construction of Springhaas collector A substation, a collector/ switching/ transformation substation with a capacity of up to 400 kV and associated infrastructure, near Dealesville, Free State
- Marion Bamford Consulting (2022). Palaeontological impact assessment: Palaeontological impact assessment for the proposed construction of Springhaas collector substation A, a collector/ switching/ transformation substation with a capacity of up to 400kV and associated infrastructure, Bloemfontein, Free State.
- Terra Africa Consult (2022). Agricultural impact assessment for the proposed development of the Collector substation A, a collector/switching/transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State
- Urban-Econ Development Economists (2022). Socio-Economic impact assessment: The proposed construction of Springhaas collector A substation, a collector/switching/transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State
- Wildskies Ecological Services (2022). Avifaunal impact Assessment: The proposed construction of Springhaas collector substation A, a collector/ switching/ transformation substation with a capacity of up to 400kV and associated infrastructure, near Dealesville, Bloemfontein, Free State.