ENVIRONMENTAL MANAGEMENT PLAN

Construct and operate two 100m high guyed meteorological masts in the Tsau //Khaeb National Park, Karas Region.

CWP Renewables

ENVIRO DYNAMICS
Environmental Management Consultants

ENVIRO DYNAMICS - DECEMBER 2020

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ABBREVIATIONS

CWPR	CWP Renewables
DEA	Directorate of Environmental Affairs
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GG	Government Gazette
GN	Government Notice
MEFT	Ministry of Environment, Forestry and Tourism
PtX	Power-to-X
SDM	Sperrgbiet Diamond Mining
TKNP	Tsau //Khaeb National Park

1 INTRODUCTION

An EMP is one of the most important outcomes of any Environmental Assessment (EA) process. An EMP synthesises all recommended mitigation and monitoring measures, laid out according to the various stages of a project life cycle, with clearly defined follow-up actions and responsibility assigned to specific actors. This EMP is a legally binding document and has been drafted in accordance with the Namibian Environmental Management Act (No. 7 of 2007) and its Environmental Impact Assessment Regulations (2012).

This plan describes the mitigation and monitoring measures to be implemented during the following phases of the project:

- Planning and Design;
- Construction and Decommissioning
- Operation

The Directorate of Environmental Affairs and MEFT may inspect the sites at which time this EMP should be available with an explanation of how it is being adhered to and implemented.

The responsibility for the implementation of the EMP ultimately lies with the Proponent), who is also responsible for the eventual operation of the site. The proponent should appoint a person in their organisation to manage this EMP throughout the design, construction and operational phases of the tower.

The Contractor(s) putting up the masts and equipment is responsible for the implementation of the construction component of the EMP, while the proponent monitors to ensure compliance. All contractors shall ensure that adequate environmental and safety awareness training takes place and that all workers and newcomers receive an induction presentation on the importance and implications of this EMP.

2 PROJECT DESCRIPTION

CWP Renewables (CWPR) propose to apply for environmental clearance (ECC) to construct and operate two (2) 100m high guyed meteorological lattice masts at two separate locations in the Tsau //Khaeb National Park, Karas Region.

CWPR is a renewable energy developer interested in a Power-to-X (PtX) development in the Karas region and on land that is covered by Sperrgbiet Diamond Mining (SDM)'s mining licences in the Sperrgebiet. Both parties acknowledge the need for conducting a thorough wind resource measurement campaign.

The masts will be operational for a period not shorter than 3 consecutive years.

The mast details are expected to be as follows:

Table 1: Mast details

Feature	Description
Mast height	100m
No. of foundations	7
No. of guys	Up to 17
Diam. of guys around the mast	80m

The two separate mast sighting localities are as follows.

Table 2: Mast sighting areas

Site	Latitude	Longitude
Site 1 coordinates	-27,035180	15323706
	-27,081279	15,333276
	-27,072615	15,384327
	-27,028365	15370015
Site 2 coordinates	-26,754767	15,229704
	-26,789602	15,228319
	-26,796897	15,265570
	-26,762654	15,260316

The masts are to be erected within each of these boundaries ( ).

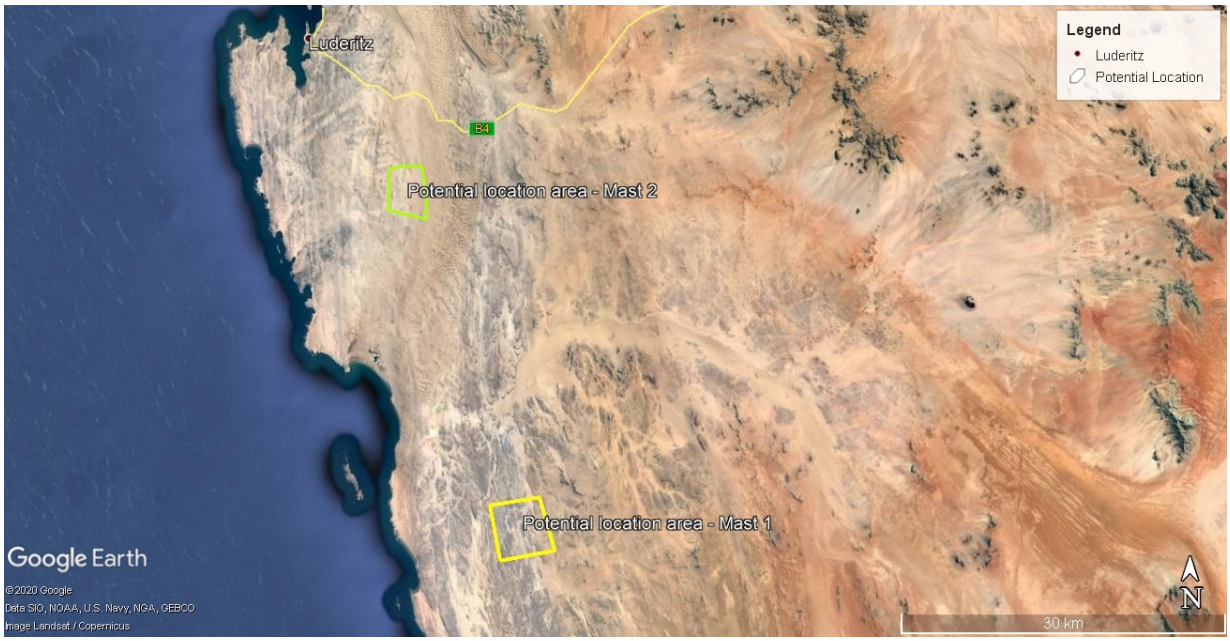

Figure 1: Locality map of the two mast sighting areas.

The maintenance and operations schedule requires that the LIDAR device be repositioned every 6 months.

The photo below shows a typical mast and equipment layout, excluding the guys.

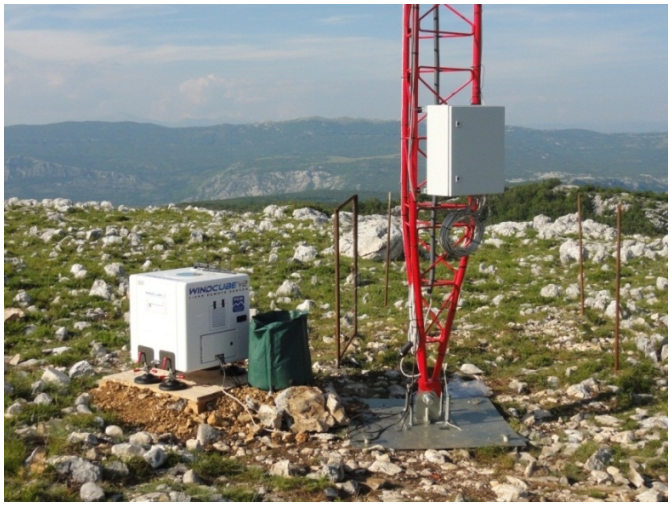

Figure 2: Typical instrument layout on the ground.

Public consultation was conducted with SDM on the terrain during the site visit of 26/11/2020. Consultation with MEFT will be through the submission of this EMP report and the process of soliciting environmental clearance.

3 PLANNING AND DESIGN PHASE

Table 3 below outlines the relevant permit acquisitions that have to be obtained in order to render this project legally compliant.

Table 3: Relevant legislated permit requirements

THEME	LEGISLATION INSTRUMENT	MANAGEMENT REQUIREMENTS	CONTACT PERSON
Environmental	Environmental Management Act 7 of 2007 EIA Regulations (EIAR) GN 57/2007 (GG 3812)	The amendment, transfer or renewal of the Environmental Clearance Certificate after every three year approval period.	Ms Saima Angula Tel: 061 284 2751
Labour	Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations. Ensure that the contractors adhere to the Labour Act.	Labour Law office: Legal Advice; Tel: 061 309 957
Access		The Proponent must obtain the relevant permits from Sperrgebiet Diamond Mining (SDM) in order to gain access into the area for construction purposes. The Proponent must consult with the MEFT, who may impose additional requirements and conditions before granting the client permits to investigate, construct and operate the site.	MEFT, MME, SDM
National Park	Tsau//Khaeb (Sperrgebiet) National Park Management Plan Park Regulations	Proponent shall coordinate and monitor the adherence to the Tsau//Khaeb (Sperrgebiet) National Park Management Plan as well as Park Regulations MEFT will require a lease agreement with the proponent in order to approve the construction of the masts.	MEFT

The following management requirements for this phase should be noted and implemented.

Table 4: Management requirements for the Planning and Design phase

ASPECT	management requirement
Minimizing the visual/aesthetic impact caused by the erection of the mast structure.	The tower is not within the zones affecting civil aviation, therefore no paint is needed on the tower. (note: leaving the tower galvanised will ensure it blends well with the surrounds).
Recruitment	All unskilled jobs must be availed to local residents residing in the area (if available).
Building plans, foundations	Submit building plans to the MEFT for records. Ensure that the engineering layout designs consider flora sensitivity of the area and address this in the design if necessary.
Access	Ensure that the locality does not require new tracks. Lease agreement with MEFT to be in place. Access arrangements and procedures approved by MEFT and SDM.
Accommodation	No personnel may overnight on site or in the national park throughout the project life cycle.

4 CONSTRUCTION PHASE MITIGATION DETAILS

The following management measures should be given to the contractor as part of the contract, to be adhered to at all times. Even though decommissioning is not envisaged in the near future, this section will also be applicable for the decommissioning phase.

Table 5: Construction Mitigation Measures

SECTION A: WASTE MANAGEMENT

ASPECT	MITIGATION MEASURE
GENERIC MITIGATION DETAILS	
Hazardous waste	1 All vehicles fuel-operated equipment (generators, etc.) on site should be provided with a drip tray when they are remain stationary. Drip trays should be cleaned daily and spillage handled, stored, and disposed of as hazardous waste. 2 Spilled concrete (wet or dry) should be treated as hazardous waste and disposed of by the end of each day in the appropriate hazardous waste containers. 3 All hazardous substances (e.g. fuel, etc.) or chemicals should be stored in closed and sealed containers that are removed daily
General waste	1 The construction site should be kept tidy at all times. All domestic and general construction waste should be stored in closed and sealed containers that are removed daily to a recognised (municipal) waste disposal site. 2 No waste may be buried or burned. 3 Construction labourers should be sensitised to dispose of waste in a responsible manner and not to litter. 4 No waste may remain on site after the completion of the project 5 Level out all soil, gravel or other mounds remaining.
MONITORING DETAILS	
ü Check the neatness of the terrain during construction. Reprimand the contractor if necessary. ü MEFT and SDM may inspect the site at any stage and after construction is complete. Non-compliance may result in denial of access and criminal charges	

SECTION B: ACCESS, HEALTH AND SAFETY

ASPECT	MITIGATION MEASURE
GENERIC MITIGATION MEASURES	
Road Safety	ü All vehicles that transport materials to and from the site must be road worthy. ü Drivers that transport materials should have a valid driver's license and should adhere to all traffic rules. ü Loads upon vehicles should be properly secured to avoid items falling off. ü Limit driving to 50km/h on gravel roads and 20km/h on tracks.
Access	ü The Proponent must obtain the relevant permits from Sperrgebiet Diamond Mining (SDM) in order to gain access into the area for construction purposes. ü The Proponent must consult with the MEFT, who may impose additional requirements and conditions before granting the client permits to investigate, construct and operate the site.
Safety Around Excavated and Work Areas	ü Foundations excavations should be left open for an absolute minimum time. ü All building materials and equipment are to be stored only on a trailer if on-site. ü No clearing of vegetation will be allowed except for foundation excavation. ü Only construction personnel will be allowed within these work areas. ü A fire extinguisher should be available at the hot works area and on site.
Ablutions	ü Mobile toilets (i.e. easily transportable) should be available at the construction site: ü Sewage waste needs to be removed on a daily to an approved (municipal) sewage disposal site. ü Workers responsible for cleaning the toilets should be provided with latex gloves and masks.
Open fires	ü No open fires should be made on the terrain.
Accommodation	ü No personnel may overnight on site on in the national park.
General	ü Dust protection masks should be provided to workers whenever dust creation activities are undertaken. ü Sufficient potable water should be provided to workers (5 litres per person per day). ü No workers should be allowed to drink alcohol during work hours. ü No workers should be allowed on site if under the influence of alcohol.
MONITORING DETAILS	
	ü MEFT and SDM may inspect the site at any stage and after construction is complete. Non-compliance may result in denial of access and criminal charges

SECTION C: ENVIRONMENTAL PROTECTION, TRAINING AND AWARENESS

ASPECT	MITIGATION MEASURE
GENERIC MITIGATION DETAILS	
Environmental Induction (Training)	All construction workers are to undergo environmental induction (training) which should include as a minimum the following: 1 Explanation of the importance of complying with the EMP and park rules. 2 Discussion of the potential environmental impacts of construction activities in this sensitive area. 3 Why pollution prevention, waste prevention, general housekeeping, etc. are important and why all are held responsible for this.
Environmental protection	ü Proponent shall coordinate and monitor the adherence to the Tsau//Khaeb (Sperrgebiet) National Park Management Plan as well as Park Regulations. ü No clearing of vegetation will be allowed except for foundation excavation. ü Poaching or removal of plants, animals, or soil is a criminal offence. Searches will be conducted by MEFT and SDM. The proponent, contractor and personnel will be criminally charged if caught. ü No new tracks may be created. ü Protect plants in the construction area and take a set of photographic records of the construction area before starting with activities and after completion of activities. ü Survey the construction area for plants and point out plants to the workers before starting daily activity.
MONITORING DETAILS	
ü Ensure that a signed record of the attendees present at each training session is available. ü Search for plants, animals, or soil on personnel, equipment, or vehicles before leaving the site each day. ü Keep all photographic records for reference until project is closed. ü MEFT and SDM may inspect the site at any stage and after construction is complete. Non-compliance may result in denial of access and criminal charges	

SECTION G: STAKEHOLDER COMMUNICATION

ASPECT	MITIGATION MEASURE
GENERIC MITIGATION DETAILS	
Communication with neighbours	ü Records of personnel and access should be kept for the entire life cycle and be available for inspection by MEFT, SDM and other relevant authorities. ü In case of nuisance to any stakeholder, create a platform for communication and rectify the situation immediately. Records of complaints and correction must be kept and be available for inspection by MEFT, SDM and other relevant authorities. ü Do not disturb any archaeological material, but report it to MEFT immediately, with photographic evidence and GPS coordinates, for record keeping.

5 OPERATIONAL PHASE MITIGATION DETAILS

Table 6: Operational phase mitigation measures

ASPECT	MITIGATION MEASURES
Data management and maintenance	ü Access to the masts for data retrieval and maintenance are subject to the requirements of the Construction Phase, where applicable. ü MEFT and SDM may inspect the site at any stage. Non-compliance may result in denial of access and criminal charges

6 DECOMMISIONING PHASE MITIGATION DETAILS

Table 7: Decommissioning phase mitigation measures

ASPECT	MITIGATION MEASURE
Data management and maintenance	ü Decommissioning of the masts are subject to the requirements of the Construction Phase, where applicable. ü No material or waste may remain on site after decommissioning or transfer of ownership. ü If the ownership of the masts is transferred, the proponent is responsible for compliance with the EMP as well as the amendment process of the environmental clearance until the new environmental certificate is issued in the name of the new owner. ü MEFT and SDM may inspect the site at any stage. Non-compliance may result in denial of access and criminal charges ü MEFT and SDM will inspect the mast sites after decommissioning or ownership transfer, to assure final compliance with the EMP