



CONSTRUCTION AUDIT REPORT #1



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ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES



**BIO THERM CONSTRUCTION OF THE PROPOSED GOLDEN VALLEY-
KOPLEEGTE 132kV POWER LINE**

**BLUE CRANE ROUTE LOCAL MUNICIPALITY, COOKHOUSE EASTERN
CAPE PROVINCE OF SOUTH AFRICA**

DEA Reference: 14/12/16/3/3/1/750

CONSTRUCTION AUDIT REPORT

Prepared for:



BioTherm Energy

Prepared by:



ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

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DECEMBER 2019



REVISIONS TRACKING TABLE

CES Report Revision and Tracking Schedule

Document Title:	Construction Audit		
Client Name & Address:	BioTherm Energy Building 1 Design Quarter Fourways 2055		
Status:	Current		
Issue Date:	Final		
Lead Author:	Hlumela Mduduma	Checklist coordination	
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Reviewer:	Ms Caroline Evans	Project Manager	
Study Leader/ Registered Environmental Assessment Practitioner – Approval:	Alan Carter	Report Sign-off	
Report Distribution	<i>Circulated to</i>	<i>No. of hard copies</i>	<i>No. electronic copies</i>
		1	1
Report Version	<i>Date</i>		
	21 November 2019	Draft	
	12 December 2019	Final	

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1 INTRODUCTION

1.1 INTRODUCTION

CES has been approached by BioTherm Energy (the Client) to provide the environmental auditing of the Environmental Authorisations (EAs) as well as the auditing and updating of the Construction Environmental Management Programmes (CEMPs) in accordance with Regulation 54A (3) of the National Environmental Management Act (NEMA) (Act No. 107 of 1998) Environmental Impact Assessment (EIA) Regulations (2014 and subsequent 2017 amendments).

In terms of Regulation 54A Subsection (2) and (3), the auditing requirements of regulation 34 of the EIA Regulations are applicable to Environmental Management Programmes approved in terms of the Mineral and Petroleum Resources Development Act 2002 and environmental authorisations issued in terms of the Environmental Conservation Act 1989 and the previous NEMA regulations. The deadline for submission of first audit report is 7 December 2019.

The Minister of Environment, Forestry and Fisheries published a notice of her intention, in terms of section 44 of the National Environmental Management Act, 1998 to amend Regulation 54A of the EIA Regulations by the substitution, in subregulations (2) and (3), of the words *“no later than 7 December 2019 and at least every 5 years thereafter for the period during which such environmental authorisation is still in effect”* of the words *“by a date to be published by Notice in the Government Gazette.”*

1.2 PROJECT DESCRIPTION

CES Environmental and Social Advisory Services (CES) has been appointed by Terra Wind Energy Golden Valley (Pty) Ltd as the independent auditor for the Terra Wind Energy Golden Valley Project (DEA reference: 12/12/20/1717). As the independent auditor, CES is responsible for the monitoring of all construction activities in order to ensure compliance with the EMPr, relevant permits and environmental authorisations.

Terra Wind Energy Golden Valley (Pty) Ltd obtained environmental authorisation in December 2011 for the proposed Terra Wind Energy Golden Valley Project (DEA reference: 12/12/20/1717) on a site located approximately 5 km from Cookhouse in the Blue Crane Route Local Municipality, Eastern Cape. The project will be developed by Terra Wind Energy Golden Valley, a Special Purpose Vehicle (SPV) owned by BioTherm Energy (Pty) Ltd. The authorisation for the wind energy facility included the construction of two substations and a power line linking the Golden Valley wind farm to Poseidon substation or another external substation (Kopleegte). In discussions with Eskom, it has been determined that the wind energy facility substation would be able to connect via a 132kV power line to Kopleegte Substation located to the east of the site. Therefore, an application for authorisation has been submitted to DEA for the proposed construction of a new 132kV Golden Valley – Kopleegte power line (DEA reference: 14/12/16/3/3/1/750) (for which Eskom is the applicant) linking the proposed new Golden Valley Substation (the subject of a separate EIA process - DEA reference: 14/12/16/3/3/1/748) to the proposed Kopleegte substation (the subject of a separate EIA process - DEA reference: 14/12/16/3/3/1/739).



This report will be reporting on compliance of the Terra Wind Energy Golden Valley EAs. This will include all activities related to construction of the Golden Valley Substation and all its associated infrastructure. The facility will comprise of the following:

- Two 132kV overhead power line connection alternatives are being assessed for the Golden Valley-Kopleegte 132kV power line route. The distance from the substations vary according to which substation is nominated as the preferred location, i.e. either option 1 or option 2. The route extending from substation option 1 is route a), and the route extending from substation option 2 is route b). The length of each power line options are therefore as follows:
 - Option 1: a) approximately 8 km in length b) approximately 9km
 - Option 2: a) approximately 19 km in length b) approximately 22 km

This corridor crosses the following farms: Quagas Kuyl 155, Farm 158, Portion 1 and remainder of Mullers Kraal 159, Portion 1 and Remainder of Olive Fonteyn 166, Remainder of Stompstraat Fonteyn 168, Portion 2 and remainder of farm169, Kop Leegte 205, Portion 1 and remainder of Farm 222, Remainder of Farm 259 and Remainder of Farm 260.

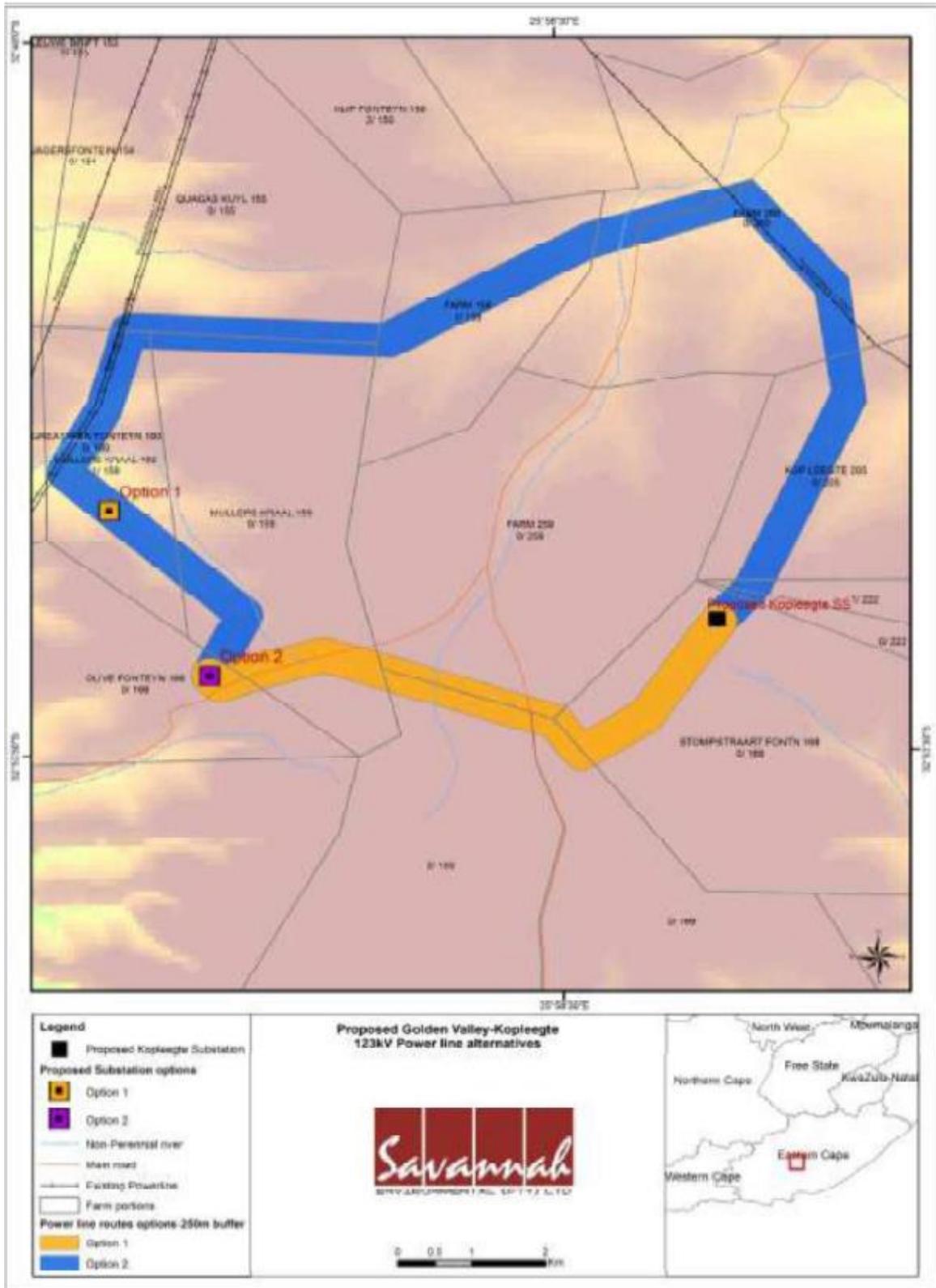


Figure 1-1: Locality map showing the proposed Golden Valley substation site options (2) on the Terra Wind Energy Golden Valley Project and the 132kV power line connecting options (2) linking the Terra Wind Energy Golden Valley Project to Kopleegte substation

(Source: Savannah Environmental)

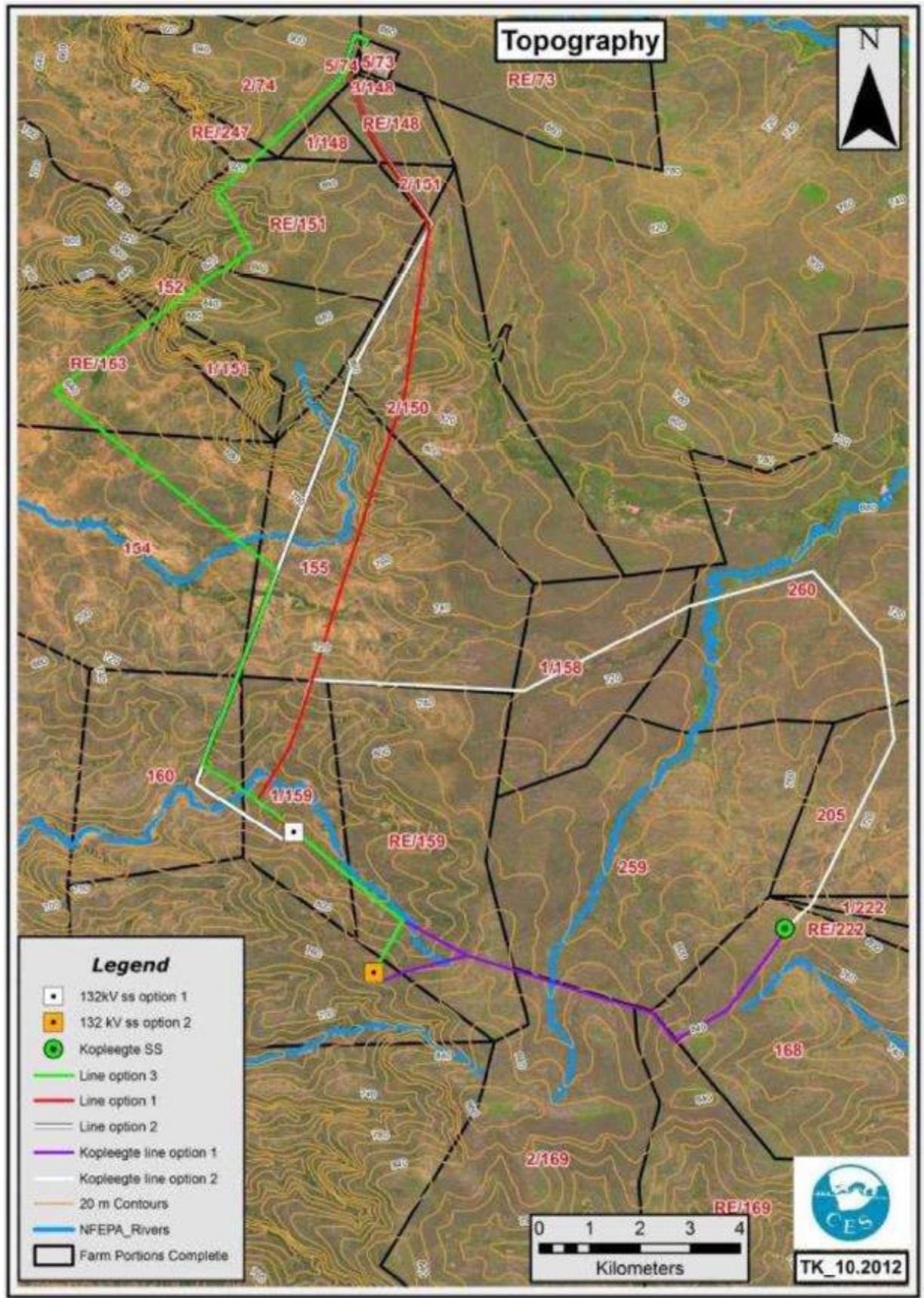


Figure 1-2: Topographical map of the project area indicating the main rivers.



1.3 AUDIT APPROACH

Participants:

Dr Alan Carter (Project Leader & Quality Assurance)

Alan has over 25 years of experience in both environmental science and financial accounting disciplines including with international accounting firms in South Africa and the USA. He holds a PhD in Plant Sciences and a BCom Honours degree in financial accounting. Alan is a member of a number of professional bodies including American Institute of Certified Public Accountants (AICPA) and Institute of Waste Management South Africa (IWMSA). He is also certified as an Environmental Assessment Practitioner in South Africa (EAPSA) and as an ISO14001 EMS auditor with the American National Standards Institute. Areas of specialization include: impact assessment, coastal management, waste management, climate change and emissions inventories, aquaculture and environmental accounting and auditing. Alan is a registered scientist with SACNASP.

Alan's experience in renewable energy includes having managed the EIA process for over 20 wind farms and solar PV facilities throughout South Africa. He has also acted as the designated Environmental Control Officer (ECO) on numerous infrastructure construction projects including wind farms and solar facilities. In addition to his eight years of experience as a financial auditor, Alan has also conducted numerous verification audits in terms of the ISO14001 and IFC standards for a wide range of industries.

Ms Caroline Evans (Project Manager & Internal Reviewer)

Ms Caroline Evans is a Senior Environmental Consultant with 6 years' experience. She is based in the Grahamstown branch and she holds a BSc degree in Zoology and Environmental Science (with distinction) as well as a BSc Honours degree in Environmental Science (with distinction), both from Rhodes University. Caroline has completed accredited courses in environmental impact assessments and wetland assessments.

Caroline's primary focuses include Project Management, the general Environmental Impact Assessment Process, Visual Impact Assessments and Wetland Impact Assessments. Examples of fields in which Caroline was the project manager and lead report writer include Wind Energy Facilities and the associated infrastructure (including powerlines), Solar PV, Wastewater Treatment Works, Housing Developments and Agricultural Developments. Her experience with wind energy facilities and associated infrastructure includes the project management and report writing for the Umsobomvu WEF, Dassiesridge WEF, Scarlet Ibis WEF, Albany WEF, Waaihoek WEF and the Great Kei WEF.

Caroline is well versed in South African policy and legislation relating to development, particularly in the Eastern Cape Province. In addition, Caroline's project management experience has helped her gain knowledge and experience in the technical and financial management and coordination of large specialist teams, competent authority and stakeholder engagement, and client liaison.



Mr Justin Green (Site Auditor & Report Writing)

Justin has a BSc. degree in Zoology and Entomology as well as a Post Graduate Diploma in Enterprise Management from Rhodes University. Justin has been an Environmental Consultant with CES for 7 years and has been involved in extensive work in Renewable Energy Projects and mining based projects. Justin has played an integral part in Basic Assessments and Environmental Impact Assessments. His work experience has been completed in South Africa, Lesotho, Mozambique, Zambia, Cameroon, Tanzania, Malawi, Madagascar and the DRC.

He is a part of the Geographical Information Systems (GIS) team for the past 7 years with his primary experience through ArcGIS 10 and Quantum GIS. He has been involved in producing mapping data for a multitude of international projects all up to African Bank, IFC and World Bank standards.

Justin has also made a considerable difference using OruxMaps for the purpose of specialist fieldwork and mapping purposes. His experience lies in the training and managing of field teams in the use of this technology to accurately measure and locate households, farmlands and areas of special interest that are then incorporated into the GIS database. Tablet based questionnaires are also used by these field teams to conduct surveys to collect information on project affected persons that are capable of linking to the spatial data collect. All survey data can then efficiently and accurately be captured in a Microsoft Access database for evaluation.

1.4 AUDIT DOCUMENTATION

The following documentation was made available to the auditor as per the requirements of the EA and CEMPr:

1.4.1 Registers & Forms:

- Final Layout Plan;
- Induction Register;
- Complaints register;
- Incident reporting register; and
- Land owner agreement forms.

1.4.2 Specialist investigation reports:

- Geotechnical investigation reports;
- Botanical Groundtruthing report;
- Heritage Investigation reports; and
- Search and Rescue reports.

1.4.3 Permits:

- Environmental Authorisation;
- Water Use License Authorisation;
- Heritage permit;
- Water Allocation Letter;



- Water Abstraction Approval Letter;
- Waste Disposal permits; and
- DAFF permits for removal of SSC.

1.4.4 Management Plans:

- Access Roads and Hardstands
- Alien Vegetation Management Plan
- Dust and Noise Pollution PLAN
- Integrated Water and Waste Management Plan
- Storm Water Management Plan
- Waste Management Plan
- Waste Water Management Plan
- Water Supply and Usage Agreements
- General Authorisation

1.4.5 Method Statements:

- Excavations and Backfilling MS
- Fauna and Flora Protection MS
- Hazardous Substance Storage MS
- Rehabilitation and Re-vegetation Plan, and MS
- Site Clearing MS
- Storm Water Management MS
- Survey and Setting-out MS

1.5 REPORT OUTCOME

The report must comment on compliance with:

- The EMPr;
- Environmental Authorisations;
- General Authorisations; and
- All permits authorised for the construction of the Windfarm infrastructure layout.

1.6 AUDIT PROGRAMME

The following table reflects the dates of submission for the site audits conducted by CES:

Report name	Proposed date of site audit	Actual date of site audit	Date of report submission
Construction Audit #1	25 – 26 November 2019	25 – 26 November 2019	13 December 2019



2 COMPLIANCE WITH EA AND EMPR

2.1 AUDIT CHECKLIST

The following audit checklist was generated from the EA and EMPR. Photos of the site have been included.

Key to the checklist below:

STATUS	DESCRIPTION
YES	Means the activity is being/was carried out in a manner that is compliant with the EMPR specifications.
NO	Means the methods used during a specific activity are not compliant with the EMPR and/or Environmental Authorisation (EA) specifications. The non-compliance is described as a major non-compliance as the transgression is severe.
PARTIAL	Means the methods used during a specific activity are partially compliant with the EMPR and/or Environmental Authorisation (EA) specifications. The partial compliance is described as a minor non-compliance as the transgression may have a low severity or temporary activity. NOTE: failure to rectify a minor non-compliance can lead to a major non-compliance.
N/A	Means "Not Applicable" and may refer to the redundancy of the compliance item or the item may not be relevant at the specific stage of the development. The item may only be relevant at a later stage.

2.2 AUDIT EVIDENCE

- **Inspection** of relevant records or documents - consists of examining records or documents, whether internal or external, in paper form, electronic form, or other media.
- **Inspection** of assets - consists of physical examination of the assets or mitigation methods.
- **Observation** – consists of looking at a process or procedure being performed by others.
- **Inquiry** – consists of seeking information of knowledgeable persons inside or outside the entity.
- **Confirmed by Enquiry**- which is a specific type of inquiry, is the process of obtaining a representation of information or of an existing condition directly from a third party.

NB:

Activity completed = The activity has been completed and carried out in a satisfactorily manner

Compliance = YES

Partial/Non-compliance = NO minor/major

Not Applicable = N/A



2.3 ENVIRONMENTAL AUTHORISATION CHECKLIST

EA CONDITIONS	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT	PHOTO RECORD REF NO.
		YES	NO/Partial	N/A			
SCOPE OF AUTHORISATION							
1	The alternative "Option 1" is hereby approved.			N/A	Confirmed by Enquiry	Informative Statement	
2	Authorisation of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation			N/A	Confirmed by Enquiry	Informative Statement	
3	The holder of the authorisation is responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.			N/A	Confirmed by Enquiry	Informative Statement	
4	The activities authorised may only be carried out at the property as described above	YES			Confirmed by Enquiry	Compliant. Only the listed activities are currently being carried out on the property.	
5	Any changes to, or deviations from, the project description set Out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be affected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts Of such changes or deviations and it may be necessary for the holder Of the authorisation to apply for further authorisation in terms Of the regulations	YES			Confirmed by Enquiry	Compliant. There were no changes or deviation to the project description to date.	
6	This activity must commence within a period of five (05) years from the date of issue of this authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.	YES			Confirmed by Enquiry	Compliant. Construction started within the requirement timeframe.	
7	Commencement with one activity listed in terms of this authorisation constitutes commencement of all authorised activities.			N/A	Confirmed by Enquiry	Informative Statement	
8	The holder of an environmental authorisation must notify the competent authority of any alienation, transfer and change of ownership rights in the property on which the activity is to take place			N/A	Inspection of relevant records or documents	Compliant. There has been no change of ownership for the properties	
9	A request for an extension to the validity of this authorisation must be submitted to the Department of Environmental Affairs at least six months prior to the lapsing of such,			N/A	Confirmed by Enquiry	Informative Statement	
NOTIFICATION OF AUTHORISATION AND RIGHT TO APPEAL							
10	The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of the decision to authorise the activity.	YES			Inspection of relevant records or documents	Compliant. Notifications were completed. Proof of submission was made available for audit	
11	The notification referred to must						
	11.1 specify the date on which the authorisation was issued;	YES					
	11.2 inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the Environmental Impact Assessment Regulations, 2010;	YES			Inspection of relevant records or documents	Compliant. The notification letter contained all the information required by the EA	
	11.3. advise the interested and affected party that a copy of the authorisation will be furnished on request; and	YES					
11.4. give the reasons of the competent authority for the decision,	YES						
12	The holder of the authorisation must publish a notice –						
	12.1. informing interested and affected parties of the decision;	YES					
	12.2. informing interested and affected parties where the decision can be accessed; and	YES			Inspection of relevant records or documents	Compliant. The notice was sent to all IAP's and the required information was supplied in the notice	
12.3. drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision in the newspaper(s) contemplated and used in terms of regulation 54(2)(c) and (d) and which newspaper was used for the placing of advertisements as part of the public participation process	YES						
MANAGEMENT OF THE ACTIVITY							
13	The Environmental Management Programme (EMPr) submitted as part of the Application for EA hereby approved. This EMPr must be implemented and adhered to.	YES			Confirmation	Compliant. A copy of the EMPr has been printed and is kept on site. The conditions listed therein are being implemented by all contractors on site.	



EA CONDITIONS	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT	PHOTO RECORD REF NO.
		YES	NO/Partial	N/A			
MONITORING							
14	The applicant must appoint a suitably qualified and experienced independent Environmental Control Officer (ECO) for the construction phase of the development that will have the responsibility to ensure that the mitigation/rehabilitation measures and recommendations referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.	YES			Confirmation	Compliant. Mr Dakalo Nemalegeni of Nsovo Environmental Consulting has been appointed as the project ECO.	
	14.1. The ECO must be appointed before commencement of any authorised activity	YES			Confirmation	The date of the ECO's appointment: 26/07/2019 The date of the project commencement: 15/08/2019	
	14.2. Once appointed, the name and contact details Of the ECO must be submitted to the Director Compliance Monitoring of the Department.	YES			Confirmation	The appointment of the ECO and his details were sent to DEA on 26/07/2019.	
	14.3 The ECO must keep record of all activities on site, problems identified, transgressions noted, and a task schedule of tasks undertaken by the ECO.	YES			Inspection of relevant records or documents	Compliant. Monthly ECO reports have been compiled, as well as additional incident reports. The ECO is keeping track of all activities taking place on site.	
	14.4. The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.	YES			Confirmation	Mr Dakalo Nemalegeni of Nsovo Environmental Consulting is still employed as the project ECO.	
RECORDING AND REPORTING TO THE DEPARTMENT							
15	All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of this authorisation, must be submitted to the Director	YES			Inspection of relevant records or documents	Compliant: All required documentation has been submitted to the Director: Compliance Monitoring	
16	The holder of the authorisation must submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities.			N/A	Confirmation	Construction of the project is still in progress; thus this condition is not yet required.	
17	The environmental audit report must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the EMPr.			N/A	Confirmation		
18	Records relating to monitoring and auditing must be kept on site and made available for inspection to any relevant and competent authority in respect of this development.	YES				Records are being kept by the ECO	
COMMENCEMENT OF THE ACTIVITY							
19	The authorised activity shall not commence within twenty (20) days of the date of signature of the authorisation.	YES			Inspection of relevant records or documents	The date of the DEA Notification: 01/08/2018 The date of the project commencement: 15/08/2019	
20	An appeal under section 43 of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended), does not suspend an environmental authorisation or exemption, or any provisions or conditions attached thereto, or any directive, unless the Minister, MEC or delegated organ of state directs otherwise.			N/A		Informative Statement	
21	Should you be notified by the Minister of a suspension of the authorisation pending appeal procedures, you may not commence with the activity until such time that the Minister allows you to commence with such an activity in writing.			N/A		Informative Statement	
NOTIFICATION TO THE AUTHORITIES							
22	Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence, as well as a reference number. This notification period may coincide with the notice of intent to appeal period.	YES			Confirmation		
OPERATION OF THE ACTIVITY							
23	Fourteen (14) days written notice must be given to the Department that the activity operational phase will commence			N/A	N/A	The construction has not yet been completed	
SITE CLOSURE AND DECOMMISSIONING							



EA CONDITIONS	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT	PHOTO RECORD REF NO.
		YES	NO/Partial	N/A			
24	Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.			N/A	Confirmation	The activity is proceeding and has not become redundant.	
SPECIFIC CONDITIONS							
25	The power lines must be marked with bird flappers to avoid the electrocution of birds.			N/A	Inspection of assets	Compliant. The powerlines have been constructed; however, they are not yet connected to the electrical grid. Bird flappers should be installed prior to their connection to prevent electrocution.	
26	Power lines that span drainage lines and water bodies must be marked with bird flight diverters on the earth wire of the line, five metres apart, alternating black and white. Bird flight diverters to be used must be in accordance with specialist recommendations.	YES			Inspection of assets	Compliant. Diverters have been installed on the lines.	
27	Pylons must be placed a minimum of 50m outside river and stream banks.	YES			Inspection of assets	Compliant	
28	A search and rescue must be carried out where threatened species are affected prior to the construction of the sub-station to recover valuable species that may be damaged in the construction phase.	YES			Inspection of relevant records or documents	Compliant. Search and Rescue reports were audited from a qualified Botanist.	
29	Existing tracks/roads must be used as far as possible, and construction activities must be limited to the authorised site	YES			Inspection of assets	Compliant	
30	Identified sensitive areas must be avoided	YES			Inspection of assets	Compliant	
31	During construction, unnecessary disturbance to habitats must be strictly controlled and the footprint of the impact must be kept to a minimum	YES			Inspection of assets	Compliant. The site is still under construction.	
32	Disturbed areas must be rehabilitated as soon as possible once construction is complete in an area.			N/A	Confirmation	The site is still under construction. Rehabilitation should occur after the construction phase has been completed.	
33	Excavation of the substation foundations must be monitored by an appropriate Paleontological specialist	YES			Inspection of relevant records or documents	Compliant. Excavation works have been completed for the substation.	
34	A walk-through survey of the final power line tower positions must be undertaken by an ecologist, heritage specialist and avifauna specialist to determine any additional site-specific mitigation which should be implemented.	YES			Inspection of assets	Compliant	
35	Before development can continue the regions need to be checked for the presence of bird nesting sites	YES			Inspection of assets	Compliant	
36	A buffer of 50 metres from the dry packed stone wall identified close to Corridor option 1" must be implemented, and the feature is to be fenced-off to protect it from possible damage during construction of the proposed power line.	YES			Inspection of assets	Compliant	
37	Construction must include appropriate design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off	YES			Inspection of assets	Compliant	
38	An Integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate any solid waste shall be disposed of at a landfill licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act 59 of 2008).	YES			Inspection of relevant records or documents	Compliant. Integrated Waste and Water Management Plan.	
GENERAL							
39	A copy of this authorisation and the approved EMP must be kept at the property where the activity/ will be undertaken. The authorisation and approved EMP must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.	YES			Inspection of relevant records or documents	Compliant. Records are kept on the site.	
40	The holder of the authorisation must notify both the Director: Integrated Environmental Authorisations and the Director Compliance Monitoring at the Department, in writing and within 48 (forty-eight) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance			N/A	Inspection of relevant records or documents	Compliant. All conditions are currently being adhered to.	
41	National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of authorisation as set Out in this document or any other subsequent document emanating from these conditions of authorisation.			N/A	Confirmation	Informative Statement	



EA CONDITIONS	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT	PHOTO RECORD REF NO.
		YES	NO/ Partial	N/A			

TOTAL COUNT 31 0 16



2.4 ENVIRONMENTAL MANAGEMENT PLAN CHECKLIST

CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
CHAPTER 5: MANAGEMENT PROGRAMME: PLANNING AND DESIGN						
SECTION 5.1	OBJECTIVE: Ensure the design responds to identified environmental constraints and opportunities					
Page 35	In order to minimise impacts associated with the construction and operation of the power lines and access road, the following is required to be undertaken during the final design phase:					
	➤ Geotechnical survey – this will investigate foundation conditions and the availability of natural construction materials.	YES			Inspection of relevant records or documents	Compliant
	➤ Specialist walk-through surveys on the pylon positions and new roads.					
	➤ Undertake ecological and heritage at the tower positions and the new road alignments					
	➤ Undertake avifauna walk through surveys once final power line alignment and tower positions are known.					
	➤ Ensure that the dry packed stone is fenced off and that a buffer of 50m is implemented around this site.					
	• Bird-friendly power line tower and conductor designs must be used. The tower designs used should be those which are poorly suited to serve as nesting substrates by most bird species and with perching areas situated in areas either off-set or well away from the conductors.	YES			Confirmed by Enquiry	Compliant
	• Ensure that erosion mitigation measures are considered in the construction when planning the project.	YES			Inspection of relevant records or documents	Compliant
	• Ensure that riparian areas are spanned/ pole structures are not placed within proximity to rivers, streams. Ensure placement of footprints outside 1:100-year flood lines as far as possible	YES			Inspection of assets	Compliant
	• Plan any new access roads according to contour lines and planned wind energy facility internal routes to minimise cutting and filling operations.	YES			Confirmed by Enquiry	Compliant
	• Design measures for storm water management need to allow for surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows.	YES			Inspection of relevant records or documents	Compliant. Storm Water Management Plan
• Undertake a detailed geotechnical survey of the proposed tower positions in order to fully understand the soils in terms of founding conditions and erosion potential.	YES			Inspection of relevant records or documents	Compliant	
• Where possible, the positioning of infrastructure should be shifted to avoid populations of Species of special concern	YES			Inspection of relevant records or documents	Compliant. No recordings of SCC were found by the specialist according to the supporting evidence.	
• Ensure that pole/pylon structure is compliant with all Eskom policies on bird friendly structures	YES			Confirmed by Enquiry	Compliant	
• Overhead wires, cables etc., crossing a river, valley or major roads shall be marked and in addition their supporting towers marked and lighted if an aeronautical study indicates it could constitute a hazard to aircraft.			N/A	Confirmed by Enquiry	Compliant	
CHAPTER 6: CONSTRUCTION						
Institutional Arrangements: Roles and Responsibilities for the Construction Phase						
Project Manager						
Page 41-43	• Ensure all specifications and legal constraints specifically with regards to the environment are highlighted to the Contractor(s) so that they are aware of these.	YES			Confirmed by Enquiry	Compliant
	• Ensure that Terra Wind Energy Golden Valley and its Contractor(s) are made aware of all stipulations within the EMP.	YES			Confirmed by Enquiry	Compliant
	• Ensure that the EMP is correctly implemented throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes.	YES			Confirmed by Enquiry	Compliant
Site Manager						
• Ensure there is communication with the Project Manager, the ECO, and relevant discipline engineers on matters concerning the environment.	YES			Confirmed by Enquiry	Compliant	
• Ensure that no actions are taken which will harm or may indirectly cause harm to the environment and take steps to prevent pollution on the site.	YES			Confirmed by Enquiry	Compliant	
• Confine activities to the demarcated construction site.	YES			Inspection of assets	Compliant	
Environmental Control Officer						
• Will be responsible for monitoring, reviewing, and verifying compliance by the Contractor with the environmental specification	YES			Inspection of relevant records or documents	Compliant. Mr Dakalo Nemalegeni of Nsovo Environmental Consulting has been appointed as the project ECO.	
• Independently report to DEA in terms of compliance with the specifications of the EMP and conditions of the Environmental Authorisation	YES			Inspection of relevant records or documents	Compliant	
Contractors and Service Providers						



CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
	The contractor is responsible for informing employees and sub-contractors of their environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts	YES			Inspection of relevant records or documents	Compliant
SECTION 6.2	OBJECTIVES - SITE ESTABLISHMENT					
	OBJECTIVE: Minimise impacts related to inappropriate site establishment					
Page 44-45	• Secure site, working areas and excavations in an appropriate manner, as agreed with the ECO	YES			Inspection of assets	Compliant
	• Where necessary control access, fence, and secure area.	YES			Inspection of assets	Compliant
	• Fence and secure contractor's equipment camp.	YES			Inspection of assets	Compliant
	• Where the public could be exposed to danger by any of the works or site activities, the contractor must, as appropriate, provide suitable flagmen, barriers and/or warning signs in English, Afrikaans and any other relevant local languages, all to the approval of the Site Manager.	YES			Inspection of assets	Compliant
	• All unattended open excavations shall be adequately demarcated and/or fenced.	YES			Inspection of assets	Compliant
	• Adequate protective measures must be implemented to prevent unauthorised access to the working area and the internal access/haul routes.	YES			Inspection of assets	Compliant
	• Establish appropriately bunded areas for storage of hazardous materials (i.e. fuel to be required during construction)	YES			Inspection of assets	Compliant
	• All development footprints should be appropriately fenced off and clearly demarcated.	YES			Inspection of assets	Compliant
	• Establish the necessary ablation facilities with chemical toilets and provide adequate sanitation facilities and ablutions for construction workers (1 toilet per every 15 workers) at appropriate locations on site.	YES			Inspection of assets	Compliant
	• Ablution or sanitation facilities should not be located within 100 m from a 1:100-year flood line including drainage lines	YES			Inspection of assets	Compliant
	• Supply adequate (closable, tamper proof) waste collection bins at site where construction is being undertaken.	YES			Inspection of assets	Compliant
	• Separate bins should be provided for general and hazardous waste.	YES			Inspection of assets	Compliant
	• As far as possible, provision should be made for separation of waste for recycling.	YES			Inspection of assets	Compliant
• All development footprints should be appropriately fenced off and clearly demarcated.	YES			Inspection of assets	Compliant	
CHAPTER 6: SECTION 6.2	OBJECTIVES - CONSTRUCTION SITE					
	OBJECTIVE: Appropriate management of the construction site and construction workers					
Page 47-48	• As far as possible, minimise vegetation clearing and levelling for equipment storage areas	YES			Inspection of assets	Compliant
	• Rehabilitate all disturbed areas at the construction equipment camp as soon as construction is complete within an area.			N/A		The project is still in the construction phase. No rehabilitation has yet to take place on the site.
	• Ensure waste removal facilities are maintained and emptied on a regular basis.	YES			Inspection of relevant records or documents	Compliant
	• The terms of this EMP and the Environmental Authorisation (once issued) must be included in all tender documentation and Contractors contracts	YES			Inspection of relevant records or documents	Compliant
	• Ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm.	YES			Inspection of relevant records or documents	Compliant
	• Contractors must use chemical toilets/ablation facilities situated at designated areas of the site; no ablation activities will be permitted outside the designated areas. These facilities must be regularly serviced by appropriate contractors.	YES			Inspection of relevant records or documents	Compliant
	• A minimum of one toilet shall be provided per 15 persons at each working area such as the Contractor's camp	YES			Inspection of assets	Compliant
	• All litter must be deposited in a clearly marked, closed, animal-proof disposal bin in the construction area. Particular attention needs to be paid to food waste.	YES			Inspection of assets	Compliant
	• No firewood or kindling may be gathered from the site or surrounds.	YES			Confirmed by Enquiry	Compliant
	• No one other than the ECO or personnel authorised by the ECO may disturb flora or fauna outside of the demarcated construction area/s.	YES			Confirmed by Enquiry	Compliant
	• Firefighting equipment and training must be provided before the construction phase commences.	YES			Inspection of assets	Compliant
	• Draft Code of conduct for construction workers.	YES			Inspection of relevant records or documents	Compliant
	• Contractors must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.	YES			Inspection of relevant records or documents	Compliant
• On completion of the construction phase, all construction workers must leave the site within one week of their contract ending.			N/A		The project is still in the construction phase. This condition should be followed once construction has been completed.	
CHAPTER 6: SECTION 6.2	OBJECTIVES - EMPLOYMENT AND TRAFFIC					
Page 50-51	OBJECTIVE: Maximise local employment and business opportunities associated with the construction phase					



CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
	<ul style="list-style-type: none"> Develop a database of local BEE service providers and ensure that they are informed of tenders and job opportunities 	YES			Inspection of relevant records or documents	Compliant. CLO have developed a database.
	Objective: Minimise impacts related to traffic management and transportation of equipment and materials to site					
	<ul style="list-style-type: none"> A designated access to the proposed site must be created to ensure safe entry and exit. 	YES			Inspection of assets	Compliant. Security gates and guards are posted at the project entrance areas. Strict access is maintained.
	<ul style="list-style-type: none"> All relevant permits for abnormal loads must be applied for from the relevant authority Appropriate road management strategies must be implemented on external and internal roads with all employees and contractors required to abide by standard road and safety procedures. 	YES			Inspection of relevant records or documents	Compliant. Permits have been applied for and received prior to hauling. Compliant. Road layout plan was made available for review.
CHAPTER 6: SECTION 6.2	OBJECTIVES - FAUNA AND FLORA					
Page 58	OBJECTIVE: Limit the Loss of Biodiversity					
	Use existing roads where possible.	Yes			Inspection of assets	Compliant
	Keep removal of vegetation and trampling to a minimum.	Yes			Inspection of assets	Compliant
	Rehabilitate disturbed areas immediately after they are no longer required			N/A		The project is still in the construction phase. No rehabilitation has yet to take place on the site.
Page 58-59	OBJECTIVE: Limit the impact of species of special concern					
	<ul style="list-style-type: none"> Some Species of special concern will not transplant. E.g.: <i>Tritonia securigera</i>, <i>Ruschia cradockensis</i>, <i>Psilocaulon junceum</i>, <i>Rhinephyllum sp</i>, <i>Crassula capitella</i>, <i>Boophone disticha</i>, <i>Aloe humilis</i>, <i>Carissa bispinosa</i> and <i>Euphorbia mauritanica</i>. These individuals should, as far as possible, be avoided. 	YES			Inspection of relevant records or documents	Compliant
	<ul style="list-style-type: none"> Permits will be required to remove species of special concern. 	YES			Inspection of relevant records or documents	Compliant. Permits have been applied for and received prior to clearing.
	<ul style="list-style-type: none"> Keep removal of vegetation and trampling to a minimum. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Undertake a walk-through survey of the development footprint prior to construction. Localities of all red data species and any other species of conservation concern potentially affected should be recorded Prior to any earthworks (including road construction) within areas of natural vegetation a plant Search and Rescue program should be developed and implemented, preceded by a meticulous investigation of all the tower footprint areas by a suitably qualified botanist, conducted along the entire route on foot 	YES			Confirmed by Enquiry	Compliant. A Search and Rescue activity is currently being undertaken by a Botanist.
Page 59-61	OBJECTIVE: To reduce the level of impact of the proposed development on avifauna to an acceptable level					
	<ul style="list-style-type: none"> Conduct avifaunal walk through to identify sensitive sections of line for collision mitigation, and breeding Red Listed species 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Install suitable and effective anti-bird collision marking devices on earth wire as soon as possible after stringing and as per technical specifications elsewhere in this report 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Ensure bird-friendly tower designs are implemented to minimise the risk of electrocutions 			N/A		Not Yet Applicable.
	<ul style="list-style-type: none"> Identify the exact power line spans requiring marking to reduce the potential for collision. 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Fit bird flappers to new lines in identified sensitive areas 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Insulate live components at support structures. 			N/A		Not Yet Applicable.
	<ul style="list-style-type: none"> Power line to avoid areas with high bird densities or areas which attract birds. 			N/A		Not Yet Applicable.
	<ul style="list-style-type: none"> Identify the exact power line spans requiring marking to reduce the potential for collision Ensure bird flaps are installed in sensitive areas, 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Check the lines for collisions 	YES			Confirmed by Enquiry	Compliant. Monitoring of the constructed line areas is undertaken and recording of the findings are kept by the ECO.
Page 62	OBJECTIVE: Limit impacts on vegetation communities					
	<ul style="list-style-type: none"> Where possible, align access routes along existing roads and tracks. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Educate staff not to start any fires Ensure that construction activities are kept within the demarcated areas 	YES			Confirmed by Enquiry	Compliant
Page 63-64	OBJECTIVE: Manage and reduce the impact of alien invasive vegetation					
	<ul style="list-style-type: none"> Removal of existing alien species should be consistently done. 	YES			Inspection of relevant records or documents	Compliant. Alien Vegetation Management Plan is followed.
	<ul style="list-style-type: none"> Rehabilitation of disturbed areas after the construction of the power line should be done as soon as possible after construction is completed 			N/A		The project is still in the construction phase. No rehabilitation has yet to take place on the site.



CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
	<ul style="list-style-type: none"> An on-going monitoring program should be implemented to monitor whether alien species are becoming established and assist with the management of the infestations. 	YES			Inspection of relevant records or documents	Compliant. Alien Vegetation Management Plan is followed.
	<ul style="list-style-type: none"> Control alien plants that become established using registered control methods. 	YES			Inspection of relevant records or documents	Compliant. Alien Vegetation Management Plan is followed.
	<ul style="list-style-type: none"> An Environmental Control Officer should monitor the site regularly during construction 	YES			Inspection of relevant records or documents	Compliant
	A qualified botanist should conduct an annual audit of the project area. The botanist will assess whether there are any alien species on site. If there are alien species on site, then these species distributions need to be mapped using a GPS, the number of individuals and the age and or size class of the species recorded.	YES			Confirmed by Enquiry	Compliant
SECTION 6.2	OBJECTIVES - NOISE AND DUST CONTROL					
Page 53-54	OBJECTIVE: Management of dust and air emissions					
	<ul style="list-style-type: none"> Roads must be maintained in a manner that will ensure that nuisance from dust emissions from road or vehicle sources are not visibly excessive. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Ensure that any damage to roads because of construction activities is repaired before completion of the construction phase. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Appropriate dust suppressant must be applied on all exposed areas and stockpiles as required to minimise/control airborne dust. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Haul vehicles moving outside the construction site carrying material that can be wind-blown must be covered with tarpaulins if required by the wind conditions. 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Speed of construction vehicles must be restricted, as defined by the ECO. 	YES			Inspection of assets	Compliant. Speed control on sites is limited to 40km/h. Signs are located around the project site.
	<ul style="list-style-type: none"> Dust-generating activities or earthworks may need to be rescheduled or the frequency of application of dust control/suppressant increased during periods of high winds if visible dust is blowing toward nearby residences outside the site. 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Strictly control vibration pollution from compaction plant or excavation plant. 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Disturbed areas must be re-vegetated as soon as practicable once construction in an area is completed 			N/A	Confirmed by Enquiry	The project is still in the construction phase. No rehabilitation has yet to take place on the site.
	<ul style="list-style-type: none"> Vehicles and equipment must be maintained in a road-worthy condition at all times. 	YES			Confirmed by Enquiry	Compliant. Regular maintenance of vehicles takes place.
	Monitoring must be undertaken to ensure emissions are not exceeding the prescribed levels via the following methods:					
	<ul style="list-style-type: none"> Immediate reporting by personnel of any potential or actual issues with nuisance dust or emissions to the Site Manager. 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> A complaints register must be maintained, in which any complaints from residents/the community will be logged, and thereafter complaints will be investigated and, where appropriate, acted upon. 	YES			Inspection of relevant records or documents	Compliant
	<ul style="list-style-type: none"> An incident reporting system must be used to record non-conformances to the EMP. 	YES			Inspection of relevant records or documents	Compliant
Page 73-74	OBJECTIVE: Noise control					
	<ul style="list-style-type: none"> On-site construction activities should be limited to 6:00am to 6:00pm Monday – Saturday (excluding public holidays) (in terms of the Environment Conservation Act). 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> Should construction activities need to be undertaken outside of these times, the surrounding communities will be notified, and appropriate approval will be obtained from DEA and/or the Local Authority. 			N/A		Not yet applicable
	<ul style="list-style-type: none"> Construction noise will be managed according to the Noise Control Regulations and SANS 10103. 			N/A		Informative statement.
CHAPTER 6: SECTION 6.2	OBJECTIVES - SOIL MANAGEMENT					
Page 55-56	OBJECTIVE: Minimisation of development footprint and disturbance to topsoil					
	<ul style="list-style-type: none"> Excavated topsoil must be stockpiled in designated areas separate from base material and covered until replaced during rehabilitation. 	YES			Confirmed by Enquiry	Compliant
	<ul style="list-style-type: none"> As far as possible, topsoil must not be stored for longer than 3 months. 	YES			Confirmed by Enquiry	Construction activities are yet to be undertaken
	<ul style="list-style-type: none"> As far as possible, the maximum topsoil stockpile height must not exceed 2 m in order to preserve micro-organisms within the topsoil, which can be lost due to compaction and lack of oxygen 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Topsoil must not be stripped or stockpiled when it is raining or when the soil is wet as compaction will occur. 	YES			Confirmed by Enquiry	Compliant
Page 64- 65	OBJECTIVE: Minimise soil degradation and erosion					
	<ul style="list-style-type: none"> Identify disturbance areas and restrict construction activity to these areas. 	YES			Inspection of relevant records or documents	Compliant. Areas are marked with netting to avoid disturbance.
	<ul style="list-style-type: none"> Rehabilitate disturbance areas as soon as practicable when construction in an area is complete. 			N/A		The project is still in the construction phase. This condition should be followed once construction has been completed.



CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
	• Access roads to be carefully planned and constructed to minimise the impacted area and prevent unnecessary excavation, placement, and compaction of soil.	YES			Inspection of assets	Compliant
	• Where access roads cross natural drainage lines, culverts must be designed to allow free flow and regular maintenance must be carried out.			N/A		No yet applicable. There has been no crossing of water related sites.
	• It may be necessary to use geotextiles and/or wind nets to limit wind erosion of exposed areas, where wind erosion could present difficulties and result in the loss of valuable topsoil.	YES			Confirmed by Enquiry	Compliant
	• Minimise removal of vegetation which adds stability to soil.	YES			Confirmed by Enquiry	Compliant
	• Soil conservation: Stockpile topsoil for re-use in rehabilitation phase, protect stockpile from erosion	YES			Confirmed by Enquiry	Compliant
	• Control depth of excavations and stability of cut faces/sidewalls	YES			Confirmed by Enquiry	Compliant
CHAPTER 6: SECTION 6.2	• OBJECTIVES - WASTE & WASTEWATER					
Page 69-70	• OBJECTIVE: Appropriate handling and management of waste					
	• Construction method and materials should be carefully considered in view of waste reduction, re-use, and recycling opportunities	YES			Inspection of relevant records or documents	Compliant. Waste Management Plans and Method Statements are available for audit.
	• Construction contractors must provide specific detailed waste management plans to deal with all waste streams.	YES				
	• Specific areas must be designated on-site for the temporary management of various waste streams, i.e. general refuse, construction waste (wood and metal scrap), and contaminated waste as required. Location of such areas must seek to minimise the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage, and vermin control.	YES			Inspection of assets	Two hazardous waste skips have been provided and placed at the waste area near the camp site.
	• Where practically possible, construction and general wastes on-site must be reused or recycled	YES			Inspection of relevant records or documents	There are currently no recycling facilities available in the nearby area. All general waste is separated at the site and removed by EnviroServ to a registered site.
	• Bins and skips must be available on-site for collection, separation, and storage of waste streams (such as wood, metals, general refuse etc.).	YES				Two hazardous waste skips have been provided and place at the waste area
	• Disposal of waste must be in accordance with relevant legislative requirements, including the use of licensed contractors.	YES			Confirmed by Enquiry	Compliant
	• Uncontaminated waste will be removed at least weekly for disposal; other wastes will be removed for recycling/ disposal at an appropriate frequency.	YES			Inspection of relevant records or documents	Compliant. Each construction crew maintained an adequate number of waste bins. The facilities main waste storage area is properly marked, maintained and frequently services by EnviroServe.
	• Waste must be kept to a minimum and must be transported by approved waste transporters to sites designated for their disposal.	YES				
	• Documentation (waste manifest) must be maintained detailing the quantity, nature, and fate of any regulated waste. Waste disposal records must be available for review at any time.	YES			Inspection of relevant records or documents	Compliant
	• Dispose of all solid waste collected at an appropriately registered waste disposal site. Waste disposal shall be in accordance with all relevant legislation and under no circumstances may waste be burnt on site.	YES			Inspection of relevant records or documents	Compliant. Registered Waste site is used by EnviroServ.
	• Upon the completion of construction, the area must be cleared of potentially polluting materials			N/A		Not yet applicable.
	• Where a registered waste site is not available close to the construction site, provide a method statement with regard to waste management.			N/A	Inspection of relevant records or documents	Compliant. Registered Waste site is used by EnviroServ.
Section 6.2	OBJECTIVE: Appropriate handling and management of waste					
Page 70-73	• Hydrocarbon waste must be contained and stored in sealed containers within an appropriately bunded area.	YES				Compliant. Hazardous Waste Management Plan is followed. All waste is stored at the marked area for collection by EnviroServe.
	• Any contaminated/polluted soil removed from the site must be disposed of at a licensed hazardous waste disposal facility.	YES			Confirmed by Enquiry	Compliant. Hazardous Waste Management Plan is followed.
	• Routine servicing and maintenance of vehicles must not to take place on-site (except for emergencies). If repairs of vehicles must take place, an appropriate drip tray must be used to contain any fuel or oils.	YES			Confirmed by Enquiry	Compliant
	• Transport of all hazardous substances must be in accordance with the relevant legislation and regulations	YES			Inspection of relevant records or documents	Compliant. Hazardous Waste Management Plan is followed. All waste is stored at the marked area for collection by EnviroServe.
	• Regularly serviced chemical toilets facilities will be used to ensure appropriate control of sewage.	YES			Confirmed by Enquiry	Compliant
Section 6.2	OBJECTIVE: Appropriate handling and storage of hazardous substances					



CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
Page 89-90	<ul style="list-style-type: none"> Spill kits must be made available on-site for the clean-up of spills and leaks of contaminants. 	YES			Inspection of relevant records or documents	Compliant. Spill kits and procedures are present for each construction site. Contractor's method statements have been provided.
	<ul style="list-style-type: none"> Corrective action must be undertaken immediately if a potential /actual leak or spill of a polluting substance identified. This includes stopping the contaminant from further escaping, cleaning up the affected environment as much as practically possible and implementing preventive measures 	YES			Inspection of relevant records or documents	Compliant. Hazardous Waste Management Plan is followed.
	<ul style="list-style-type: none"> In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents. 	YES			Confirmed by Enquiry	There have been no major spillages that requires the attention of the authority
	<ul style="list-style-type: none"> Spilled cement must be cleaned up as soon as possible and disposed of at a suitably licensed waste disposal site 			N/A	Confirmed by Enquiry	Compliant. No cement has been cast for the substation. Still to take place.
	<ul style="list-style-type: none"> Routine servicing and maintenance of vehicles must not to take place on-site (except for emergencies). If repairs of vehicles must take place, an appropriate drip tray must be used to contain any fuel or oils. 	YES			Confirmed by Enquiry	Compliant. Vehicles are regularly services at an area that is not located on the project property.
	<ul style="list-style-type: none"> All stored fuels to be maintained within a bund and on a sealed surface. 	YES			Inspection of assets	Compliant. Two 23,000L self-bunded fuel tanks are present. The bund wall meets the requirements
	<ul style="list-style-type: none"> Fuel storage areas must be inspected regularly to ensure bund stability, integrity, and function. 	YES			Inspection of relevant records or documents	Compliant
	<ul style="list-style-type: none"> Construction machinery must be stored in an appropriately sealed area. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> The storage of flammable and combustible liquids such as oils will be in designated areas which are appropriately bunded, and stored in compliance with Material Safety Data Sheets (MSDS) files 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Any storage and disposal permits/approvals which may be required must be obtained, and the conditions attached to such permits and approvals will be compiled with. 	YES			Inspection of relevant records or documents	Compliant
<ul style="list-style-type: none"> Transport of all hazardous waste must be in accordance with the relevant legislation and regulations 	YES			Confirmed by Enquiry	Compliant	
Page 56	OBJECTIVE: Minimise storm water runoff and associated erosion					
	<ul style="list-style-type: none"> Management of storm water will be required during the construction and operational phases of the facility as the soils in the area are highly dispersive 	YES			Inspection of relevant records or documents	Compliant. Stormwater Management Plan.
	<ul style="list-style-type: none"> A Method Statement for the management of storm water and mitigation of erosion which also considers the recommendations below is to be submitted to the ECO. 	YES			Inspection of relevant records or documents	Compliant
Page 21-22	<ul style="list-style-type: none"> Ensure suitable handling of storm water within the site (i.e. separate clean and dirty water streams around the plant and install stilling basins to capture large volumes of run-off, trapping sediments and reduce flow velocities) through appropriate design of the facility. 	YES			Inspection of assets	Compliant
	<ul style="list-style-type: none"> Water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under general authorisation in terms of S39 and GN 1191 of GG 20526 October 1999. 			N/A	Inspection of relevant records or documents	Compliant. The project has received the general Authorisation and permission to abstract water from the Great Fish River
	<ul style="list-style-type: none"> In terms of Section 19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing or recurring. 	YES			Confirmed by Enquiry	Compliant. Water monitoring takes place at location around the project site.
SECTION 6.5	OBJECTIVES - MONITORING PROGRAMME					
Page 78	OBJECTIVE: To monitor the performance of the control strategies employed against environmental objectives and standards					
	<ul style="list-style-type: none"> A monitoring programme must be in place not only to ensure conformance with the EMP, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required 	YES			Inspection of relevant records or documents	Compliant
	<ul style="list-style-type: none"> An independent Environmental Control Officer (ECO) must be appointed and must have the appropriate experience and qualifications to undertake the necessary tasks. 	YES			Inspection of relevant records or documents	Compliant
	<ul style="list-style-type: none"> The ECO shall remain on site on a full-time basis as long as construction activities dictate. Thereafter provided compliance is maintained, monthly or bi-weekly site compliance inspections would be sufficient, reducing as construction proceeds. 	YES			Confirmed by Enquiry	Compliant
Sub-Section 6.5.1 Page 79	Non-Conformance Reports					
	<p>All supervisory staff including Foremen, Resident Engineers, and the ECO must be provided the means to be able to submit non-conformance reports to the Site Manager</p> <p>The report must indicate that the remediation measures have been implemented timeously and that the non-conformance can be closed-out to the satisfaction of the Site Manager and ECO.</p>	YES			Inspection of relevant records or documents	Compliant
Sub-Section 6.5.2 Page 79	Monitoring Reports					
	<p>A monitoring report will be compiled by the ECO on a monthly basis and must be submitted to DEA for their records. This report should include details of the activities undertaken in the reporting period, any non-conformances or incidents recorded, corrective action required, and details of those non-conformances or incidents which have been closed out.</p>	Yes			Inspection of relevant records or documents	Compliant



CEMPR REFERENCE	ENVIRONMENTAL REQUIREMENT	COMPLIANCE			AUDIT EVIDENCE	COMMENT
		YES	NO/ Partial	N/A		
Sub-Section 6.5.3 Page 79	Final Audit Report					
	A final environmental audit report must be compiled by an independent auditor and be submitted to DEA upon completion of the construction and rehabilitation activities (within 30 days of completion of the construction phase (i.e.: within 30 days of site handover)) and within 30 days of completion of rehabilitation activities			N/A		Construction of the project is still in progress; thus, this condition is not yet required.
This report must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions and the requirements of the EMP.			N/A			
CHAPTER 7: REHABILITATION						
SECTION 7.1	OBJECTIVES					
	OBJECTIVE: Ensure appropriate rehabilitation of disturbed areas such that residual environmental impacts are remediated or curtailed					
Page 81-83	• All temporary facilities, equipment, and waste materials must be removed from site.			N/A		Construction of the project is still in progress; thus, this condition is not yet required.
	• All temporary fencing and danger tape must be removed once the construction phase has been completed.			N/A		
	• The area that previously housed the construction equipment camp is to be checked for spills of substances such as oil, paint, etc. and these should be cleaned up.			N/A		
	• All hardened surfaces within the construction equipment camp area should be ripped, all imported materials removed, and the area shall be top soiled and re-vegetated.			N/A		
	• Temporary roads must be closed and access across these blocked.			N/A		
	• Necessary drainage works and anti-erosion measures must be installed, where required, to minimise loss of topsoil and control erosion.			N/A		
	• A rehabilitation plan should be drawn up that specifies the rehabilitation process and should be approved by the ECO.			N/A		
	• Where disturbed areas are not to be used during the construction of the new power line, these areas must be rehabilitated/re-vegetated with appropriate natural vegetation and/or local seed mix. Re-use of native/indigenous plant species removed from disturbance areas in the rehabilitation phase to be determined by a botanist, as applicable.			N/A		
	• Re-vegetated areas may have to be protected from wind erosion and maintained until an acceptable plant cover has been achieved.			N/A		
	• Erosion control measures should be used in sensitive areas such as areas with steep slopes.			N/A		
• On-going alien plant monitoring and removal must be undertaken on all areas of natural vegetation on an annual basis.			N/A			

TOTAL COUNT 127 0 29



3 PHOTOGRAPHIC EVIDENCE

The below section provides evidence for audit criteria in Chapter 2.

3.1 CONSTRUCTION CAMP AND OFFICES



Plate 3-1: Construction site offices in camp.



Plate 3-2: Ablution facilities at site office



Plate 3-3: Machinery and equipment storage area next to camp site (1)



Plate 3-4: Machinery and equipment storage area next to camp site (2)



3.2 SUBSTATION CONSTRUCTION AREA

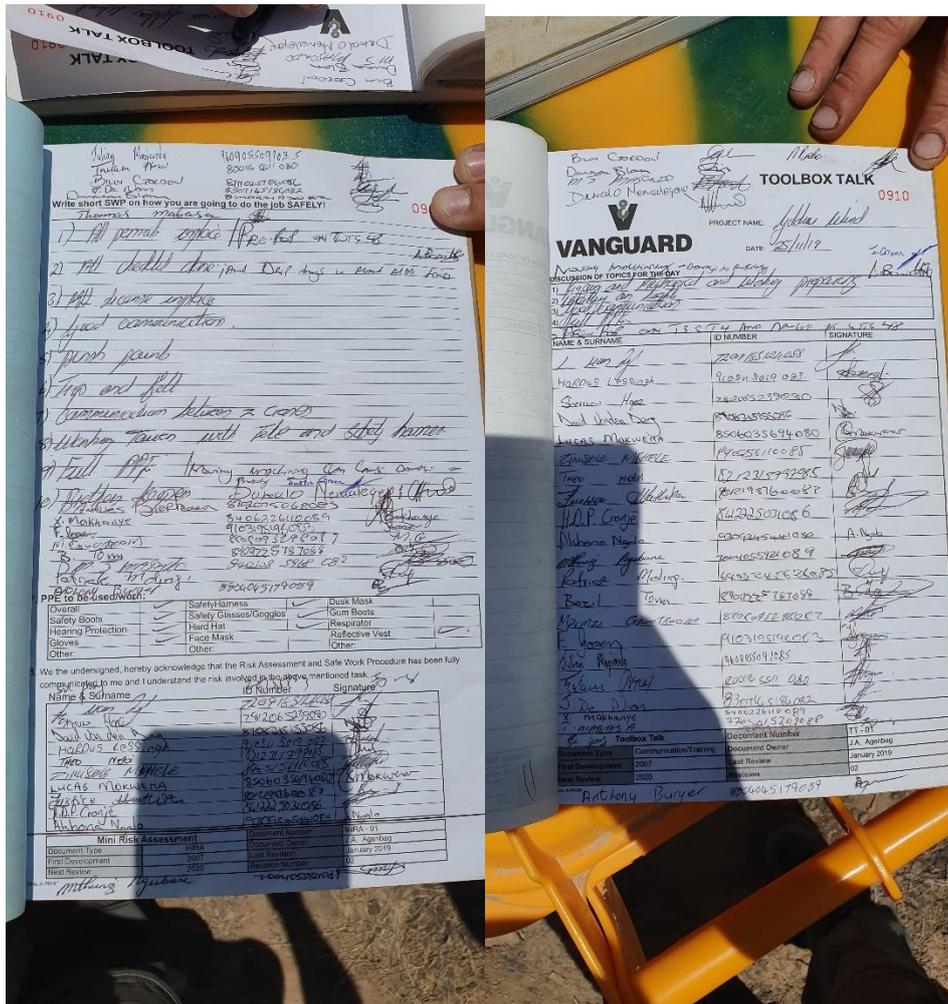


Plate 3-5: Copy of Toolbox talk registers for Vanguard and Concord sub-contractors.



Plate 3-6: Construction of the office buildings has begun



Plate 3-7: Foundation of the substation is currently being prepared.



Plate 3-8: Machinery is good working condition with drip tray.





Plate 3-9: All materials are kept in designated storage areas.

3.3 132kV POWERLINE



Plate 3-10: Access road under constructed 132kV powerline



Plate 3-11: Species of Special Concern wrapped in warning netting.



3.4 ACCESS ROADS AND CABLES



Plate 3-12: Speed control signs are in place through the project area.



Plate 3-13: Security gate controlling access to the sites



Plate 3-14: Safety warning signs located along access road warning of OHL.



Plate 3-15: EnviroServ Oil Spill Kit available at each of the construction areas.



Plate 3-16: Two 23,000L fuel storage tanks with additional bunding.



Plate 3-17: Waste Storage area within camp site.



4 CONCLUSIONS AND RECOMMENDATIONS

4.1 NON-COMPLIANCES FROM CURRENT AUDIT

The following summarises any conditions listed Section 2.3 (EA) and Section 2.3 (CEMPr) that have not been deemed to be compliant, or have been deemed to be partially compliant at the time of the audit.

4.1.1 Environmental Authorisation

The following table represents the conditions of the Environmental Authorisation that do not fully comply:

EA	Requirement	Comply Yes/No	Comment
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Compliant	16	72.2%
Partial Compliance	0	0.00%
Not Applicable	6	27.8%
TOTAL	22	

There were no conditions listed in the Environmental Authorisation that have been found to be non-compliant.

4.1.2 Environmental Management Plan

The following table represents the conditions of the Environmental Management Plan that do not fully comply:

EMP	Requirement	Comply Yes/No	Comment
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Compliant	127	93.4%
Partial Compliance	0	0.00%
Not Applicable	9	6.6%
TOTAL	136	

There were no conditions listed in the Construction Environmental Management Plan (CEMPr) that have been found to be non-compliant.



4.2 CONCLUSION AND OTHER MATTERS

Based on the findings of this audit and all supplementary evidence, it is evident that the BioTherm Energy is actively making an effort to address all recommendations made during E&S audits from the independent ECO.

During the audit that took place on the 25th November 2019, CES were not made aware of any non-compliance items. It can be concluded that the Golden Valley -Kopleegte 132kV Power Line is currently 100% compliant.



APPENDIX A: LIST OF ENVIRONMENTAL LEGISLATION, REGULATIONS AND BY-LAWS

No.	TITLE	INHERENT RISK RATING
	NATIONAL LEGISLATION (P1&P2)	
1.	Minerals and Petroleum Resources Development Act No 28 of 2002	PI
2.	National Environmental Management: Air Quality Act No 39 of 2004	PI
3.	National Environmental Management: Biodiversity Act No 10 of 2004	PII
4.	National Environmental Management: Integrated Coastal Management Act No 24 of 2008	PII
5.	National Environmental Management: Waste Act No 59 of 2008	PI
6.	National Environmental Management Act No 107 of 1998	PI
7.	National Environmental Management Protected Areas Act No 57 of 2003	PII
8.	National Heritage Resources Act No 25 of 1999	PII
9.	National Water Act No 36 of 1998	PII
ENVIRONMENTAL REGULATIONS (P1&P2)		
1	GNR 326 of 2017-04-07: NEMA: Environmental Impact Assessment Regulations	
2.	GN 1202 of 2009-12-24: National Ambient Air Quality Standards	
3.	GN 893 of 2013-11-22: List of activities which result in Atmospheric Emissions which have or may have a significant detrimental effect on the Environment, including Health, Social Conditions, Economic Conditions, Ecological Conditions or Cultural Heritage.	
4.	GN 1138 OF 2013-11-29: Controlled Emitters which result in Atmospheric Emissions, which through Ambient Concentrations, Bioaccumulation, and Deposition or in any other way present a threat to Health or the Environment.	
5.	GNR 152 of 2013-04-16: Threatened or Protected Species Regulations	
6.	GN 436 of 2011-07-01: Draft National Norms and Standards for the Storage of Waste.	
7.	GN 921 of 2013-11-29: List of Waste Management Activities that have. Or are likely to have detrimental effect on the Environment.	
8.	GN 925 of 2013-11-29: National Standards for Scrapping or Recovery of Motor Vehicles.	
9.	GN 636 of 2013-08-23: National Norms and Standards for Disposal of Waste to Landfill.	
10.	GNR 634 of 2013-08-23: Waste Classification and Management Regulations.	
11.	GN 467 of 2013-05-10: National Norms and Standards for the Remediation of Contaminated Land and Soil Quality in the Republic of South Africa	
12.	GN 549 of 2014-07-10: Regulations to Phase-out the use of Polychlorinated Biphenyls (PCBs) Materials and Polychlorinated Biphenyl (PCBs) Contaminated Materials	
13.	GNR 1485 of 1999-12-09: World Heritage Conversation Act No 49 of 1999	
14.	GNR 704 of 1999-06-04: Regulations on Use of Water for Mining and Related Activities at the Protection of Water Resources	
15.	GN 399 of 2004-03-26: Revision of General Authorisations in terms of Section 39 of the National Water Act, 1998	
16.	GNR No. 598-09-30: Alien and Invasive Species Regulations	
17.	GN 467 of 2013-05-10: National Norms and Standards for the Remediation of Contaminated Land and Soil Quality in the Republic of South Africa.	
18.	GNR 1485 of 1999-12-09: World Heritage Conversation Act No 49 of 1999	