

Management Plan

METEOROLOGICAL MASTS IN
ORANJEMUND, NAMIBIA

NAMDEB

Submission date: 2021/05/06



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Document control record

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Meteorological Masts in Oranjemund, Namibia

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Abbreviations

Abbreviation	Meaning
EAP	Environmental Assessment Practitioner
ECC	Environmental Clearance Certificate
EO	Environmental Officer
MEFT	Ministry of Environment, Forestry and Tourism
MP	Management Plan
MSDS	Material Safety Data Sheet
NCCA	Namibia Civil Aviation Authority
RE	Resident Engineer
SCM	Southern Coastal Mines
TKNP	Tsau //Khaeb National Park (formerly known as the Sperrgebiet)

1 OVERVIEW

This Chapter provides a general overview of this Management Plan and provides a summary of the purpose of this document and its structure. Relevant legislation pertaining to this document is also briefly discussed.

1.1 Purpose of this Management Plan

The purpose of this document is to provide environmental management practices and recommendations to ensure that the known and possible unknown impacts associated with the Oranjemund meteorological masts are avoided, managed, mitigated and kept to acceptable levels. The recommendations included herein are applicable to the following stages of the proposed development:

- Planning and design;
- Pre-construction and construction;
- Operation; and
- Decommissioning

This Management Plan (MP) aims for alignment and optimisation of environmental management processes with conditions of authorisation that may arise. Any conditions of authorisation contained in the Environmental Clearance Certificate (ECC) that contradict the recommendations made in this MP, supersedes the recommendations of this document. The MP must be updated to contain all conditions of authorisation contained in the ECC that are relevant to environmental management.

A hard copy of the MP must be available in the site office during construction, operation and decommissioning and must be made available to officials upon request.

1.2 Legal Requirements for a Management Plan

Regulation 8 of the Environmental Impact assessment (EIA) Regulations (2012) under the Namibian Environmental Management Act (No. 7 of 2007), requires that a Scoping Report should include a draft Management Plan [Section 8(j)].

The Management Plan must include:

- (aa) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified, including objectives in respect of the rehabilitation of the environment and closure
- (bb) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and
- (cc) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process that causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.

1.3 Structure of the Management Plan

As discussed above, the Management Plan addresses environmental management throughout the project life cycle, from planning and design through to construction, to operation and decommissioning. The Management Plan includes the following sections:

- Chapter 1: Overview

- Chapter 2: Background information to the project
- Chapter 3: Environmental impacts assessed, and mitigation measures identified during the environmental process
- Chapter 4: Roles and responsibilities of various parties.
- Chapter 5: Construction MP based on identified impacts and mitigation measures from the Scoping Report
- Chapter 6: Operational framework based on identified impacts and mitigation measures from the Scoping Report
- Chapter 7: Decommissioning Framework providing guidance on key considerations to be considered during decommissioning/closure.

1.4 Expertise of Environmental Assessment Practitioner

The Environmental Assessment Practitioner (EAP) means “a person designated by a proponent to manage the assessment process”. It is the role of the independent EAP to facilitate the project’s application for ECC on behalf of the Proponent, as required in terms of EIA Regulations (2012). Zutari has been appointed as the EAP for this project.

Mr Reuben Heydenrych (details below) from Zutari managed the scoping process (i.e. was principle consultant) for this application and assume the roles of project leader, managing the EIA process, reviewing reports and signing off reports. He is supported by two of Zutari’s environmental staff members: Wynand Loftus and Andrea Siebritz. Refer to Appendix A of the scoping report for the full CVs of the environmental team.

Table 1: Details of EAP

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1.5 Project Phasing

The graphics below provide an indication of the phasing of the project.

Planning and Design Phase

- This phase includes applications for amongst others environmental and town planning authorisations. The planning and design phase investigated the possible impact of the proposed development on the receiving environment and recommend mitigation measures. This phase would have been concluded once the contractor views this document.

Pre-Construction Phase

- The pre-construction phase includes activities such as appointment of an **ECO**, environmental induction training will be undertaken (conducted by the ECO), site demarcation, establishment of mobile site office and ablution facilities, demarcation of areas such as fuel storage and plant rescue (when applicable), Track and Waste management measures will be put in place in accordance with Namdebs procedures. Specifications for the aforementioned activities are included in this MP.

Construction Phase

- The construction phase includes the casting of concrete bases and the erection of the Mast

Operational Phase

- The operational phase commences when the proposed development is being used for its intended purposes i.e. collecting wind resource data.
- After the installation and commissioning, the responsibility for safe operation and asset management will be transferred to the operational team.
- In some cases the manufacturer of specific components remains involved as part of a service agreement. A plan for systematic maintenance and function testing should be kept on location to show how components and systems should be tested and what should be observed during testing. Maintenance may be performed manually or automated. In case of manual maintenance, a higher level of safety precautions need to be observed.

Decommissioning Phase

- If the area of the meteorological masts are deemed unfavourable for a potential wind farm, then the meteorological masts will be dismantled.

2 BACKGROUND INFORMATION

This Chapter provides a description of the proposed activity and outlines how environmental considerations have informed and been incorporated into the planning and design of the proposed development.

2.1 Project Description and Locality

The Applicant, Namdeb Diamond Corporation (Pty) Ltd (hereafter 'Namdeb') plans to develop a wind farm to supply electricity to its operations near Oranjemund and potentially to export surplus power to the NamPower network. This would contribute to Namdeb's strategy to reduce its carbon footprint and provide additional capacity for growing mining demands, and possibly generate revenue through the export of energy. Three potential wind farm sites have been identified within Namdeb's Mining Licence (ML) ML43 area (a.k.a. Mining Area 1) north of Oranjemund, with three sizing options being considered. In order to establish what option, or combination of options, will be most feasible for electricity generation, wind monitoring is required. Therefore, Namdeb proposes that three meteorological masts be developed to measure the wind resources available at the following sites:

- Southern mast: latitude -28.4547° , longitude 16.3118°
- Central mast: latitude -28.2180° , longitude 16.0397°
- Northern mast: latitude -27.9454° , longitude 15.7141°

These masts will be located in the coastal area of the Karas region in southern Namibia, within the Tsau //Khaeb (Sperrgebiet) National Park (TKNP) (see Figure 1).

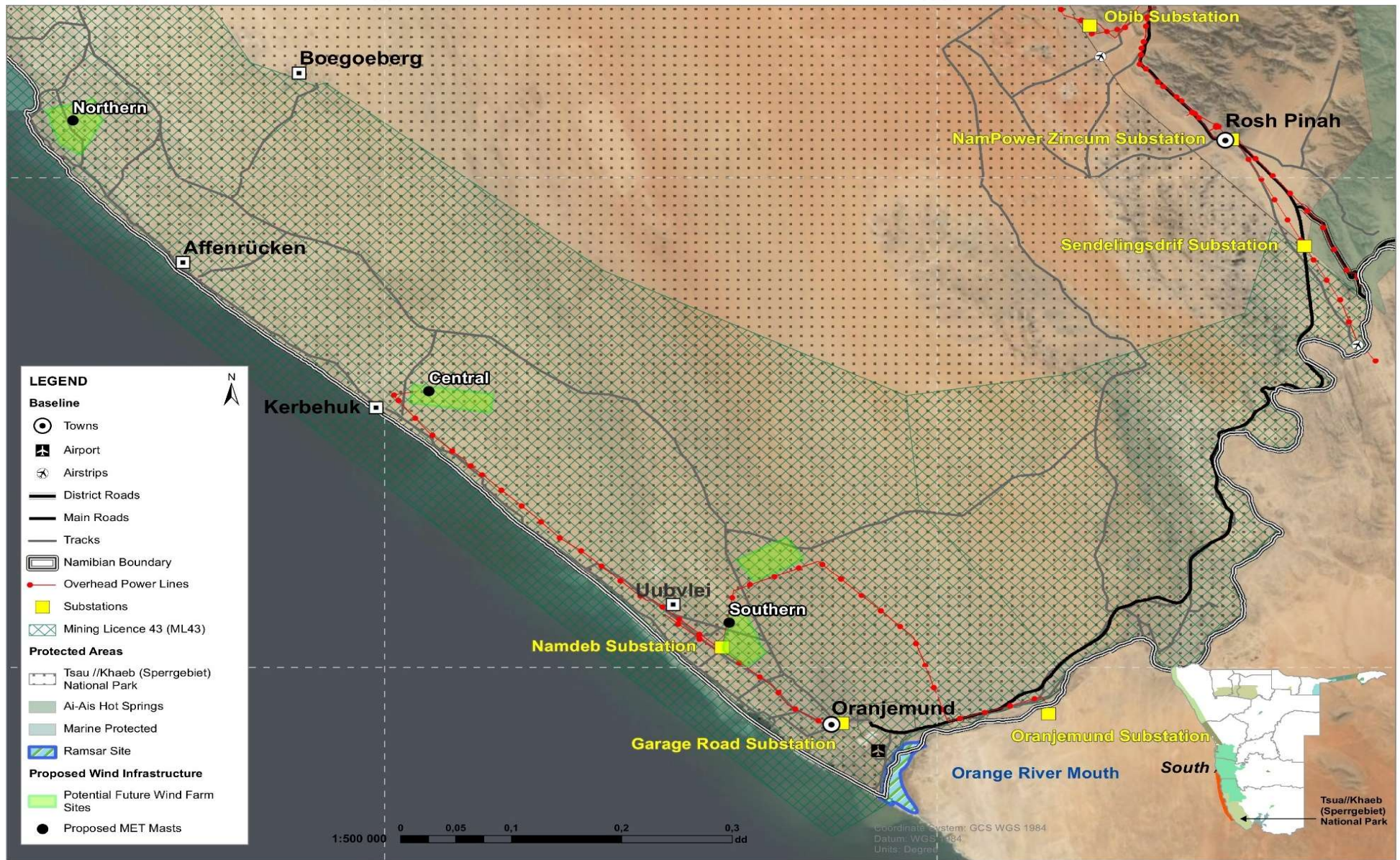


Figure 1: Locality map for the potential Wind Farm and meteorological mast sites

2.2 Development Components

To locate, design and operate a wind farm as efficiently as possible, accurate data relating to meteorological data, including wind conditions that predominate at the site, are required. Specifically, ambient temperature, air pressure, wind speed and wind direction will be measured.

Meteorological masts are typically tall lattice structures with measuring instrumentation installed at the top. Instruments include anemometers, wind vanes, temperature sensors, a rain gauge and a pressure sensor. In this case the masts are usually triangular in shape, 100m in height and held in place by cable stays to anchor the mast. The footprint at the base is a square / rectangular concrete foundation measuring a maximum of approximately 2m x 2m and 0.5m deep (note that this is indicative as a worst case and subject to the final mast selected). Each mast will also include a lightning protection device, an autonomous power system (solar panels), anti-climb and anti-vandalism protection. Aviation (obstacle) lighting shall be provided in compliance with the Namibia Civil Aviation Authority (NCAA) regulations. The NCAA has formally indicated that it has no objection to the erection of the three 100m meteorological masts and that the three masts do not infringe the Obstacle Limitation Surfaces for the Oranjemund Airport.

Typically meteorological masts are lifted into place section by section, after which the stays are tuned to ensure the mast is straight and the stays have the correct tension. The stays are anchored in concrete blocks with approximate dimensions of 1.2m to 1.5m in length, widths of 1.1m and a depth of 0.5m.

Maintenance could involve annual inspections or ad hoc servicing of the equipment where necessary and adjustment of the stays if they become loose or if the mast begins to tilt. This is likely to involve a small team for a very short duration of time on the site.

If feasible wind farm site/s are confirmed, these masts could remain for the duration of the wind farm or could be decommissioned. Decommissioning will be via dismantling and removal, and the materials reused or recycled, where possible.

3 ROLES AND RESPONSIBILITIES

This chapter provides a description of the roles and responsibilities of the various parties involved with the construction of the proposed development.

3.1 Contractor

The Contractor must ensure that all of its sub-contractors, employees, etc., are fully aware of the environmental issues detailed in this MP. The Contractor shall liaise closely with the Site Engineer (SE), and Environmental Officer (EO) and must ensure that the work on site are conducted in an environmentally sensitive (prevent actions that may cause environmental harm) manner and fully in accordance with the requirements of the MP, at all times.

The contractor must ensure compliance of all site personnel/visitors to the MP and other conditions of approval where relevant.

3.2 Developer

The developer is the holder of the ECC and will be responsible for the following tasks, amongst others:

- Ensure that the requirements as set out in this MP are adhered to and implemented;
- Allocate the responsibilities assigned to the EO to an independent suitably qualified individual prior to the start of construction activities on site; and

- Provide all principal contractors working on the project with a copy of this MP as part of tender contract documentation to allow the contractors to cost for its requirements within their respective construction contracts.

3.3 Site Engineer

The Resident Engineer (RE) is responsible for ensuring that the contract is carried out to completion on time, in budget and that each Contractor fulfils his obligations in terms of conditions contained in the ECC.

3.4 Environmental Officer

The Developer shall provide a suitably qualified EO to monitor the Contractor's compliance in terms of this MP and the conditions contained in the ECC and address environmental site issues. The EO may be a project-specific appointee or, due to the security restrictions applicable to the TKNP, it may also be an existing Namdeb employee with suitable environmental competence. Under normal circumstances, an independent Environmental Control Officer (ECO) would have been required. However, due to the short-term nature of the construction of the masts and the strict requirements for security clearance, as well as the ready availability of suitable staff within Namdeb, it is recommended in this instance that Namdeb provides an environmental employee of its own to monitor the contractor.

The designation is reserved for a suitably qualified (National Diploma / Degree in Natural Science or an equivalent qualification) environmental manager, with adequate environmental knowledge to understand and implement the MP.

The duties of the EO include but are not limited to:

- Liaison with the Developer, Project Manager or Engineer and MEFT;
- Update the MP to include relevant conditions of approval contained in the ECC;
- Conduct environmental induction training with the contractor prior to commencement of work;
- Undertake site inspections. The frequency of site inspections can be determined between the EO and SE. For the proposed meteorological masts, it is likely that four (4) EO inspections will be sufficient: 1) before construction during site demarcation; 2) during construction activities; 3) upon completion of construction; and 4) post-decommissioning;
- Compilation of reports following each site inspection that must be submitted to the project team and ensure that action items are carried out;
- Maintain a photographic record of environmental conditions on site;
- Monitoring all of the Contractor's activities for compliance with the various environmental requirements contained in the MP and ECC;
- Ensuring that the requisite remedial action is implemented in the event of non-conformance;
- Ensuring the proactive and effective implementation and management of environmental protection measures;
- Ensuring that a register of public complaints is maintained by the Contractor and that any and all public comments or issues are appropriately reported and addressed;
- Attend site meetings relating to construction of the meteorological masts;
- Recording and reporting of environmental incidents;
- Ensure effective implementation of Namdeb's ISO 14001 environmental management system;

- Ensure effective implementation and adherence of Namdeb's environmental policy and procedures;
- Compile an environmental sensitive areas map for the study site;
- Compile site-specific induction training material; and
- Conduct a risk assessment on site prior to the start of construction.

3.4.1 Environmental Induction/Awareness Training

The EO shall arrange with the Engineer and Contractor to conduct environmental induction training with personnel that must address the following, amongst others:

- Explanation of the environmental process that preceded the ECC and why it was important to conduct the environmental process;
- Explanation of the conditions of authorisation contained in the ECC
- Any sensitive environmental features located within and around the site;
- The reasons why mitigation measures are required and the benefits of implementing these measures;
- The MP and its contents (e.g. no-go areas, animals, heritage sites, littering etc.); and
- The role of the EO.

The induction will take place before the commencement of construction activities and before contractors enter the site.

3.4.2 Monitoring

The EO will monitor the site prior to the commencement of construction (to record the baseline conditions) and during construction through site inspections.

Monitoring prior to construction must include a full photographic record of all mast construction sites, nearby sensitive areas (e.g. archaeological sites and sensitive ecological features) within a 5km radius of the construction sites, planned constructions roads and points at 500m intervals along these proposed construction roads.

Monitoring feedback must be included in the EO reports and discussed with the Engineer and Contractor. The EO must keep a photographic record for monitoring purposes.

Erosion monitoring off- and on-site must be undertaken by the EO and timeously identify areas where erosion is starting to occur. The appropriate remedial actions must then be implemented.

3.4.3 Environmental Auditing

An environmental audit must be undertaken following completion of the decommissioning phase and will be guided by the conditions of the ECC. A closure audit will also be undertaken following the completion of construction.

3.5 Working Area

For the purpose of this MP the Working Area is considered to be the land and any other place on, under, over, in or through which the works are to be executed or carried out, and any other land or place made available by the developer in connection with the works. The Working Area shall include at least (but

not necessarily be limited to) the site office, the construction area, all access routes and any additional areas to which the RE permits access. The construction footprint must be kept to a minimum.

The site needs to be clearly and appropriately demarcated and all no-go areas must be clearly identified with appropriate signage. The EO must brief the contractor staff regarding the requirements of no-go areas.

All works must be kept within the footprint of the site. Areas disturbed outside of the site footprint must be rehabilitated through consultation with the EO.

4 ENVIRONMENTAL IMPACT AND MITIGATIONS

Environmental and heritage sensitivities in the study area referred to in the discussion of environmental impacts and mitigation measures are shown in Figure 2 below.

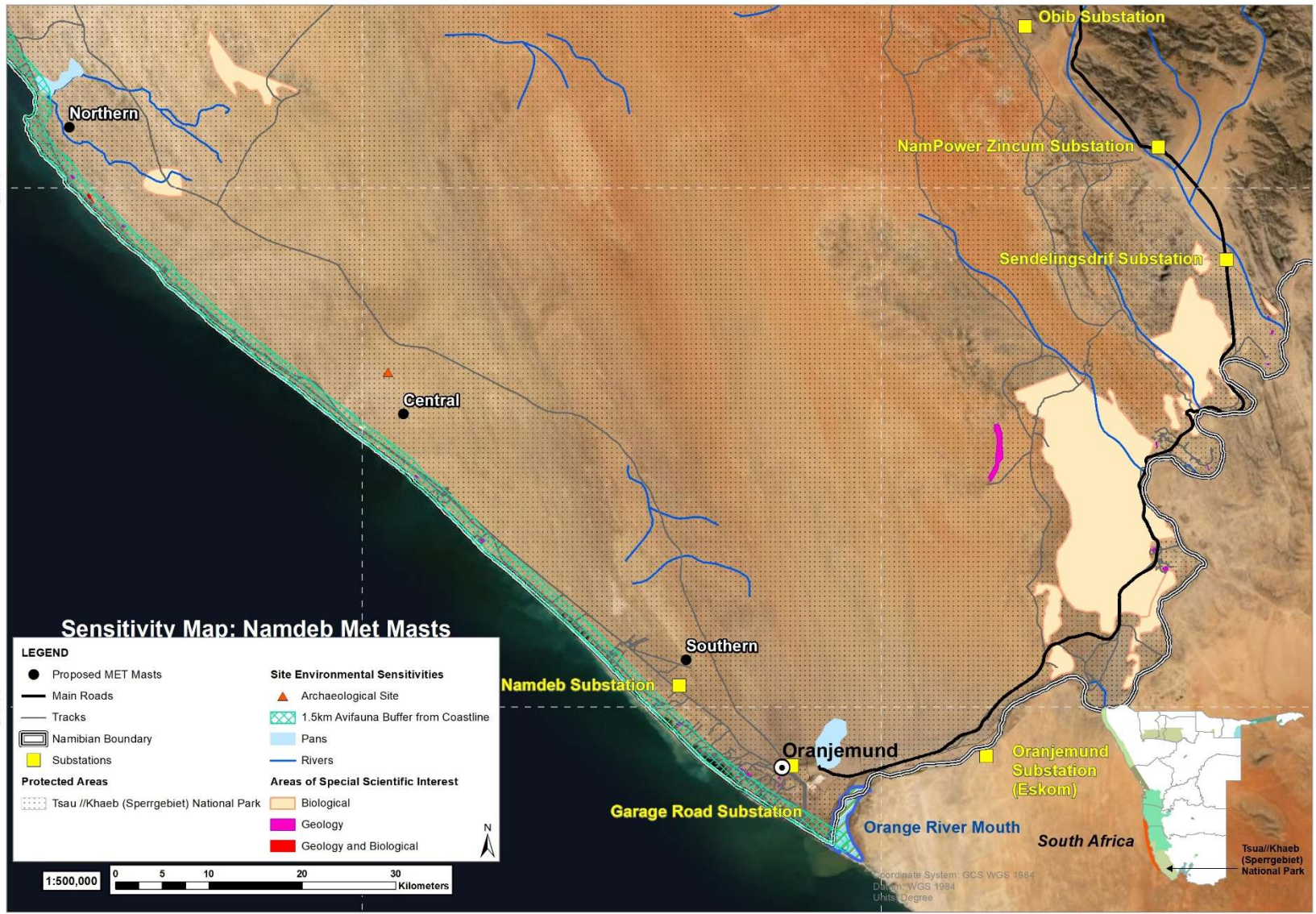


Figure 2: Map of known environmental and heritage sensitivities in the study area

4.1 Biodiversity Mitigation

The table below provides a summary of the impact assessment determined by the botanical and fauna specialist, together with the mitigation measures for each impact. The contractor must pay specific attention to these mitigation measures.

Table 2: Summary of environmental impacts assessed and mitigation measures for the Oranjemund meteorological masts

Code	Impact	Pre-mitigation:						Post-mitigation:					
		Duration	Extent	Magnitude	Reversibility	Probability	Significance	Duration	Extent	Magnitude	Reversibility	Probability	Significance
CONSTRUCTION PHASE													
Constr. 01	Bird habitat affected	Brief	Limited	Moderate	Medium	Certain/definite	Minor-negative	Brief	Limited	Negligible	High	Certain/definite	Negligible - Negative
	Mitigation: <ul style="list-style-type: none"> • Avoid sensitive habitats (informed by pre-construction walkdown); • Avoid constructing meteorological masts <1.5km from the coast; • Attach bird flight diverters (BFD's) to meteorological mast guy wires; • Avoid disturbing birds, especially rare, threatened and endangered species, at breeding sites; • Training to be provided for the identification of rare birds; • Avoid all 'poaching' activities (e.g. egg and bird collection); • Rehabilitation of disturbed areas; and • Enforce a contractor code of conduct. 												
Constr. 02	Loss/disturbance of vertebrate fauna	Short term	Very Limited	High	High	Likely	Minor-negative	Immediate	Very Limited	Negligible	High	Likely	Negligible - negative
	Mitigation: <ul style="list-style-type: none"> • Avoid sensitive habitats (informed by pre-construction walkdown); • Avoid constructing meteorological masts & access routes in vegetated dune hummocks; • Avoid constructing meteorological masts & access routes close to brown hyena den sites; • Avoid disturbing any other vertebrates, especially rare, threatened and endangered species; • Avoid all 'poaching' activities (e.g. kill perceived dangerous spp. such as snakes and/or collect chameleons, etc); • Rehabilitation of disturbed areas; and • Enforce a contractor code of conduct. 												
Constr. 03	Loss of flora	Permanent	Local	Local	Low	Certain/definite	Moderate-Negative	Short term	Very limited	Very low	High	Certain/definite	Negligible - negative

Code	Impact	Pre-mitigation:						Post-mitigation:					
		Duration	Extent	Magnitude	Reversibility	Probability	Significance	Duration	Extent	Magnitude	Reversibility	Probability	Significance
	Mitigation: <ul style="list-style-type: none"> Avoid sensitive habitats (informed by pre-construction walkdown); Avoid constructing meteorological Masts & access routes in the Othonna Dwarf Shrubland vegetation type (i.e. Chameis Bay area); Move meteorological masts & access routes slightly one-way-or-another – i.e. local site selection to favour flora – dependent on local flora to have the least impact on the flora at each site; Avoid all 'poaching' activities (e.g. collect for resale unique succulent species, etc); Rehabilitation of disturbed areas by ensuring seed collection, plant rescue and revegetation of disturbed areas; and Enforce a contractor code of conduct. 												
OPERATIONAL PHASE													
Oper. 01	Bird collisions with meteorological Mast guy wires	Permanent	International	High	Medium	Certain/definite	Major Negative	Short-term	International	Low	High	Certain/definite	Moderate -Negative
	Mitigation: <ul style="list-style-type: none"> Attach bird flight diverters (BFD's) to meteorological mast guy wires; Monitor bird mortalities; and Position masts >1.5km inland as planned 												
Oper. 02	Loss/disturbance of vertebrate fauna	Brief	Very Limited	Low	High	Likely	Negligible - Negative	Immediate	Very limited	Negligible	High	Likely	Negligible - ngative
	Mitigation: <ul style="list-style-type: none"> Monitor brown hyena activity closer to meteorological masts; and Enforce a Contractor code of conduct 												
Oper. 03	Loss of flora	Medium term	Very Limited	Very Low	High	Likely	Negligible-Negative	Immediate	Very limited	Very low	High	Likely	Negligible - ngative
	Mitigation: <ul style="list-style-type: none"> Enforce a Contractor code of conduct; Limit footprint of vehicles movement and use same road tracks 												
DECOMMISSIONING PHASE													
Decomm. 01	Bird Habitat affected	Brief	Limited	Very Low	High	Almost Certain/highly Probable	Minor-negative	Immediate	Very limited	Negligible	High	Probable	Negligible - ngative
	Mitigations: <ul style="list-style-type: none"> Avoid sensitive habitats; by positioning the Mast >1.5km inland and Enforce a Contractor code of conduct. 												
Decomm. 02	Loss/disturbance of vertebrate fauna	Brief	Very limited	Negligible	High	Likely	Negligible - Negative	Immediate	Very limited	Negligible	High	Likely	Negligible - ngative

Code	Impact	Pre-mitigation:						Post-mitigation:					
		Duration	Extent	Magnitude	Reversibility	Probability	Significance	Duration	Extent	Magnitude	Reversibility	Probability	Significance
	Mitigations: <ul style="list-style-type: none"> • Avoid sensitive habitats; and • Enforce a Contractor code of conduct. 												
Decomm. 03	Loss of flora	Brief	Limited	Very Low	High	Likely	Negligible - Negative	Immediate	Very limited	Negligible	High	Likely	Negligible - ngative
	Mitigations: <ul style="list-style-type: none"> • Avoid sensitive habitats; and • Enforce a Contractor code of conduct. 												

4.2 Heritage Mitigation

- Keep the construction and access route footprints as small as possible
- Locate the construction and access route footprints where they will do the least damage
- Fence off the archaeological site
- On-site monitoring of the construction process for the occurrence of archaeological material
- Implement the Namdeb Chance Finds Procedure if anything should be found
- Adhere to the Namdeb Cultural Heritage Management Plan during construction

5 CONSTRUCTION PHASE MP

The Construction MP aims to address mitigation measures pertaining to the construction phase. This section includes General Specification for the construction.

5.1 Chance Find Procedure

The purpose of this procedure is to provide guidance on the management of cultural heritage either buried or not identified during baseline and other specialist studies. Heritage artefacts may be discovered during the exploration and project implementation, especially in the course of construction or excavation. This procedure shall be used as a guideline in the event of a discovery within Namdeb's mining license areas.

A chance find is defined as a tangible cultural heritage artefact that is encountered unexpectedly during the proposed activities.

Cultural heritage includes:

1. Tangible movable or immovable objects, property, sites, structures or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic and religious values
2. Unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes and waterfalls; and
3. Certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations and practices of communities embodying traditional lifestyles. It includes cultural knowledge, innovation and cultural practices that incarnate culture and heritage of communities around the mine.

The procedure includes:

1. When a member of staff or contractor discovers a suspected cultural heritage artefact, the activity will immediately cease, and the potential find will be reported to the Environmental Section.
2. The area will be cordoned off from any surrounding activities where applicable
3. The environmental section will conduct a preliminary investigation of the site and immediately communicate any necessary information to the National Heritage Council
4. Should the National Heritage Council recommend an in-depth study or excavation, the mine will contract a competent professional to assess the find and obtain the relevant permitting
5. Records shall be kept of the chance find made within the mine and the permit requirements shall be adhered to. The find will be mapped.

5.2 Demarcation of the Site

All works to be undertaken shall be within the boundary of the site. The working area shall be demarcated in an appropriate manner determined by the RE.

No-go areas shall be appropriately demarcated, where applicable.

5.3 Habitat resource protection

- Any animal (mammal, reptile, amphibian, bird, insect or fish) found to be trapped within the site or in distress as a result of the site activities shall be appropriately relocated to a suitable site under the guidance of the EO, relevant specialist (if required) or relevant authorities.
- Habitats and terrestrial environments shall not be unnecessarily disturbed or damaged, unless as indicated in the approved development design. Any unauthorised disturbance or damage to habitats by anyone involved in the project shall be subject to reinstatement or rehabilitation to the culprit's cost.

5.4 Vegetation Clearance

- Vegetation on the approved construction sites that does not interfere with the construction activities shall be left undisturbed.
- Damage shall not be caused to sensitive environmental features outside of the demarcated construction areas.
- Only plant rescue is permitted. No other vegetation clearing may take place. The plant rescue is to be kept within the working area footprint.
- Should plant rescue be required, rescued plants will be stored at an appropriate facility and will be transplanted back into their place or origin or as close as possible to it once the area is rehabilitated.
- The disposal of vegetation by burying or burning is prohibited.

5.5 Erosion Control

Erosion is not anticipated to occur at the site. However, all reasonable measures shall be taken to limit erosion:

- Stabilisation of cleared areas to prevent and control erosion shall be pro-actively managed by the Contractor in accordance with Namdeb's standards.
- A walk around will be conducted at the end of each shift to ensure no erosion has taken place outside of the working footprint.

5.6 Material Handling, Use and Storage

No stockpiling of material for the construction of the meteorological masts shall occur outside demarcated area. Imported material shall be free of litter, contaminants and / or exotic plant seed where it is reasonably possible to control.

5.7 Hazardous Substances

- Hazardous wastes e.g. building material, shall be disposed in a mined-out pits specifically designated for this purpose by SCM.
- All hazardous waste materials must be carefully stored in accordance with the Southern Coastal Mines (SCM) procedures.
- No hazardous waste may be buried or burned under any circumstances.
- The contractor must ensure that the employees are informed on how to responsibly dispose of any containers containing hazardous substances.
- All major spills of any materials, chemicals, fuels or other potentially hazardous or pollutant substances must be cleaned immediately. The SCM spillage procedure must be strictly adhered to.

- Spill kits must be available on site.
- Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances housed or used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes
- The Contractor must provide solid non-hazardous waste and litter shall be disposed into scavenger- and weatherproof bins (with a lid / cover) that are secured from blowing over. The bins must be placed at strategic locations and emptied at least weekly if not located in the site camp.

5.8 Dust Control

The Contractor shall take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the RE. The Contractor's dust management planning should, as a minimum, take cognisance of the following:

- Measures to ensure that material loads are properly covered during transportation.
- Minimisation of the areas disturbed at any one time and protection of exposed soil against wind erosion, e.g. by dampening with water.
- Location and treatment of material stockpiles taking into consideration prevailing wind directions and dwellings as well as to prevent erosion and run off.

5.9 Concrete Batching

No concrete batching is anticipated on site. This project will have the pre-cast concrete bases delivered to the site.

5.10 Personnel Conduct

- All staff members must wear the appropriate safety gear, utilize the appropriate safety equipment and adhere to the appropriate safety laws and standards.
- Personal are to carry identification on their persons. This must include their name and company of employ, with reference to the project. Similarly, such information should be displayed on vehicle dashboards/exteriors.
- No firearms or weapons of any description are to be allowed on site, unless required by security personnel.
- All staff are to make use of the facilities provided for them as opposed to ad-hoc alternatives (e.g. fires for cooking, use of the surrounding areas as a toilet).
- Unauthorised access inside No-Go areas is strictly prohibited.
- Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include fuel storage and refuelling areas, vegetation stockpile areas and any other areas where the vegetation (e.g. fynbos) or other materials are susceptible to the start and rapid spread of fire.

5.11 Emergency procedures

- The contractor shall determine appropriate procedures in the event of an emergency (e.g. medical emergencies, runaway fires, environmental incidents, site evacuation and staff assembly);
- First Aid Kits, fire extinguishers and fire-fighting equipment are to be strategically placed at the construction camp. All staff are to be made aware of their locations and purposes and trained in their basic use.

5.12 Ablution facilities

- A sufficient number of toilets shall be provided for the site staff at a ratio of not less than 1 toilet per 15 people.
- Chemical toilet facilities only shall be located within the contractor's camp and at work areas remote from the camp.
- No toilet facilities shall be located closer than 100 m to any water body
- Toilets shall be adequately secured to the ground to prevent them from toppling due to wind or any other cause.
- Certificates of service/disposal by appropriate service providers or at appropriately licensed facilities shall be retained for submission to the EO.
- Discharge of waste from toilets into the environment (e.g. burial of ablution waste from toilets) is strictly prohibited.

5.13 Traffic management

- All drivers are to adhere to the track discipline procedure in place. SEO will be informed prior to any new road construction.
- All drivers must carry their licenses on them and shall be carefully briefed on the appropriate driving practices when operating within the TKNP.
- Strictly no deviation from designated routes is allowed.
- Reasonable speeds shall be maintained on the access roads in order to prevent accidents, excessive noise and unnecessary dust. Speed limits shall be enforced, and where a speed limit is not specified then speed shall depend on the type of vehicle, status of the road and other traffic but speeds between 20 and 40km/h are typically regarded as acceptable.
- Predetermined detour routes are to be selected to reduce traffic disruptions to busy roads by abnormal loads, and such disruptions should be planned at off-peak times wherever possible.
- Safety risks associated with the movement of heavily laden, slow moving haulage vehicles shall be effectively managed.
- Entry/exit points onto public roads shall take cognisance of traffic safety.
- The use of signalmen shall be considered, where relevant (e.g. for access onto highly trafficked roads, for roads with poor site distance, or where visibility is impaired).

5.14 Non-Compliance and Penalties

Non-compliance with this MP must be monitored by the EO and reported on in the EO Reports. Any non-compliance must be reported to the competent authority.

Penalties/fines must be issued at the discretion of the Engineer as per the penalties agreement between the Engineer and Contractor. The EO is to take up any non-compliance issues that may result in a fine/penalty with the Engineer.

6 OPERATIONS AND MAINTENANCE PHASE MP

6.1 Operations

The operational specifications detailed in this section must be updated to include any conditions of authorisation contained in the ECC relating to the operational phase. All conditions of the ECC must be adhered to and measures to promote efficient use of services like water and electricity must be put in place as far as possible. Here we provide a general overview of the known operational requirements that has been identified during the environmental process and are also best practice environmental management recommendations during operation.

The mitigation measures included in Section **Error! Reference source not found.** above are repeated here due their importance.

6.2 Maintenance

- Suitable access arrangements to be made prior to the maintenance date.
- All vehicle movements must be restricted to designated operational access or service roads and gates.
- All maintenance work shall be undertaken in an environmentally responsible manner.
- Any areas disturbed during maintenance shall be reinstated such that any disturbed areas are properly reshaped, top soiled and if needed, seeded with indigenous grass seed.
- Maintenance and repairs involving earthworks or disturbance to the ground shall be implemented according to the relevant best practices cited in the specifications.
- Broken infrastructure must be disassembled and removed off-site as soon as reasonably possible after breakdown.

7 DECOMMISSIONING PHASE MP

It must be noted that only the areas that have unfavourable conditions and will not progress to the potential wind farm development will have the masts removed.

7.1 Removal of infrastructure

- All decommissioning activities must be restricted to the development footprint as far as possible. A pre-site investigation shall be undertaken to identify any sensitive areas that should be avoided.
- Effective communication should be undertaken with landowners about the timing and location of decommissioning activities.
- Excavated holes or trenches are to be filled and reinstated.

In diversity there is beauty
and there is strength.

MAYA ANGELOU

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