



**Appendix A:**

**Specialist Terms of Reference**



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

**TERMS OF REFERENCE (ToR) FOR SPECIALIST STUDIES**

**1 INTRODUCTION**

The purpose of the Terms of Reference (ToR) is to provide the specialist team with a consistent approach to the specialist studies that are required as part of the Basic Assessment (BA) process being conducted in respect of the proposed construction of the 132 kV powerlines. This will enable comparison of environmental impacts, efficient review, and collation of the specialist studies into the BA report, in accordance with the latest requirements of the EIA Regulations, 2014 (as amended).

**2 PROCESS**

In terms of the Environmental Impact Assessment (EIA) Regulations, which were published on 04 December 2014 [GNR 982, 983, 984 and 985] and amended on 07 April 2017 [promulgated in Government Gazette 40772 and Government Notice (GN) R326, R327, R325 and R324 on 7 April 2017], various aspects of the proposed development are considered listed activities under GNR 327 and GNR 324 which may have an impact on the environment and therefore require authorisation from the National Competent Authority (CA), namely the Department of Environment, Forestry and Fisheries (DEFF), prior to the commencement of such activities. Specialist studies have been commissioned to assess and verify the power line under the new Gazetted specialist protocols.

**3 PROJECT BACKGROUND**

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

## 4 PROJECT DESCRIPTION

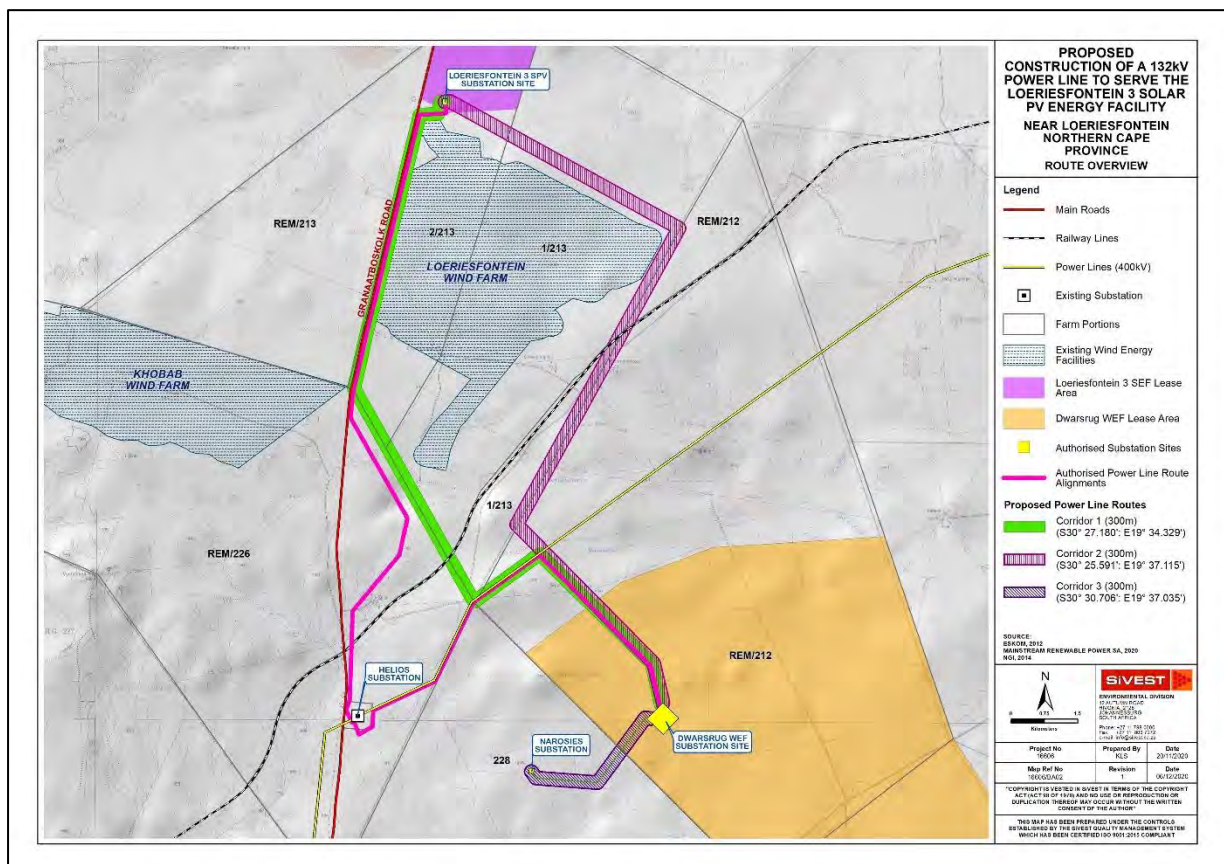
Mainstream are proposing the construction of a 132 kV overhead powerlines between the proposed (and authorised) 100MW Loeriesfontein 3 PV SEF (12/12/20/2321/2/AM4) and proposed (and authorised) 140MW Dwarsrug WEF (14/12/16/3/3/2/690/AM4); and between the Dwarsrug WEF and the proposed (and authorised) Narosies Substation (12/12/20/2049/3) located near Loeriesfontein in the Northern Cape Province of South Africa.

The powerline from the Loeriesfontein 3 PV SEF to the Dwarsrug WEF is proposed to link the SEF to the WEF in order to create a hybrid renewable energy facility, which will ensure that electricity is constantly supplied to the national grid by at least one or both technologies (namely solar PV and wind), at any given time. The powerline from the Dwarsrug WEF is proposed to tie the, above mentioned, hybrid renewable energy facility into the approved Narosies substation to feed the National grid.

## 5 BA ALTERNATIVES

### 5.1 Route alternatives

Two (2) powerline alternatives will be assessed to link the Loeriesfontein 3 PV SEF to the Dwarsrug WEF and a single powerline is proposed to link these two (2) facilities to the National grid from the Dwarsrug WEF. All three (3) powerline route alignments will be assessed within a 300m wide assessment corridor (150m on either side of powerline). The powerline alternatives which are being proposed and assessed are shown in **Figure 1** below.



**Figure 1:** Powerline alternatives proposed to link Loeriesfontein 3 PV SEF to Dwarsrug WEF as well single power line proposed to link two (2) facilities to National grid from Dwarsrug WEF

The layout alternatives are being considered and assessed as part of the BA process and will be refined to avoid identified environmental sensitivities.

## **5.2 'No-go' alternative**

The 'no-go' alternative is the option of not constructing the powerline project, which would prevent the realization of the hybrid facility and thus prevent electricity generated from renewable sources being fed into the national grid. This alternative would result in no additional environmental impact other than that assessed during the BA for the Renewable Energy (RE) facilities.

The 'no-go' option is a feasible option; however, this would prevent the hybrid facility from contributing to the environmental, social and economic benefits associated with the development of the renewables sector.

## **6 SPECIALIST STATEMENT / REPORT REQUIREMENTS**

The specialist assessments should include the following sections:

### **6.1 Project Description**

The specialist report must include the project description as provided above.

### **6.2 Terms of Reference (ToR)**

The terms of reference for the appointment has two elements (1), Site Verification Report and (2) a specialist study / compliance statement as per Government Notice 320 of 20 March 2020 and Government Notice 1150 of 30 October 2020. The specialist report must include an explanation of the Terms of Reference (ToR) applicable to the specialist study. In addition, if the report is written as per Appendix 6 of the EIA Regulations, 2014 (as amended), a table must be provided at the beginning of the specialist report listing the requirements for specialist reports in accordance with and cross referencing these requirements with the relevant sections in the report. An MS Word version of this table will be provided by SiVEST.

### **6.3 Legal Requirements and Guidelines**

The specialist report must include a thorough overview of all applicable best practice guidelines, relevant legislation and authority requirements.

### **6.4 Methodology**

The report must include a description of the methodology applied in carrying out the specialist assessment.

### **6.5 Specialist Findings / Identification of Impacts**

The report must present the findings of the specialist studies and explain the implications of these findings for the proposed development (e.g. permits, licenses etc.). This section of the report should also identify any sensitive and/or 'no-go' areas on the development site which should be avoided.

The reports should be accompanied with spatial datasets (shapefiles, KML) and accompanying text documents if required.

### **6.6 Impact Rating Methodology**

The impacts of the proposed development (during the Construction, Operation and Decommissioning phases) are to be assessed and rated according to the methodology developed by SiVEST. Specialists will be required to make use of the impact rating matrix provided (in Excel format) for this purpose.

**Please note that the significance of Cumulative Impacts should also be rated in this section.** Both the methodology and the rating matrix will be provided by SiVEST.

Please be advised that this section must include mitigation measures aimed at minimising the impact of the proposed development.

## **6.7 Input to The Environmental Management Program (EMPr)**

The report must include a description of the key monitoring recommendations for each applicable mitigation measure identified for each phase of the proposed development for inclusion in the Environmental Management Program (EMPr) or Environmental Authorisation (EA).

Please make use the Impact Rating Table (in Excel format) provided for each of the phases (i.e. Design, Construction, Operation and Decommissioning).

## **6.8 Cumulative Impact Assessment**

A cumulative impact assessment must be undertaken for the proposed development in order to determine the cumulative impact that will materialise should other Renewable Energy Facilities (REFs) with their associated power lines and substations (i.e. powerline infrastructure) and large-scale industrial developments be constructed within 35km of the proposed development.

The cumulative impact assessment must contain the following:

- A cumulative environmental impact statement noting whether the overall impact is acceptable; and
- A review of the specialist reports undertaken for other REFs and powerline infrastructure developments, including an indication of how the recommendations, mitigation measures and conclusion of the studies have been considered.

In order to assist the specialists in this regard, SiVEST will provide the following documentation / data:

- A summary table listing all REFs and associated powerline infrastructure developments identified within 35km of the proposed development;
- A map showing the location of the identified REFs and their associated powerlines; and
- Relevant KML files.

***It should be noted that it is the specialist's responsibility to source the relevant EIA / BA reports that are available in the public domain. SiVEST will assist, where possible.***

The list of renewable energy facilities that must be assessed as part of the cumulative impact will be provided.

## **6.9 'No Go' Alternative**

Consideration must be given to the 'no-go' option in the BA process. The 'no-go' option assumes that the site remains in its current state, i.e. there is no construction of a power line in the proposed project area and the *status quo* would proceed.

## **6.10 Comparative Assessment of Alternatives**

As mentioned, two (2) powerline alternatives are proposed to link the Loeriesfontein 3 PV SEF to the Dwarsrug WEF and a single powerline is proposed to link these two (2) facilities to the National grid from the Dwarsrug WEF. All three (3) powerline route alignments will be assessed within a 300m wide assessment corridor (150m on either side of powerline).

As such, specialists are required to undertake a comparative assessment of the powerline routes (including alternatives) mentioned above as per the latest table provided by SiVEST.

## 6.11 Conclusion / Impact Statement

The conclusion section of the specialist reports must include an **Impact Statement**, indicating whether any fatal flaws have been identified and ultimately whether one or both of the proposed powerlines can be authorised or not (i.e. whether EA should be granted for one or both/ issued or not).

## 6.12 Executive Summary

Specialists must provide an Executive Summary which summarises the findings of their report to allow for easy inclusion in the BA reports (Draft and Final BA Reports).

# 7 DELIVERABLES

All specialists will need to submit the following deliverables:

- 1 x Site Verification Report and Specialist Report / Compliance statement no later than the 09<sup>th</sup> December 2020;
- A copy of the specialist's Curriculum Vitae (CV);
- A copy of the Specialist Declaration of Interest (DoI) form, containing original signatures. This form will be provided to the specialists. **Please note that the undertaking / affirmation under oath section of the report must be signed by a Commissioner of Oaths**; and
- All data relating to the studies, such as shape files, photos and maps (see **Section 8** below).

# 8 GENERAL SUBMISSION REQUIREMENTS

Please ensure that your specialist report includes the following:

- The Site Verification Report and Compliance Statement / Specialist Report must in line with the DEFF Screening Tool Specialist Theme Protocols (As gazetted on 20 March 2020 and 30 October 2020), should they apply. Should they not apply, the report must be written in accordance with Appendix 6 of the EIA Regulations, 2014 (as amended);
- A table cross referencing how the requirements for specialist reports have been adhered to according to Appendix 6 of the EIA Regulations, 2014 (as amended) must be provided at the beginning of your report. An MS Word version will be provided by SiVEST;
- A thorough overview of all applicable legislation, policies, guidelines. etc.;
- Identification of sensitive and/or 'no-go' areas to be avoided;
- Recommend mitigation measures in order to minimise the impact of the proposed development;
- Provide implications of specialist findings for the proposed development (e.g. permits, licenses etc.);
- Specify if any further assessment will be required;
- Include an Impact Statement, concluding whether one or both of the the proposed powerlines development can be authorised or not (i.e. whether EA should be granted for one or both/ issued or not); and
- A copy of the specialist's Curriculum Vitae (CV);
- A copy of the Specialist Declaration of Interest (DoI) form, containing original signatures, must be appended to all Draft and Final Reports. This form will be provided to the specialists. **Please note that the undertaking / affirmation under oath section of the report must be signed by a Commissioner of Oaths.**

## 9 DEADLINES AND REPORT SUBMISSION

- Site Verification Report and Compliance Statement / Specialist Report no later than 09 December 2020.
- Any changes arising based on stakeholder engagement no later than 12 January 2020

## 10 REPORT / DATA FORMATS

- All specialist reports must be provided in MS Word format;
- Where maps have been inserted into the report, SiVEST will require a separate map set in PDF format for inclusion in our submission;
- Where figures and/or photos have been inserted into the report, SiVEST will require the original graphic in .jpg format for inclusion in our submission; and
- Delineated areas of sensitivity must be provided in either ESRI shape file format or Google Earth KML format. ***Sensitivity classes must be included in the attribute tables with a clear indication of which areas are 'No-Go' areas.***



## **Appendix B:**

# **Specialist CV & Declaration of Independence**



<b>Name</b>	Kerry Lianne Schwartz
<b>Profession</b>	GIS Specialist
<b>Name of Firm</b>	SiVEST SA (Pty) Ltd
<b>Present Appointment</b>	Senior GIS Consultant: Environmental Division
<b>Years with Firm</b>	32 Years
<b>Date of Birth</b>	21 October 1960
<b>ID No.</b>	6010210231083
<b>Nationality</b>	South African



### Professional Qualifications

BA (Geography), University of Leeds 1982

### Membership to Professional Societies

South African Geomatics Council – GTc GISc 1187

### Employment Record

1994 – Present	SiVEST SA (Pty) Ltd - Environmental Division: GIS/Database Specialist.
1988 - 1994	SiVEST (formerly Scott Wilson Kirkpatrick): Town Planning Technician.
1984 – 1988	Development and Services Board, Pietermaritzburg: Town Planning Technician.

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent

### Key Experience

Kerry is a GIS specialist with more than 20 years' experience in the application of GIS technology in various environmental, regional planning and infrastructural projects undertaken by SiVEST.

Kerry's GIS skills have been extensively utilised in projects throughout South Africa in other Southern African Countries. These projects have involved a range of GIS work, including:

- Design, compilation and management of a spatial databases in support of projects.
- Collection, collation and integration of data from a variety of sources for use on specific projects.
- Manipulation and interpretation of both spatial and alphanumeric data to provide meaningful inputs for a variety of projects.
- Production of thematic maps and graphics.
- Spatial analysis and 3D modelling.

Kerry further specialises in visual impact assessments (VIAs) and landscape assessments.

## Projects Experience

### STRATEGIC PLANNING PROJECTS

Provision of database, analysis and GIS mapping support for the following:

- Database development for socio-economic and health indicators arising from Social Impact Assessments conducted for the Lesotho Highlands Development Association – Lesotho.
- Development Plan for the adjacent towns of Kasane and Kazungula - Ministry of Local Government, Land and Housing (Botswana).
- Development Plan for the rural village of Hukuntsi - Ministry of Local Government, Land and Housing (Botswana).
- Integrated Development Plans for various District and Local Municipalities including:
  - Nquthu Local Municipality (KwaZulu-Natal)
  - Newcastle Local Municipality (KwaZulu-Natal)
  - Amajuba District Municipality (KwaZulu-Natal)
  - Jozini Local Municipality (KwaZulu-Natal)
  - Umhlabuyalingana Local Municipality (KwaZulu-Natal)
- uMhlathuze Rural Development Initiative – uMhlathuze Local Municipality (KwaZulu-Natal).
- Rural roads identification – uMhlathuze Local Municipality (KwaZulu-Natal).
- Mapungubwe Tourism Initiative – Development Bank (Limpopo Province).
- Northern Cape Tourism Master Plan – Department of Economic Affairs and Tourism (Northern Cape Province).
- Spatial Development Framework for Gert Sibande District Municipality (Mpumalanga) in conjunction with more detailed spatial development frameworks for the 7 Local Municipalities in the District, namely:
  - Albert Luthuli Local Municipality
  - Msukaligwa Local Municipality
  - Mkhondo Local Municipality
  - Pixley Ka Seme Local Municipality
  - Dipaleseng Local Municipality
  - Govan Mbeki Local Municipality
  - Lekwa Local Municipality
- Land Use Management Plans/Systems (LUMS) for various Local Municipalities including:
  - Nkandla Local Municipality (KwaZulu-Natal)
  - Hlabisa Local Municipality (KwaZulu-Natal)
  - uPhongolo Local Municipality (KwaZulu-Natal)
  - uMshwathi Local Municipality
- Spatial Development Framework for uMhlathuze Local Municipality (KwaZulu-Natal).
- Spatial Development Framework for Greater Clarens – Maloti-Drakensberg Transfrontier Park (Free State).
- Land use study for the Johannesburg Inner City Summit and Charter – City of Johannesburg (Gauteng).
- Port of Richards Bay Due Diligence Investigation – Transnet
- Jozini Sustainable Development Plan – Jozini Local Municipality (KwaZulu-Natal)
- Spatial Development Framework for Umhlabuyalingana Local Municipality (KwaZulu-Natal)

### BUILT INFRASTRUCTURE

- EIA and EMP for a 9km railway line and water pipeline for manganese mine – Kalagadi Manganese (Northern Cape Province).
- EIA and EMP for 5x 440kV Transmission Lines between Thyspunt (proposed nuclear power station site) and several substations in the Port Elizabeth area – Eskom (Eastern Cape Province).
- Initial Scoping for the proposed 750km multi petroleum products pipeline from Durban to Gauteng/Mpumalanga – Transnet Pipelines.
- Detailed EIA for multi petroleum products pipeline from Kendall Waltloo, and from Jameson Park to Langlaagte Tanks farms –Transnet Pipelines.
- Environmental Management Plan for copper and cobalt mine (Democratic Republic of Congo).
- EIA and Agricultural Feasibility study for Miwani Sugar Mill (Kenya).
- EIAs for Concentrated Solar and Photovoltaic power plants and associated infrastructure (Northern Cape, Free State, Limpopo and North West Province).
- EIAs for Wind Farms and associated infrastructure (Northern Cape and Western Cape).
- Basic Assessments for 132kV Distribution Lines (Free State, KwaZulu-Natal, Mpumalanga and North West Province).
- Environmental Assessment for the proposed Moloto Development Corridor (Limpopo).
- Environmental Advisory Services for the Gauteng Rapid Rail Extensions Feasibility Project.
- Environmental Screening for the Strategic Logistics and Industrial Corridor Plan for Strategic Infrastructure Project 2, Durban-Free State-Gauteng Development Region.

### STATE OF THE ENVIRONMENT REPORTING

- 2008 State of the Environment Report for City of Johannesburg.
- Biodiversity Assessment – City of Johannesburg.

### STRATEGIC ENVIRONMENTAL ASSESSMENTS AND ENVIRONMENTAL MANAGEMENT FRAMEWORKS

- SEA for Greater Clarens – Maloti-Drakensberg Transfrontier Park (Free State).
- SEA for the Marula Region of the Kruger National Park, SANParks.
- SEA for Thanda Private Game Reserve (KwaZulu-Natal).
- SEA for KwaDukuza Local Municipality (KwaZulu-Natal).
- EMF for proposed Renishaw Estate (KwaZulu-Natal).
- EMF for Mogale City Local Municipality, Mogale City Local Municipality (Gauteng).
- SEA for Molemole Local Municipality, Capricorn District Municipality (Limpopo).
- SEA for Blouberg Local Municipality, Capricorn District Municipality (Limpopo).
- SEA for the Bishopstowe study area in the Msunduzi Local Municipality (KwaZulu-Natal).

### WETLAND STUDIES

- Rehabilitation Planning for the Upper Klip River and Klipspruit Catchments, City of Johannesburg (Gauteng).
- Wetland assessments for various Concentrated Solar and Photovoltaic power plants and associated infrastructure (Limpopo, Northern Cape, North West Province and Western Cape).
- Wetland assessments for Wind Farms and associated infrastructure (Northern Cape and Western Cape).

- Wetland assessments for various 132kV Distribution Lines (Free State, KwaZulu-Natal, Mpumalanga and North West Province).

#### VISUAL IMPACT ASSESSMENTS

- VIA for the Thyspunt Transmission Lines Integration Project (Eastern Cape).
- VIAs for various Solar Power Plants and associated grid connection infrastructure (Northern Cape, Free State, Limpopo and North West Province) the most recent project being:
  - Mooi Plaats, Wonderheuvel and Paarde Valley Solar PV facilities near Nouport (Northern Cape).
- VIAs for various Wind Farms and associated grid connection infrastructure (Northern Cape and Western Cape), the most recent projects including:
  - Graskoppies, Hartebeest Leegte, Ithemba and !Xha Boom Wind Farms near Loeriesfontein (Northern Cape);
  - Kuruman 1 and 2 WEFs near Kuruman (Northern Cape);
  - San Kraal and Phezukomoya WEFs near Noupoort (Northern Cape);
  - Paulputs WEF near Pofadder (Northern Cape);
  - Kudusberg WEF near Matjiesfontein (Western Cape);
  - Tooverberg WEF, near Touws River (Western Cape);
  - Rondekop WEF, near Sutherland (Northern Cape).
- VIAs for various 132kV Distribution Lines (Free State, KwaZulu-Natal, Mpumalanga and North West Province).
- VIA for the proposed Rorqual Estate Development near Park Rynie on the South-Coast of KwaZulu-Natal Province.
- VIA for the proposed Assagay Valley Mixed Use Development (KwaZulu-Natal).
- VIA for the proposed Kassier Road North Mixed Use Development (KwaZulu-Natal).
- VIA for the proposed Tinley Manor South Banks Development (KwaZulu-Natal).
- VIA for the proposed Tinley Manor South Banks Beach Enhancement Solution, (KwaZulu-Natal).
- VIAs for the proposed Mlonzi Hotel and Golf Estate Development (Eastern Cape Province).
- Visual sensitivity mapping exercise for the proposed Mogale's Gate Lodge Expansion (Gauteng).
- Analysis phase visual assessment for the proposed Renishaw Estate Environmental Management Framework in the Scottburgh Area (KwaZulu-Natal).
- Landscape Character Assessment for Mogale City Environmental Management Framework (Gauteng).



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

### DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

#### PROJECT TITLE

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

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

#### Departmental Details

Postal address:  
Department of Environmental Affairs  
Attention: Chief Director: Integrated Environmental Authorisations  
Private Bag X447  
Pretoria  
0001

Physical address:  
Department of Environmental Affairs  
Attention: Chief Director: Integrated Environmental Authorisations  
Environment House  
473 Steve Biko Road  
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:  
Email: [EIAAdmin@environment.gov.za](mailto:EIAAdmin@environment.gov.za)

1. SPECIALIST INFORMATION

Specialist Company Name:	SIVEST SA (Pty) Ltd			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	2	Percentage Procurement recognition	110
Specialist name:	Kerry Schwartz			
Specialist Qualifications:	BA			
Professional affiliation/registration:	SAGC (GISc Technician)			
Physical address:	12 Autumn Road			
Postal address:	PO Box 2921, Rivonia			
Postal code:	2128	Cell:	082 469 5850	
Telephone:	011 798 0632	Fax:	011 803 7272	
E-mail:	kerrys@sivest.co.za			

2. DECLARATION BY THE SPECIALIST

I, Kerry Schwartz, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

*K Schwartz*

Signature of the Specialist

SIVEST SA (Pty) Ltd

Name of Company:

30 October 2020

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Kerry Schwartz, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Kschwartz

Signature of the Specialist

SiVEST SA (Pty) Ltd

Name of Company

30 October 2020

Date

**Jacqueline Chantel Jackson**

**COMMISSIONER OF OATHS**

Signature of the Commissioner of Oaths

Signature: Jc Jackson

Divisional Controller

Ref. 9/178/2 (R/O) KZN PMB - 08/02/2019

Date

Date: 30/10/2020 Place: PMB

Business Address: VCC Estate, 170 Peter Brown Drive, PMB



## **Appendix C:**

# **Impact Rating Methodology**





# 1 ENVIRONMENTAL IMPACT ASSESSMENT (EIA) METHODOLOGY

The Environmental Impact Assessment (EIA) Methodology assists in evaluating the overall effect of a proposed activity on the environment. Determining of the significance of an environmental impact on an environmental parameter is determined through a systematic analysis.

## 1.1 Determination of Significance of Impacts

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale (i.e. site, local, national or global), whereas intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in **Table 1**.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

## 1.2 Impact Rating System

The impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the various project stages, as follows:

- Planning;
- Construction;
- Operation; and
- Decommissioning.

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance has also been included.

***The significance of Cumulative Impacts should also be rated (As per the Excel Spreadsheet Template).***

### 1.2.1 Rating System Used to Classify Impacts

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the possible mitigation of the impact. Impacts have been consolidated into one (1) rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

**Table 1:** Rating of impacts criteria

<b>ENVIRONMENTAL PARAMETER</b>		
A brief description of the environmental aspect likely to be affected by the proposed activity (e.g. Surface Water).		
<b>ISSUE / IMPACT / ENVIRONMENTAL EFFECT / NATURE</b>		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity (e.g. oil spill in surface water).		
<b>EXTENT (E)</b>		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
<b>PROBABILITY (P)</b>		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
<b>REVERSIBILITY (R)</b>		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
<b>IRREPLACEABLE LOSS OF RESOURCES (L)</b>		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
<b>DURATION (D)</b>		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity.		

1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).

**INTENSITY / MAGNITUDE (I / M)**

Describes the severity of an impact (i.e. whether the impact has the ability to alter the functionality or quality of a system permanently or temporarily).

1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.

**SIGNIFICANCE (S)**

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:

**Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.**



The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

Points	Impact Significance Rating	Description
5 to 23	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
5 to 23	Positive Low impact	The anticipated impact will have minor positive effects.
24 to 42	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
24 to 42	Positive Medium impact	The anticipated impact will have moderate positive effects.
43 to 61	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
43 to 61	Positive High impact	The anticipated impact will have significant positive effects.
62 to 80	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
62 to 80	Positive Very high impact	The anticipated impact will have highly significant positive effects.

The table below is to be represented in the Impact Assessment section of the report. The excel spreadsheet template can be used to complete the Impact Assessment.







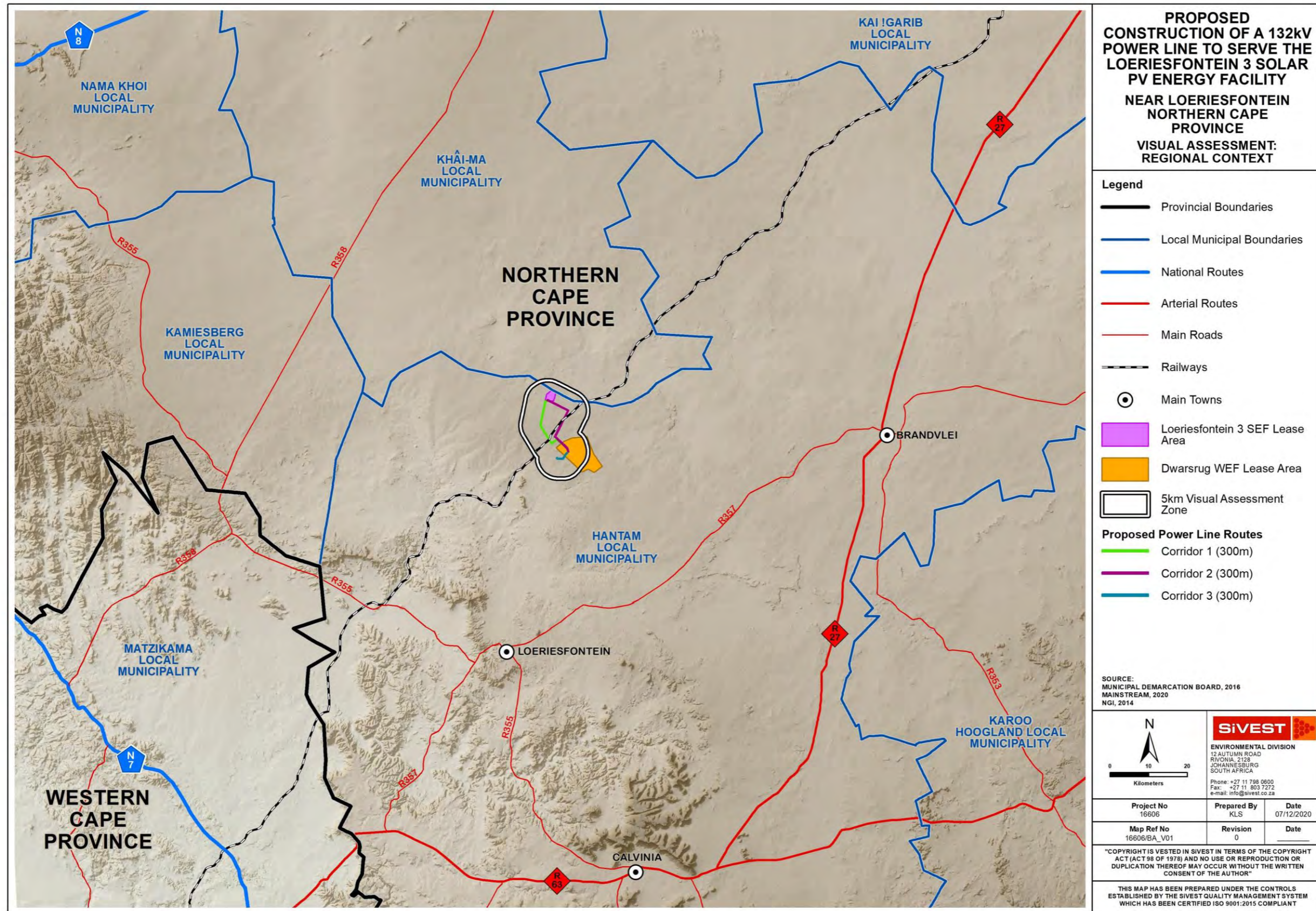


## **Appendix D:**

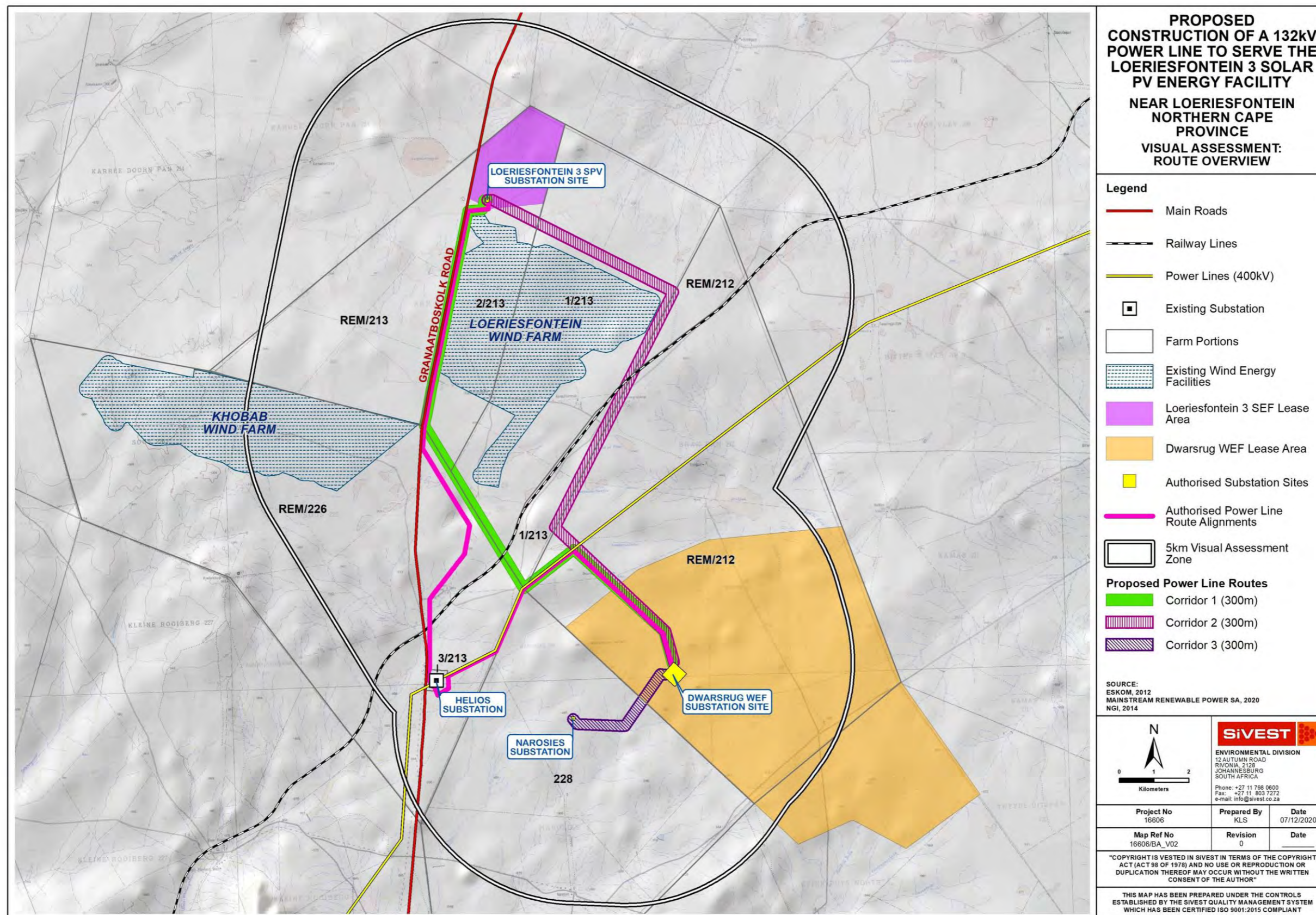
### **Maps**



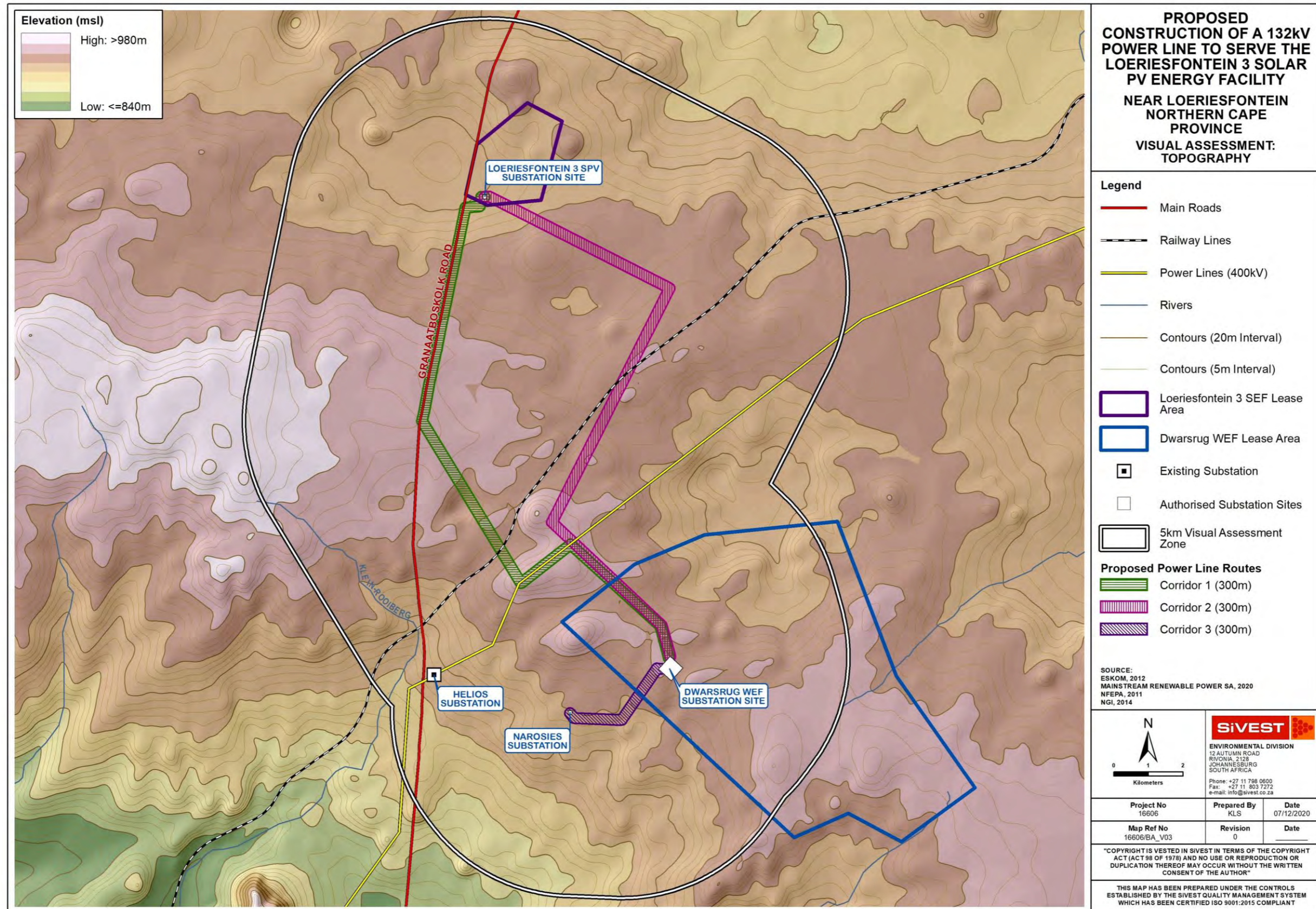
MAP 1: Regional Context



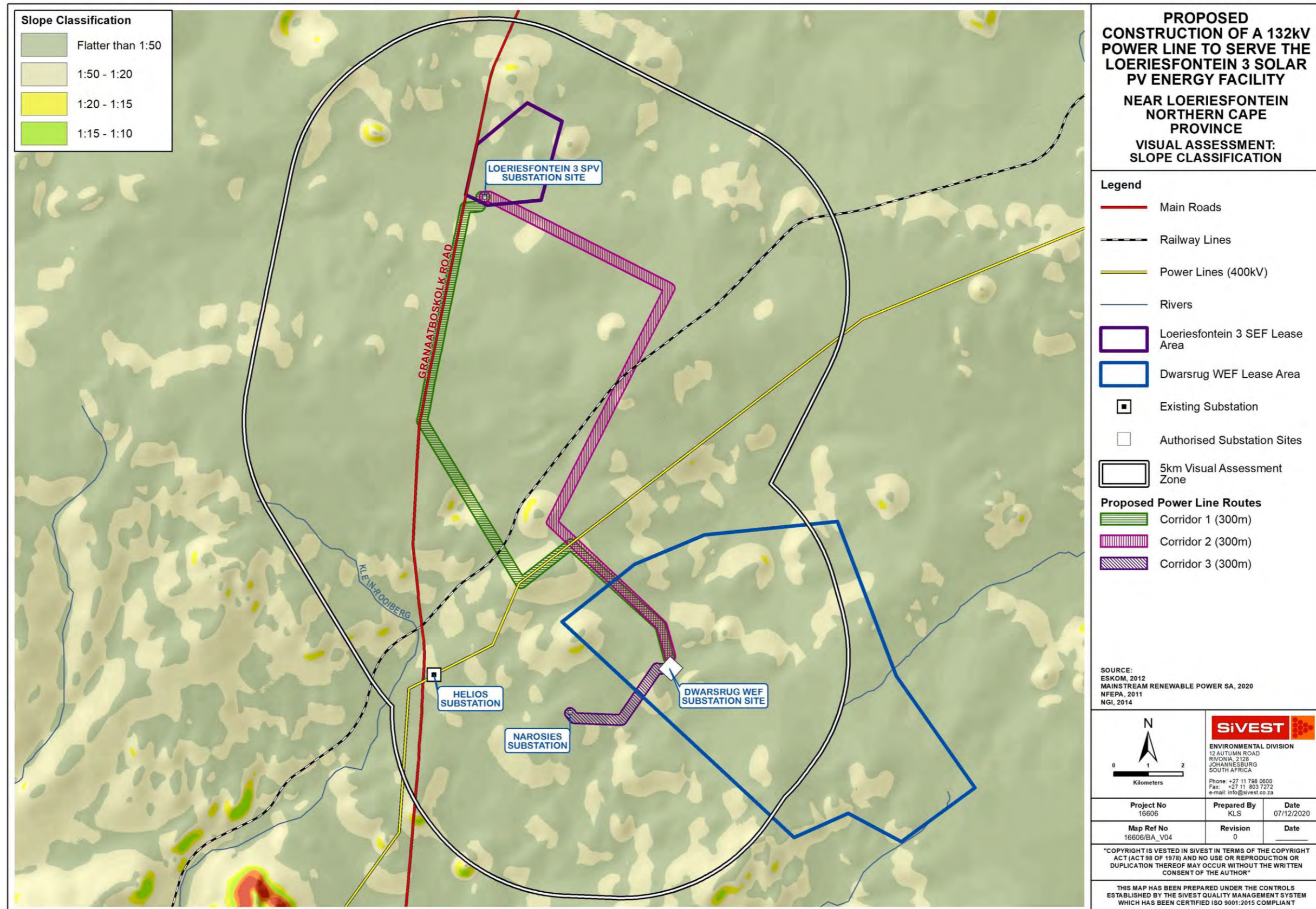
MAP 2: Route Overview



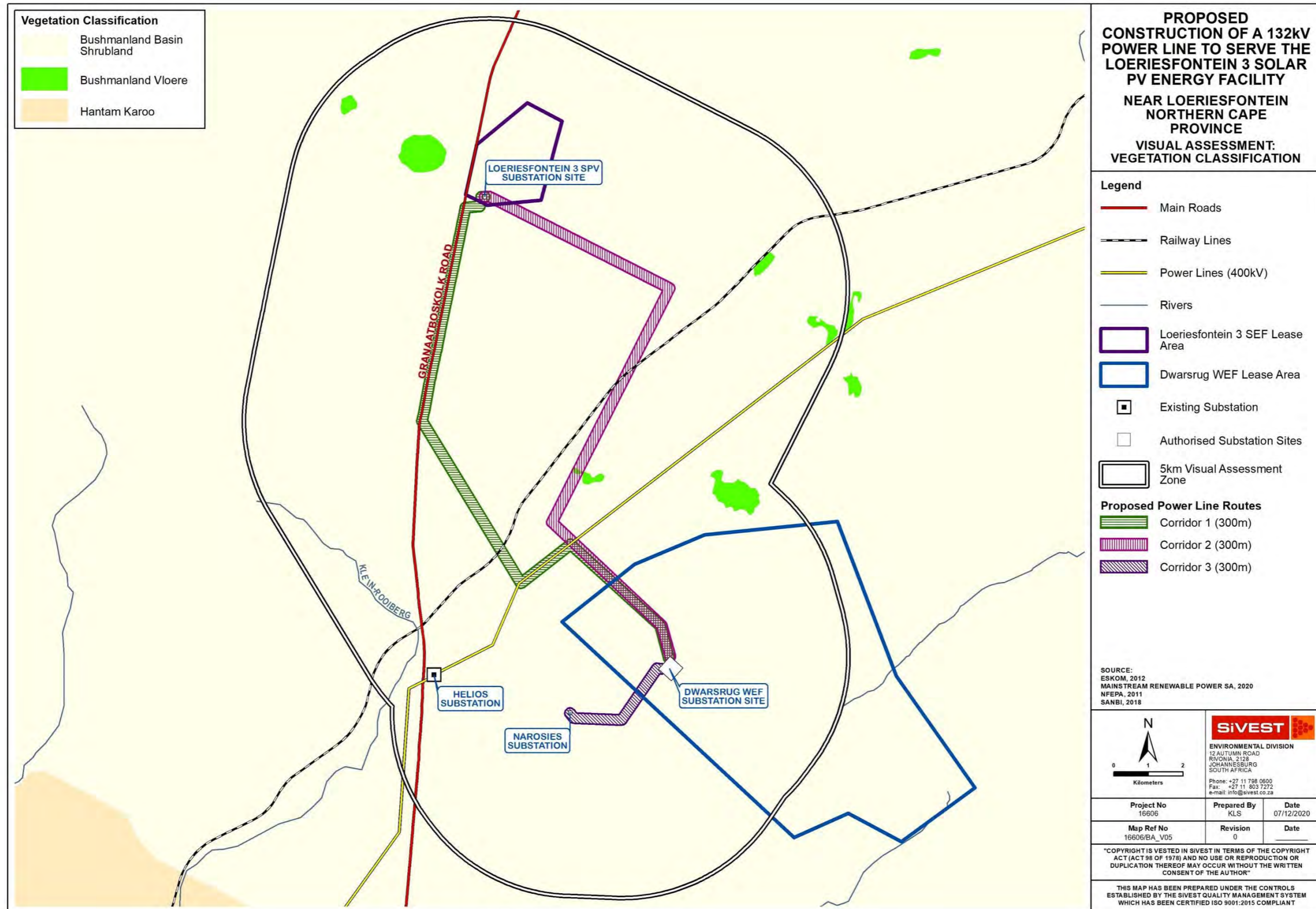
MAP 3: Topography



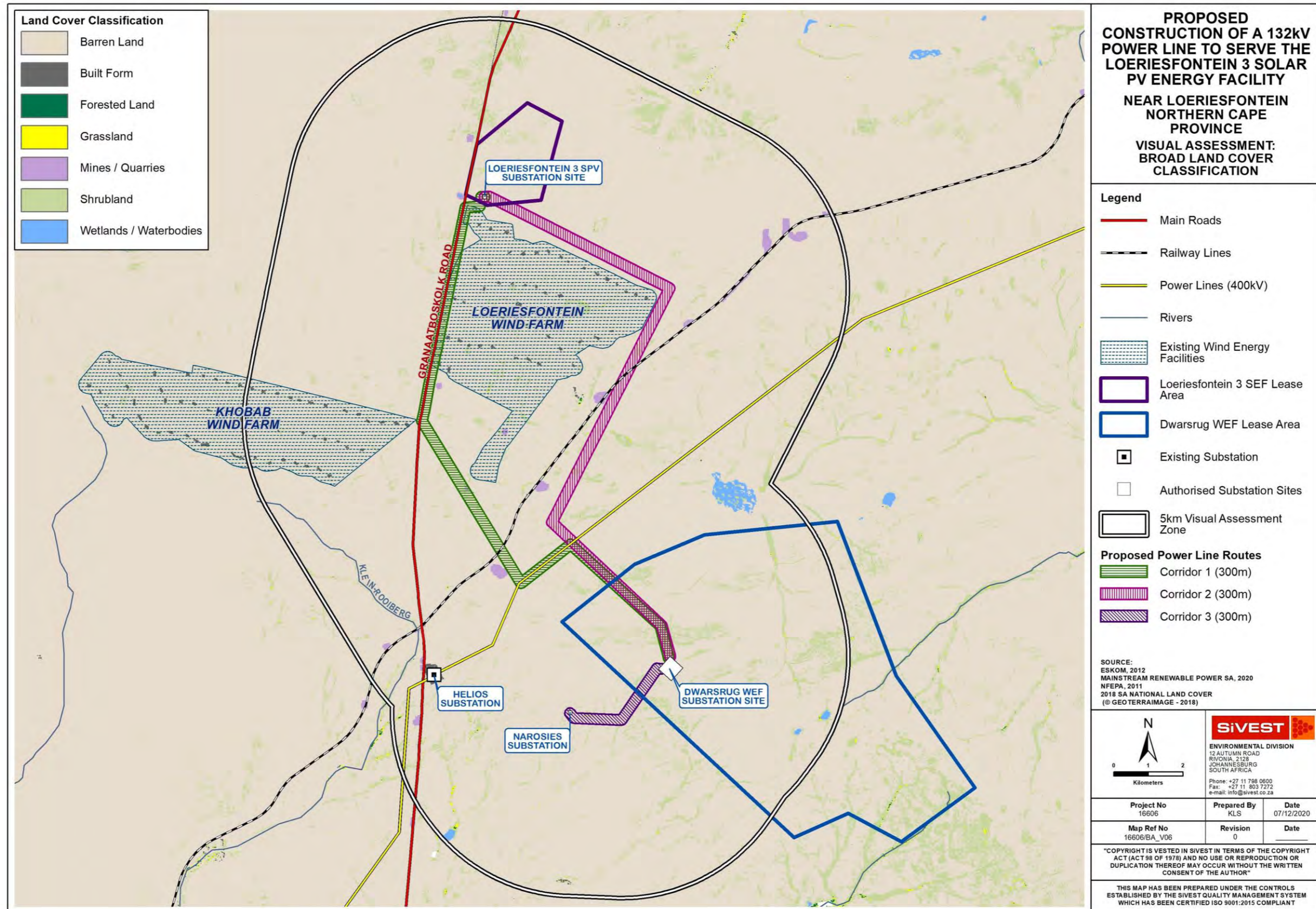
MAP 4: Slope Classification



MAP 5: Vegetation Classification



MAP 6: Land Cover Classification



**Land Cover Classification**

	Barren Land
	Built Form
	Forested Land
	Grassland
	Mines / Quarries
	Shrubland
	Wetlands / Waterbodies

**PROPOSED  
CONSTRUCTION OF A 132kV  
POWER LINE TO SERVE THE  
LOERIESFONTEIN 3 SOLAR  
PV ENERGY FACILITY  
NEAR LOERIESFONTEIN  
NORTHERN CAPE  
PROVINCE  
VISUAL ASSESSMENT:  
BROAD LAND COVER  
CLASSIFICATION**

**Legend**

	Main Roads
	Railway Lines
	Power Lines (400kV)
	Rivers
	Existing Wind Energy Facilities
	Loeriesfontein 3 SEF Lease Area
	Dwarsrug WEF Lease Area
	Existing Substation
	Authorised Substation Sites
	5km Visual Assessment Zone
<b>Proposed Power Line Routes</b>	
	Corridor 1 (300m)
	Corridor 2 (300m)
	Corridor 3 (300m)

SOURCE:  
ESKOM, 2012  
MAINSTREAM RENEWABLE POWER SA, 2020  
NFEPA, 2011  
2018 SA NATIONAL LAND COVER  
(© GEOTERRAIMAGE - 2018)

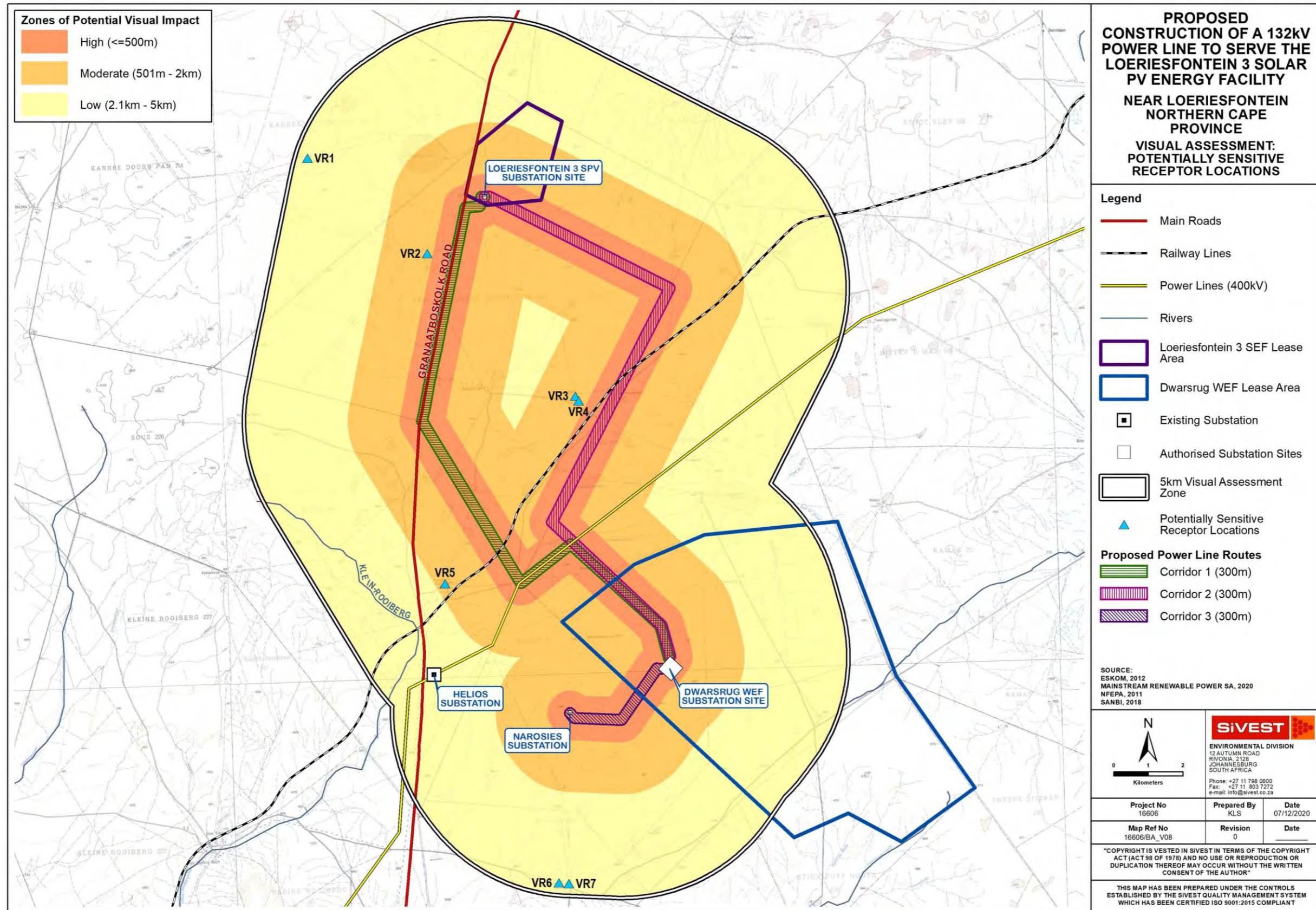
	ENVIRONMENTAL DIVISION 12 AUTUMN ROAD RIVONIA, 2128 JOHANNESBURG SOUTH AFRICA Phone: +27 11 798 0600 Fax: +27 11 803 7272 e-mail: info@sivest.co.za	

Project No 16606	Prepared By KLS	Date 07/12/2020
Map Ref No 16606/BA_V06	Revision 0	Date

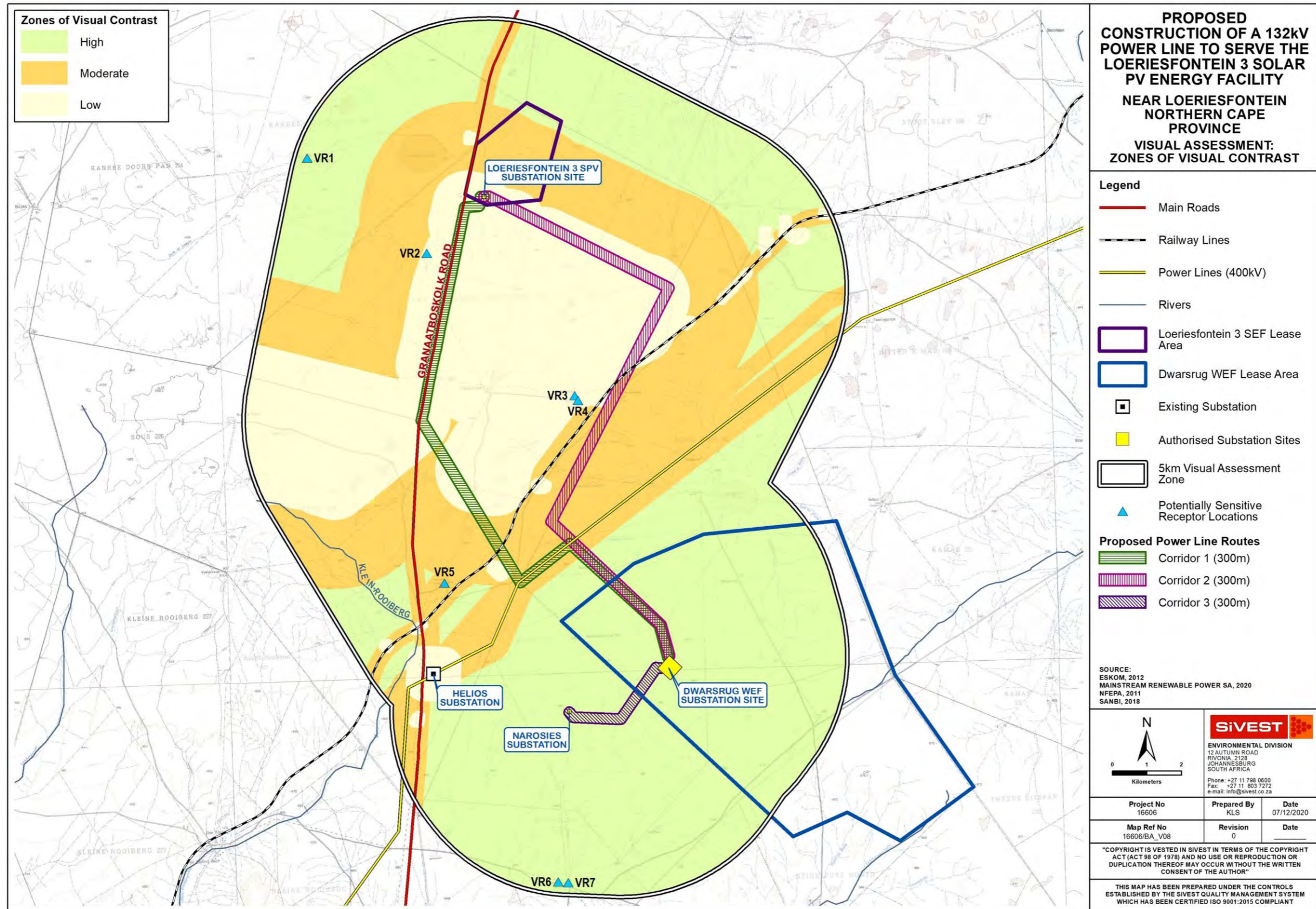
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THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT

MAP 7: Potentially Sensitive Receptor Locations

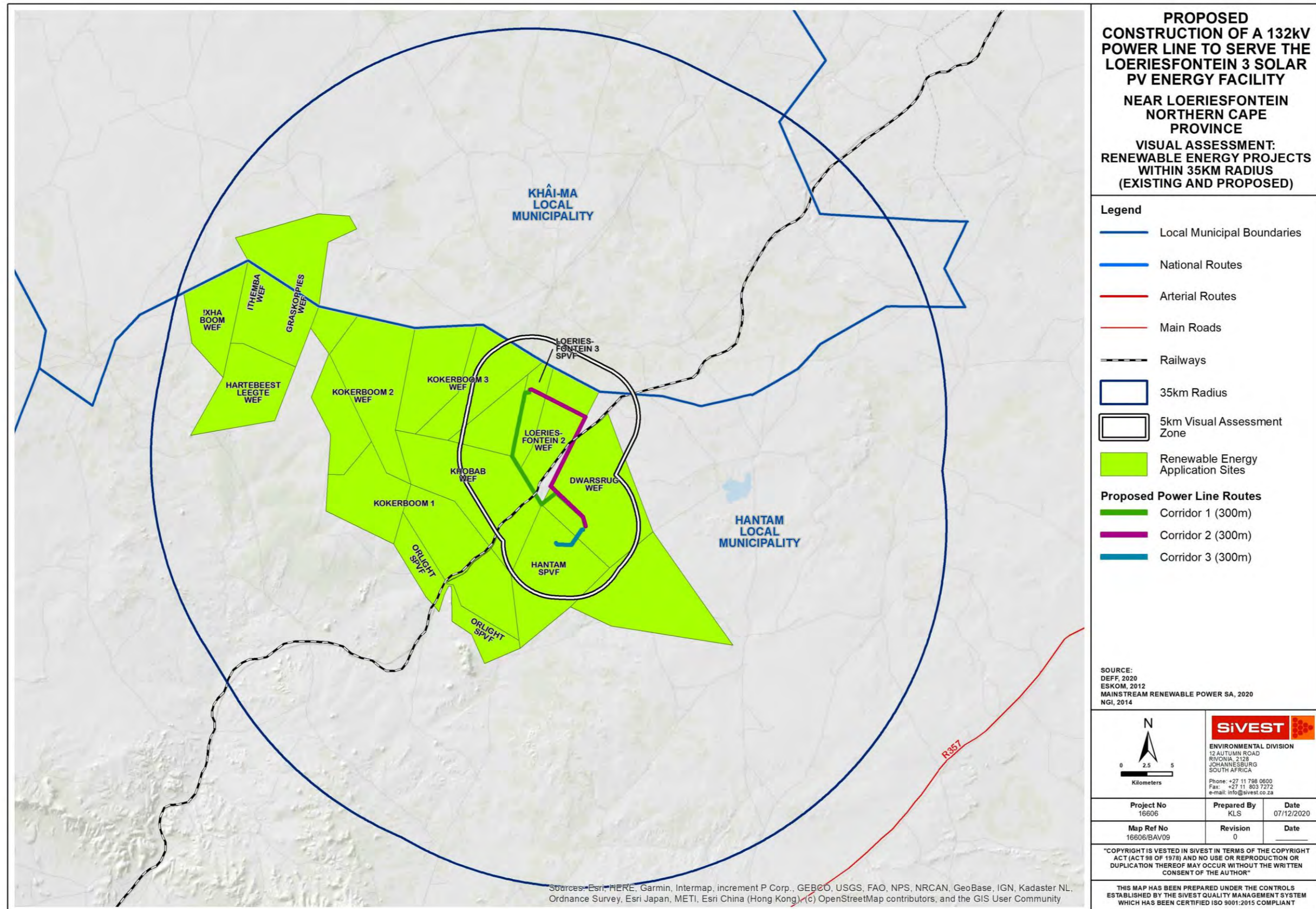


MAP 8: Zones of Visual Contrast





MAP 9: Renewable Energy Projects within a 35km Radius





## **Appendix E:**

# **Site Sensitivity Verification Report**



**SOUTH AFRICA MAINSTREAM RENEWABLE  
POWER DEVELOPMENTS (PTY) LTD**

**PROPOSED CONSTRUCTION OF  
132KV POWER LINES TO SERVE  
THE AUTHORISED LOERIES-  
FONTEIN 3 PV SOLAR ENERGY  
FACILITY AND THE AUTHORISED  
DWARSRUG WIND ENERGY  
FACILITY NEAR LOERIESFONTEIN,  
NORTHERN CAPE PROVINCE**

**Site Sensitivity Verification Report**

**DEFF Reference: (To be provided)**  
**Report Prepared by: SiVEST**  
**Issue Date: 09 December 2020**  
**Version No.: 1**

**SITE SENSITIVITY VERIFICATION  
(IN TERMS OF PART A OF THE ASSESSMENT PROTOCOLS  
PUBLISHED IN GN 320 ON 20 MARCH 2020**

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2.2	Identification of sensitive receptors .....	4
2.3	Fieldwork and photographic review .....	4
<b>3.</b>	<b>OUTCOME OF SITE SENSITIVITY VERIFICATION</b> .....	<b>5</b>
<b>4.</b>	<b>NATIONAL ENVIRONMENTAL SCREENING TOOL</b> .....	<b>6</b>
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Figure 2: Typical landscape in Kgakala Township .....	<b>Error! Bookmark not defined.</b>

# **SITE SENSITIVITY VERIFICATION (IN TERMS OF PART A OF THE ASSESSMENT PROTOCOLS PUBLISHED IN GN 320 ON 20 MARCH 2020**

## **1. INTRODUCTION**

South Africa Mainstream Renewable Power Developments (Pty) Ltd (hereafter referred to as “Mainstream”) is proposing the construction of a 132 kV overhead power lines between the proposed (and authorised) 100MW Loeriesfontein 3 PV SEF (12/12/20/2321/2/AM4) and proposed (and authorised) 140MW Dwarsrug WEF (14/12/16/3/3/2/690/AM4); and between the Dwarsrug WEF and the proposed (and authorised) Narosies Substation (12/12/20/2049/3) located near Loeriesfontein in the Northern Cape Province of South Africa.

The proposed power line project is subject to a Basic Assessment (BA) process in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) (as amended) and Appendix 1 of the Environmental Impact Assessment (EIA) Regulations, 2014 promulgated in Government Gazette 40772 and GN R326, R327, R325 and R324 on 7 April 2017. The competent authority for this BA is the national Department of Environment, Forestry and Fisheries (DEFF). Specialist studies have been commissioned to assess and verify the proposed development under the new Gazetted specialist protocols.

A visual impact assessment (VIA) is being undertaken by SiVEST SA (PTY) Ltd as part of the required BA process. The aim of the VIA is to identify potential visual issues associated with the proposed 132kV power lines, as well as to determine the potential extent of visual impacts. This is done by characterising the visual environment of the area and identifying areas of potential visual sensitivity that may be subject to visual impacts. This visual assessment focuses on the potentially sensitive visual receptor locations and provides an assessment of the magnitude and significance of the visual impacts associated with the proposed development.

In accordance with Appendix 6 of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations of 2014, a site sensitivity verification has been undertaken in order to confirm the current land use and environmental sensitivity of the proposed project area and to assess the sensitivities against the outputs of the National Web-Based Environmental Screening Tool (Screening Tool).

## **2. SITE SENSITIVITY VERIFICATION**

The proposed power lines are located within an area that has already been assessed for several different VIAs undertaken in respect of renewable energy and associated power line development. Details of these studies are outlined in **Section 2.4**. Accordingly, the site sensitivity verification exercise conducted in support of the Visual Impact Assessment (VIA) has been based on a desktop-level assessment supported by information drawn from other relevant VIAs. This verification involved an assessment of factors as outlined below.

## 2.1 Physical landscape characteristics

Physical landscape characteristics such as topography, vegetation and land use are important factors influencing the visual character and visual sensitivity of the study area. Baseline information about the physical characteristics of the study area was sourced from spatial databases provided by NGI, the South African National Biodiversity Institute (SANBI) and the South African National Land Cover Dataset (Geoterrimage – 2018). The characteristics identified via desktop analysis were then verified using information drawn from other VIAs undertaken in the area.

## 2.2 Identification of sensitive receptors

Information pertaining to visual receptors was largely drawn from visual assessments conducted in the general vicinity of the proposed development (**Section 2.4**). This information was verified for using current Google Earth Imagery (2020).

## 2.3 Fieldwork and photographic review

Given that the proposed grid connection infrastructure is located within project areas already assessed for several renewable energy VIAs, it was not considered necessary to undertake any additional fieldwork. Fieldwork undertaken for these VIAs has therefore been used to inform this assessment. These studies include VIAs for grid connection infrastructure for the Graskoppies, Hartebeest Leegte, Ithemba and !Xha Boom WEFs, as well the Dwarsrug WEF and associated grid connection infrastructure (**Section 2.4**). Fieldwork for these projects involved:

- verification of the landscape characteristics identified via desktop means;
- conducting a photographic survey of the study area;
- verification, where possible, of the sensitivity of visual receptor locations identified via desktop means;
- elimination of receptor locations that are unlikely to be influenced by the proposed development;
- identification of any additional visually sensitive receptor locations within the study area; and
- providing inputs for the impact rating assessment of visually sensitive receptor locations (where possible).

## 2.4 Source of Information

The main sources of information utilised for this site sensitivity verification exercise included:

- Elevation data from 25m Digital Elevation model (DEM) from the National Geo-Spatial Information (NGI);

- Land cover and land use data extracted from the 2018 South African National Land-Cover Dataset provided by GEOTERRAIMAGE;
- Vegetation classification data extracted from the South African National Biodiversity Institute's (SANBI's) VEGMAP 2018 dataset;
- Google Earth Satellite imagery 2020;
- The National Web-Based Environmental Screening Tool, Department of Environment, Forestry and Fisheries (DEFF);
- VIA for the proposed Graskoppies On-site IPP Substation, Linking Substation and Associated 132kV Power Line (14/12/16/313/1/1869), SiVEST 2017;
- VIA for the proposed Hartebeest Leegte On-site IPP Substation, Linking Substation and Associated 132kV Power Line (14/12/16/313/1/1868), SiVEST 2017;
- VIA for the proposed Ithemba On-site IPP Substation, Linking Substation and Associated 132kV Power Line (14/12/16/313/1/1867), SiVEST 2017;
- VIA for the proposed !Xha Boom On-site IPP Substation, Linking Substation and Associated 132kV Power Line (14/12/16/313/1/1870), SiVEST 2017;
- VIA for the proposed Dwarsrug WEF and associated grid connection infrastructure (4/12/16/3/3/2/690), SiVEST 2015;

### 3. OUTCOME OF SITE SENSITIVITY VERIFICATION

The study area has a largely natural, untransformed visual character with some pastoral elements and as such, the proposed power line development would alter the visual character and contrast significantly with the typical land use and/or pattern and form of human elements present across the broader study area. The level of contrast is however significantly reduced by the presence of the operational Khobab and Loeriesfontein 2 WEFs with associated grid connection infrastructure, as well as Helios substation, existing high voltage power lines, the Granaatboskolk Road and rail infrastructure affecting mainly the central sector of the study area.

A broad-scale assessment of landscape sensitivity, based on the physical characteristics of the study area, economic activities and land use that predominates, determined that the area would have a low visual sensitivity. An important factor contributing to the visual sensitivity of an area is however the presence, or absence of visual receptors that would potentially be impacted by a proposed development. In this instance, the area is not typically valued for its tourism significance and no formal protected areas or recognised tourism routes were identified in the area. In addition, there is limited human habitation resulting in relatively few potentially sensitive receptors across the entire extent of the study area.

Only seven (7) potentially sensitive receptors were identified in the study area, i.e. within 5kms from the outer boundary of the combined power line assessment corridors, all of which are farmsteads. None of these receptors are considered to be Sensitive Receptors as they are not linked to leisure/nature-based tourism activities in the area. They are however regarded as potentially sensitive visual receptors as they are located within a mostly natural setting and the proposed development will likely alter natural vistas experienced from these dwellings. It was noted however that all of these receptors are located on application sites for adjacent existing and proposed renewable energy projects, including the existing Khobab and Loeriesfontein 2 WEFs, the proposed Kokerboom 3 WEF and the proposed Hantam Solar PV Energy Facility. As such the owners / occupants of these farmsteads are not expected to perceive the proposed power lines in a negative light

No viewsheds or visibility analyses were generated for this visual study, as the topography within the study area is relatively flat and no detailed contours were available. In this context, the most important factors influencing the degree of visibility of the proposed development are the presence of screening vegetation and / or man-made structures. Considering the relatively flat terrain in the study area, and the lack of any significant vegetative screening or built form, it is expected that elements of the power line development as proposed would be visible from all identified potentially sensitive receptors. As such, no areas along the route alignments are considered to be significantly more sensitive than any other areas.

#### **4. NATIONAL ENVIRONMENTAL SCREENING TOOL**

In assessing visual sensitivity, the Landscape Theme of the National Environmental Screening Tool was used to determine the relative landscape sensitivity for the development of grid connection infrastructure as proposed. The tool does not however identify any landscape sensitivities in respect of the proposed power lines.

#### **5. CONCLUSION**

A site sensitivity verification has been conducted in respect of the Visual Impact Assessment (VIA) for the proposed development of the proposed 132 kV power lines between the Loeriesfontein 3 PV SEF, the Dwarsrug WEF and the proposed Narosies Substation on the adjacent Hantam SEF development site. This verification has been based on a desktop-level assessment supported by information drawn from other relevant VIAs.

As stated above, the National Environmental Screening Tool does not identify any Landscape Sensitivities in respect of power line development in the area. Accordingly, visual sensitivities identified during the course of the specialist Visual Impact Assessment have been verified.