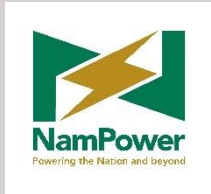



Nov
2023

Draft Environmental and Social Impact Assessment for the Proposed 400 kV Auas-Kokerboom Transmission Line

VOLUME 3 OF 3
APPENDIX G: ENVIRONMENTAL AND SOCIAL
MANAGEMENT PLAN



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PROJECT NAME	Environmental and Social Assessment for the Proposed Auas-Kokerboom 400 kV Transmission Line
STAGE OF REPORT	Draft Environmental and Social Impact Assessment Report
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DATE OF SUBMISSION	November 2023
CONTRIBUTORS TO THE REPORT	Stephanie van Zyl, Eddy Kuliwoye (Mapping)

DECLARATION

I hereby declare that I:

- have knowledge of and experience in conducting assessments, including knowledge of the Environmental Management Act (7 of 2007), its regulations and guidelines that have relevance to the proposed activity;
- have performed the work relating to the application in an objective manner, regardless of whether or not the views and findings were favourable to the applicant;
- have complied with the Act, and its regulations, guidelines and other applicable laws.

I also declare that there is, to my knowledge, no information in my possession that reasonably has or may have the potential of influencing –

- any decision to be taken with respect to the application in terms of the Act and its regulations; or
- the objectivity of this report, plan or document prepared in terms of the Act and its regulations.



Stephanie van Zyl
Environmental Assessment Practitioner (EAP)

EXECUTIVE SUMMARY

INTRODUCTION

NamPower intends constructing a 461 km long 400kV transmission line from the Auas Substation near Dordabis to Kokerboom substation near Keetmanshop, Namibia, as shown on the map overleaf. The line will assist in securing the supply of electricity to Namibia in future and open up opportunities for selling power to the Southern African Power Pool (SAPP).

NamPower is currently applying to the World Bank for funding of the project, which will entail the following:

- The new Auas-Kokerboom 400kV Transmission Line, with associated infrastructure at both substations such as switchgear and reactors.
- A Battery Energy Storage System (BESS) to be installed at Lithop Substation, that will enable NamPower to store energy generated by, amongst other, renewable sources such as solar or wind energy to allow utilisation of such energy when these resources are not available, such as after sunset.

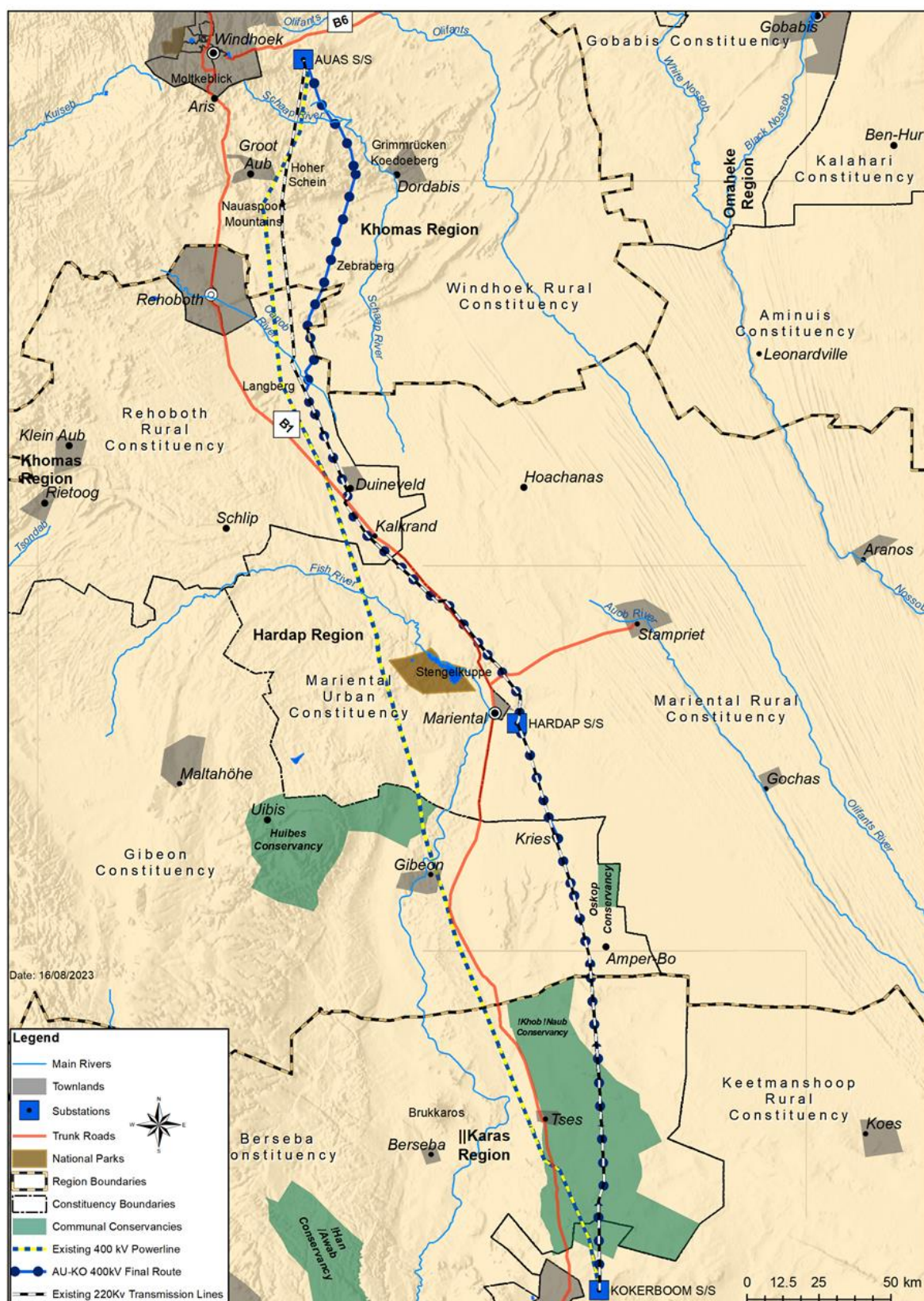
An Environmental Impact Assessment for this project was completed in 2020 and an Environmental Clearance Certificate obtained for it in terms of Namibia's Environmental Management Act, in 2021. The World Bank's Environmental and Social Framework, consisting of ten Standards should be adhered to as a condition for the loan.

Environ Dynamics was appointed to update the 2020 ESIA and ESMP, to meet all the above Standards where gaps are identified. This ESIA Report, together with the Appendices contains the findings of this work, including the required Management Plans necessary to implement satisfactory mitigation during construction and operation.

PROJECT DESCRIPTION

This Environmental and Social Impact Assessment (ESIA) was prepared for the proposed construction of a single-circuit 400 kV transmission power line from the Auas substation (near Dordabis) to the Kokerboom Substation (near Keetmanshoop) (hereafter refer to as the "Project"). The length of the transmission line is approximately 460 km. The transmission power line will have a final servitude of 80 m width, with 12 m of that being cleared for an access track.

The preferred transmission line route follows the existing 220 kV transmission corridor from the Kokerboom substation in the south for a distance of approximately 165km, after which it deviates to the east; to largely avoid homesteads, infrastructure and major topographic features; and passes through the Nauaspoort Mountain towards the Auas substation located in the north near Dordabis/Windhoek.



Locality map of the Awas-Kokerboom 400kV Line Route

The tower designs along the majority of the route will consist of cross rope suspension towers (V-Structures), with self-supporting and strain towers in strategic points. The construction period will be approximately thirty-six months and it is likely to proceed on multiple construction fronts. Existing access roads will be utilized as far as reasonably possible to access the construction corridor.

As shown in the diagram below, two alternative routes were considered namely, the western route which largely follows the existing 400kV transmission line and the eastern route (preferred option), which largely follows the existing 220kV transmission line. A comparative analysis was done between these two route options. It was concluded that the potential impacts on the western route will be marginally smaller, with ~3%, because of its slightly shorter distance. However, the western route is considered technically unfeasible due to the route crossing the existing 200kV line, which will need the installation of a tower to ensure safe clearance. The close proximity of the two 400kV lines also increases the risk of a failure (power outages) of both lines, which is of national significance.

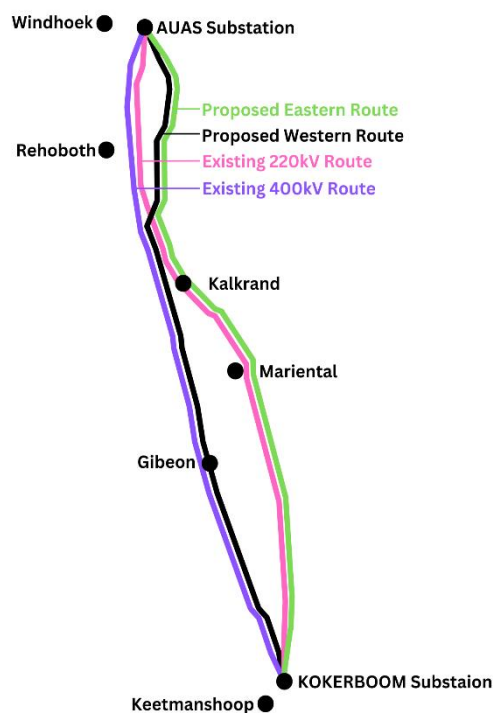


Diagram illustrating western and eastern alternative routes

MAIN IMPACT RISKS AND PROPOSED MITIGATIONS

Critical Habitat

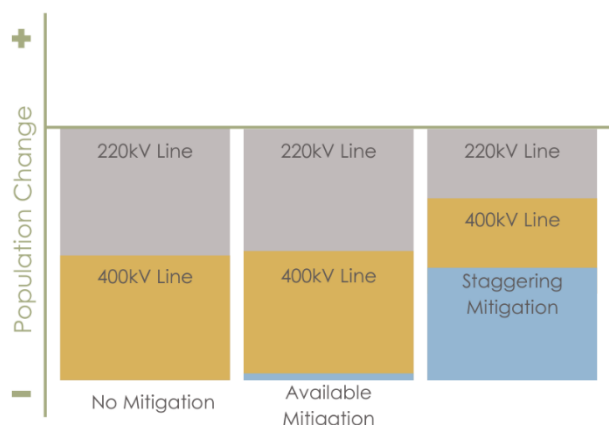
It is concluded from the Critical Habitat Assessment, that given all the ESS6 criteria combined, the Karas Dwarf Shrubland and Dwarf Shrub Savanna which cover the study area to the south are considered critical habitat for the **Ludwig's Bustard**. The **Ludwig's Bustard**, which is classified as Globally Endangered, according to the IUCN Red Data list of species and listed as Endangered on the Namibian Red List, prefers open grassland found in the mentioned habitats. Within these habitats, the Hardap Dam is also an Important Bird Area and an important site for the migratory species Great White Pelican. Even though the dam is some 10km to the west of the proposed route, birds flying to and from this site can potentially collide with the power line.

Despite the fact that these habitats are considered important areas for Ludwig's Bustard and other species of conservation concern, it is the presence of the power line as a physical barrier, which poses the threat in terms of potential collisions, and needs to be addressed intentionally.

Biodiversity Risk Management (or mitigation) measures following a mitigation hierarchy approach have been considered in the Critical Habitat Assessment. The goals of No Net Loss and Net Gain should be set in the Biodiversity Management Plan.

A staggered design (i.e., the "staggering" or offsetting of pylons of the new 400 kV line with those of the adjacent 220 kV line) is being proposed, to increase the visibility of the obstruction of the power line infrastructure to flying birds, and thus reduce the chances of collisions. Since regional monitoring shows that current available mitigation, i.e., marking of lines to make them more visible, is ineffective for Bustards, the staggering mitigation is considered a potential solution and as such it is anticipated that the number of bird deaths at a regional scale can be significantly reduced. The staggering mitigation proposal is based on data which shows that most collisions take place mid-span between pylons, indicating that the pylons could be an effective visual barrier.

The diagram below indicates the risk of the alternative mitigation methods. The existing 220kV line is not mitigation, and should another transmission line be added, the bustard collisions will effectively double. Should available mitigation be applied, there is expected to be a very small change to curb the bustard collision risk. The staggering mitigation option, however, is expected to reduce collisions on both lines, with approximately 45%. Not only will this be a major advance for the bustard population's future on this project, but also as a potential future mitigation option on projects in the region with similar risks.



Bustard collision mitigation options compared.

Though the confidence in the proposed staggering is high, the approach has not yet been proven, and will be applied as a trial to determine the effectiveness of staggering transmission lines to reduce bird collisions. It is proposed that, prior to construction, further studies, in addition to consultations with avifauna specialists, be conducted to refine this approach as a mitigation measure as part of the finalization of the design. This preparation period will also be used to refine the power line marking methods to be used for specific avifauna hotspots, and as preparation of a robust monitoring plan in the BMP. A plan of study is being proposed to set the terms for this further work prior to construction.

The BMP will set out a short (pre-construction), medium (during construction) and long term (post-construction) monitoring programme. The BMP will in particular focus on the monitoring of key critical habitat areas, to assess the effectiveness of the mitigation measures that have been proposed thus far (staggering and line markers), with an aim to achieve Net Gain. A further aim of the monitoring is to assess local population numbers and trends of sensitive bird species (especially bustards) that are using these key critical habitat areas.

The BMP will contain the requirements for further, ongoing biodiversity monitoring during the operational phase, to evaluate how effectively the mitigation measures proposed are in achieving the Net Gain targets.

Impact assessment

The impact assessment carried out revealed the following significant effects:

- **Impact on vegetation:** Because of the linear nature of the project, the impact on vegetation is expected to be generally low. The loss of protected tree species, specifically the protected Camel Thorn rates medium and can be reduced to achieve a low significance with on-sit final route selection and

proper vegetation management. Appropriate mitigation is included in the Biodiversity Management Plan (BMP).

- Impact on avifauna:** The project area supports a relatively high diversity of red data species, including Vultures, Eagles, and Bustards that are particularly vulnerable to power line collisions. The main impact on birds will be bird strikes once the line is operational. The route has been aligned along an existing 220kV transmission line to minimise cumulative impacts. However, there still remain habitats that harbour sensitive red data bird species. Mitigation measures, which are a non-negotiable condition should be implemented, namely staggering the 220kV with the 400kV pylons (to be the same height to increase the chance of bustards seeing and clearing both lines), and where this staggering is not possible or ineffective after a period of monitoring, the line be marked with bird diverters. Bird marking is recommended for specific hotspot areas, where this type of mitigation is expected to be effective. A rigorous monitoring programme, is proposed, as discussed for Critical Habitat.
- Social impacts:** The most significant impacts include disruption to farm management and changed sense of place. For some farmers the key impact will be during construction when the team interferes with and could potentially introduce nuisances on their farms such as noise, dust, security risk, poaching, etc. to their land. This impact will continue periodically during operation when maintenance is carried out on the line. Some owners are concerned who already have a number of lines crossing their land. For some who place a high value on view sheds, their sense of place will change. These impacts are low generally for the entire route, but rated high to medium for some receptors.

NamPower has made significant efforts to accommodate farm owners concerns in this regard, by making route adjustments where possible. Mitigation of potential nuisance and conflict on farms during construction and operation includes a well-planned management and communication protocol. There will be no resettlement or land take on this project. Land restrictions include that no structures be erected within the project servitude. Farms are generally large and used for grazing under the transmission line corridors. Grazing may continue without interruption. NamPower's efforts to compensate for the land restrictions are considered reasonable and do satisfy the World Bank's Environmental and Social Standard: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement.

The limited land use restrictions are expected to have a low impact on the Nama Traditional Local Community, considered an Indigenous People group according to the World Bank ESS7. Engagement with the group's representatives, including those of the !Hob! Naub Conservancy, confirmed

this assessment. The conservancy is large, none of their settlements or structures will be affected and livelihood strategies will continue mostly unaffected. Continued engagement with this group is very important and recommendations have been made to limit impact on the community during construction. A recommendation is also made to include a social upliftment programme targeting the Nama community, into the project implementation.

- **Impact on archaeology:** Three sensitive sites have been discovered along the route, including one burial cairn, a grave (both in the south near Keetmanshoop) and a graveyard (on one of the commercial farms along the northern section of the route). These are not directly on the route (, i.e., between 2-4km away from the servitude boundary), but may be implicated during construction and operational activities in the area, particularly vehicles driving on the access track. The sites should either be marked and protected, or if this is not possible, removed completely before construction commences. The impact on these sites is rated high and the careful consideration of how to protect them is crucial.

Other impacts, including impacts on labour, impacts related to waste, and community health and safety issues, have been assessed and should be addressed as part of the ESMP and the directives in the World Bank ESS.

Cumulative Impact Assessment

The cumulative impacts of the existing 220kV transmission line combined with the additional proposed 400kV transmission line were considered at a preliminary level. Impacts on the following Valued Environmental and Social Components (elements that are of value in the area), were assessed:

- Health of vegetation, particularly *Vachellia erioloba*. The cumulative impact is expected to be low. The final survey of the power line should attempt to avoid these species as far as possible, and trees should be trimmed rather than removed where feasible.
- *Health of bird populations particularly those susceptible to power line collisions especially Ludwig's Bustard and Kori Bustard.* This impact is significant and a key focus of this study. By staggering the pylons, the impact is probably significantly reduced on both lines, resulting in possible Net gain. Bird markings and monitoring is also crucial to mitigate the impact, as prescribed in the Biodiversity Management Plan.
- Visual quality as a tourism resource. Because of the increasing number of transmission lines, especially close to tourism related activities existing or planned, this impact is a concern. Rerouting has been done on the applicable farms where possible.
- *Social conditions on farms (specifically power line construction workers and maintenance teams)* will likely be impacted. Farm owners have had to deal

with the related frustrations in the past, and this project will likely add to these frustrations. Maintenance teams accessing the farms to work on the multiple lines adds to this social concern. Protocols for interactions on the farms have been included in the ESMP. The grievance redress mechanism provided for this project is crucial in terms of dealing with conflict and management of maintenance teams on the farms.

RECOMMENDATIONS

In light of what can be concluded regarding the potential impacts associated with the proposed transmission line, NamPower will be able to reduce the significance of most of these to acceptable levels if they implement the mitigation measures outlined in both the Construction and Operational ESMP. The BMP, SEP and LMP also need to be implemented. The preliminary BMP that was previously prepared as part of the ESMP will be updated according to the Plan of Study, contained in the biodiversity and critical habitat assessment, to refine biodiversity mitigation and monitoring, particularly as it relates to avifauna impacts and monitoring. It is important that the ESMP is audited to ensure compliance and that monitoring takes place as outlined therein otherwise the impacts identified will remain unacceptable.

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AVIFAUNAL ASSESSMENT
DRAFT BIODIVERSITY AND CRITICAL HABITAT ASSESSMENT REPORT
ARCHAEOLOGICAL ASSESSMENT
VEGETATION ASSESSMENT
FLOODLINE ASSESSMENT
SOCIAL IMPACT ASSESSMENT

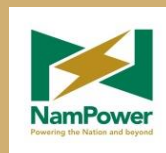
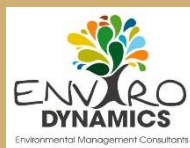
VOLUME 3: APPENDIX G ENVIROMENTAL AND SOCIAL MANAGEMENT PLAN



DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

September 2023

DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Environmental Impact Assessment for the
Proposed 400 kV Transmission Line from
Kokerboom Substation to Auas Substation



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PROJECT NAME	Draft Environmental Management Plan for the Proposed 400 kV Transmission Line from Kokerboom Substation to Auas Substation
REPORT	Draft Environmental and Social Management Plan
STAGE OF REPORT	Draft 2.1
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DATE OF RELEASE	August 2023
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DECLARATION

I hereby declare that I do:

- (a) have knowledge of and experience in conducting assessments, including knowledge of the Act, these regulations and guidelines that have relevance to the proposed activity;
- (b) perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- (c) comply with the Act, these regulations, guidelines and other applicable laws.

I also declare that there is, to my knowledge, no information in my possession that reasonably has or may have the potential of influencing –

- (i) any decision to be taken with respect to the application in terms of the Act and the regulations; or
- (ii) the objectivity of this report, plan or document prepared in terms of the Act and these regulations.



Stephanie van Zyl

Environmental Assessment Practitioner

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LIST OF ACRONYMS

Acromym	Description	Acromym	Description
AIDS	Acquired immunodeficiency syndrom	GN	ESS Guidance Notes
AMSL	above mean sea level	GPN-LI GPN-SEA/SH	World Bank Good Pactice Notes
CoC	Code of Conduct	Ha	Hectare
ECB	Electricity Control board	HSE	Health, Safety and Environmental
ECC	Environmental Clearance Certificate	IUCN	International Union for Conservation of Nature
ECO	Environmental Control Officer	kV	kilovolt
EHSG-G	World Bank Environmental, Health and Safety Guidelines - General	m ²	Square meter
EHSG-ET	World Bank Environmental, Health and Safety Guidelines - Electric Power Transmission and Distribution	MEFT	Ministry of Environment, Forestry and Tourism
EPC	Engineering, Procurement and Construction	MME	Ministry of Mines and Energy
ESF	World Bank Environmental and Social Framework	MW	megawatt
ESIA	Environmental and Social Impact Assessment	NBRI	National Botanical Research Institute
ESMP	Environmental and Social Management Plan	NHC	National Heritage Council
ESS	World Bank Environmental and Social Standard	NP	NamPower
EWG	Environmental Working Group	PPE	Personal Protective Equipment
ff	and forward	SME	Small and Medium Enterprises
GIS	Geographic information system	UV	Ultraviolet
GPS	Global Positioning System	WESCO	WESCO WASTE MANAGEMENT PTY LTD

1 SCOPE

The purpose of this document is to provide regulations, regarding the environment, to any contractor whom NamPower appoints (this includes outside contractors as well as NamPower's own construction people) for the:

NamPower 400 kV Transmission Line (the project) from Kokerboom Substation near Keetmanshoop in the Kharas Region to Auas Substation near Windhoek in the Khomas Region of Namibia

This document is to form part of the contract, and all recommendations and constraints laid out in this document are enforceable under the general conditions of contract.

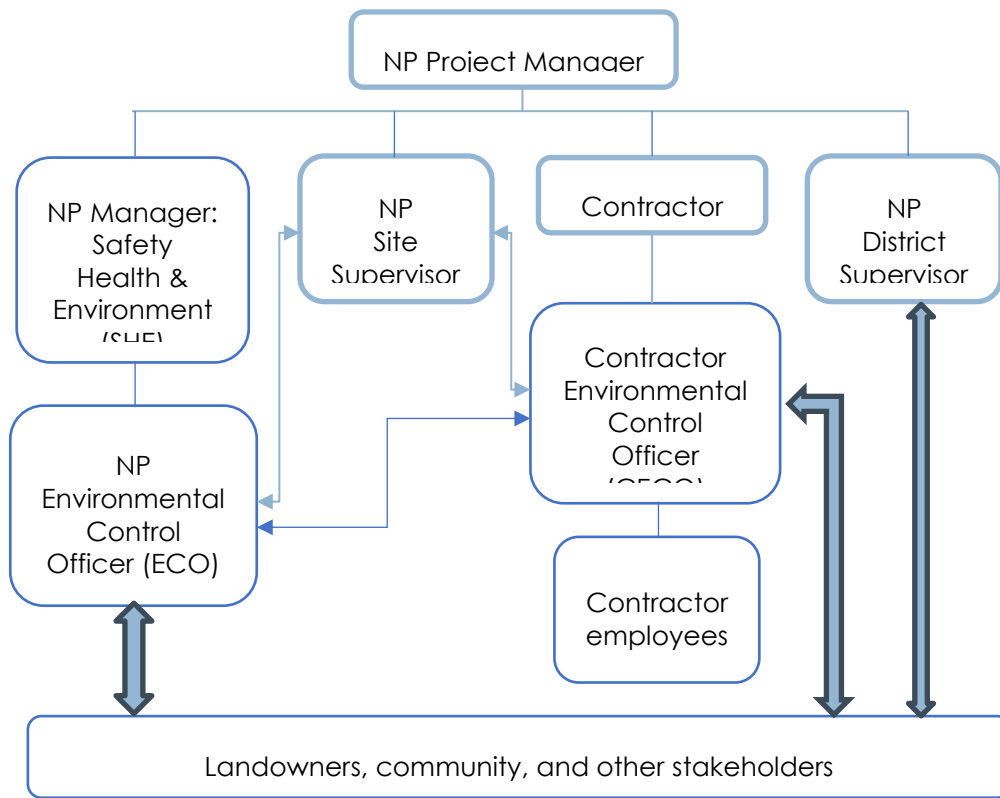
This management plan has a long-term objective to ensure that:

- Environmental management considerations are implemented from the start of the project.
- Precautions against damage and claims, arising from damage, are taken promptly.
- The completion of the project is not delayed due to problems with land owners arising during the course of construction.

NamPower needs a commitment from the NamPower Project Manager and contractor on the following issues:

- To take into consideration the landowners and their rights.
- To always behave professionally on and off site.
- To ensure quality in all work done – technical and environmental.
- To resolve problems and claims arising from damage immediately, in order to ensure a smooth flow of operations.
- To underwrite NamPower's environmental policy at all times.
- To use this Environmental Management Plan for the benefit of all involved.
- To preserve the natural environment by limiting destructive actions on site.

1.1 Reporting Structure



2 INTRODUCTION

The ESMP covers the proposed NamPower 400 kV Transmission Line (the project) from Kokerboom Substation near Keetmanshoop in the //Karas Region to Auas Substation near Windhoek in the Khomas Region of Namibia (see **Figure 1** below).

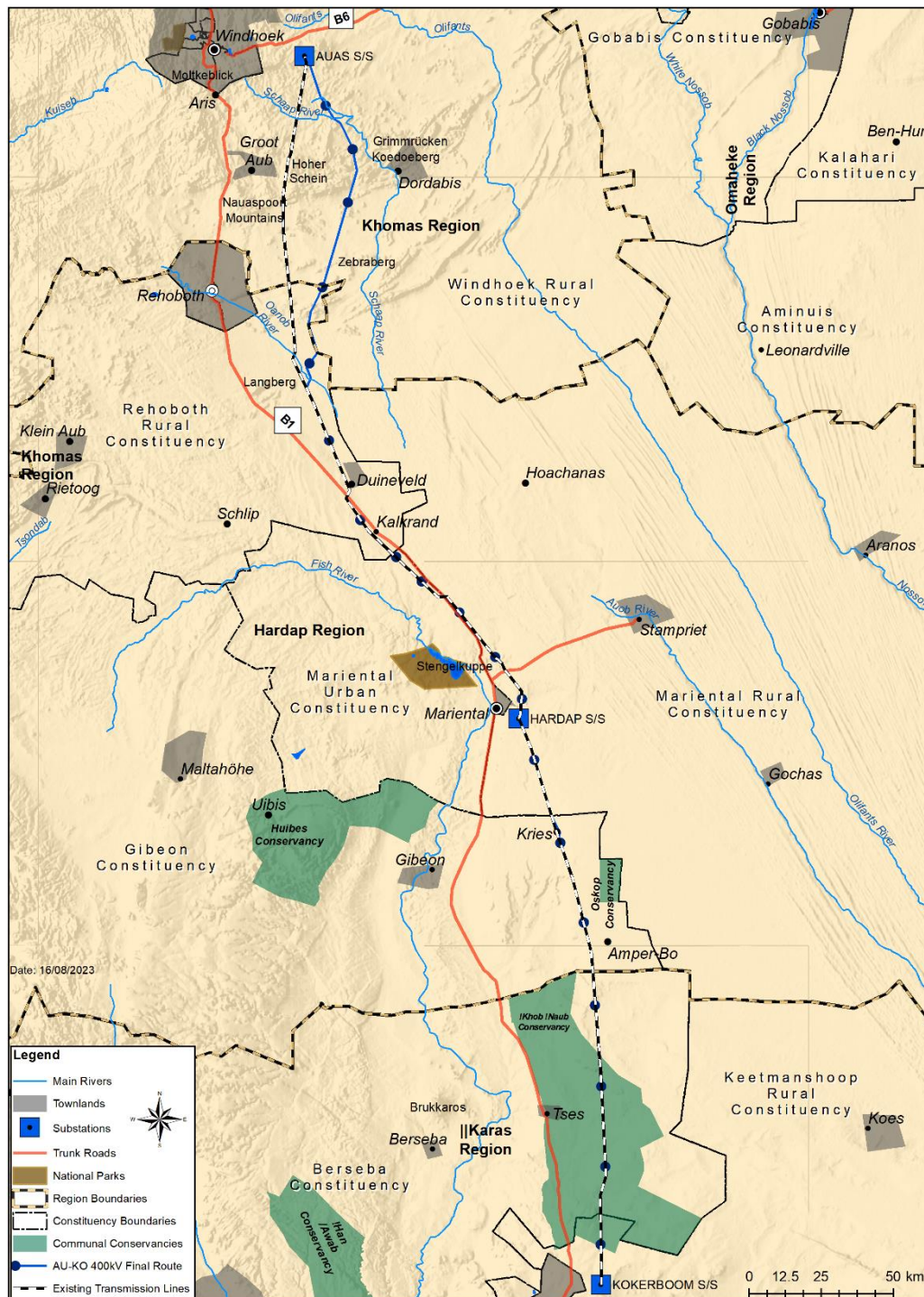


Figure 1 Locality map of the transmission line route

3 PROJECT INFORMATION

Key characteristics of the transmission line activities of the project are summarized in **Table 1**.

Table 1: Project description

ELEMENT	DESCRIPTION
Project Developer	NamPower.
Life of project	Approximately thirty six (≥ 36) months. Minimum 25 years.
Construction phase	
Operational phase	
Project location	Khomas Region to //Kharas Region, Namibia. The line will be mostly east of the B1 trunk road (see Figure 1)
Total land area of Project site	2565Ha (or 40 m wide by 461 km long)
Coordinates of the project area	These coordinates are only a guideline of the route area and not exact. -22.588478°, 17.369070° / -22.944307°, 17.529332° / -23.425082°, 17.377416° / -23.967715°, 17.495490° / -24.570717°, 18.043643° / -25.386568°, 18.259726° / -26.419110°, 18.291778°
Land agreements and use	Right of way use will be negotiated according to NamPower and National policies and procedures. No land will be expropriated.
Project activities	<p>Construction and installation of the following:</p> <p>A 400kV transmission line consisting of:</p> <ul style="list-style-type: none"> • Vegetation clearance of 12m wide under the line and 70m by 50m at each tower • Concrete pylon foundations, with concrete mixing on or near the pylon sites. • V type Cross rope suspension steel pylon (guyed V-Structure) with a height 40m and span of up to 500m between pylons. • Self-supporting suspension steel pylons for bends up to 30° and strain pylons for bends up to 60°. • Pylons materials are transported to site and then assembled on site. • Stringing of the line and

	<ul style="list-style-type: none"> • Infrastructure to connect to the existing Auas and Kokerboom substations.
Expected disturbance/footprint	The total estimated footprint is approximately up to 1050 ha.

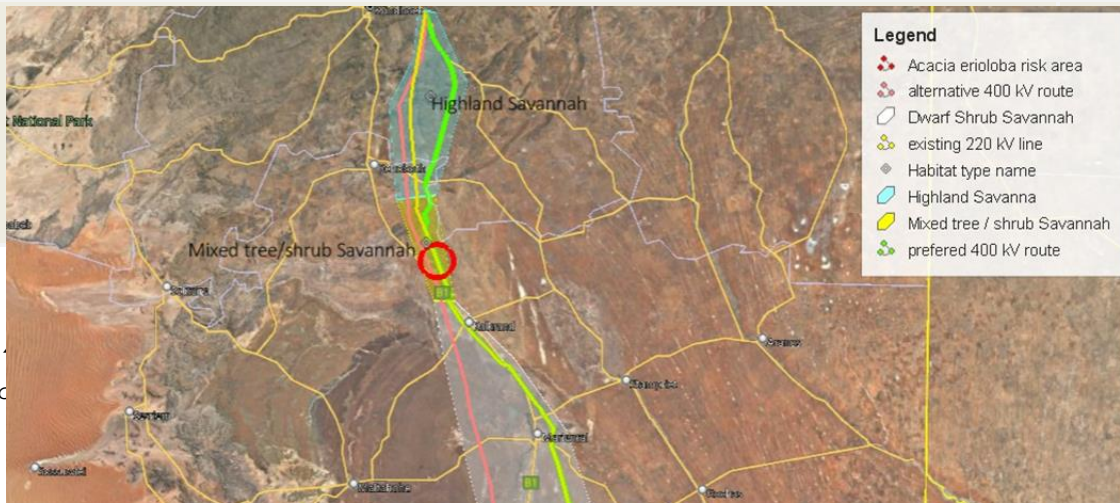
4 ENVIRONMENTAL AND SOCIAL FEATURES

The following key features (Table 2) show the vulnerability of this environment and raises awareness of the features to be conserved and managed to ensure protection and avoidance of collateral damage.

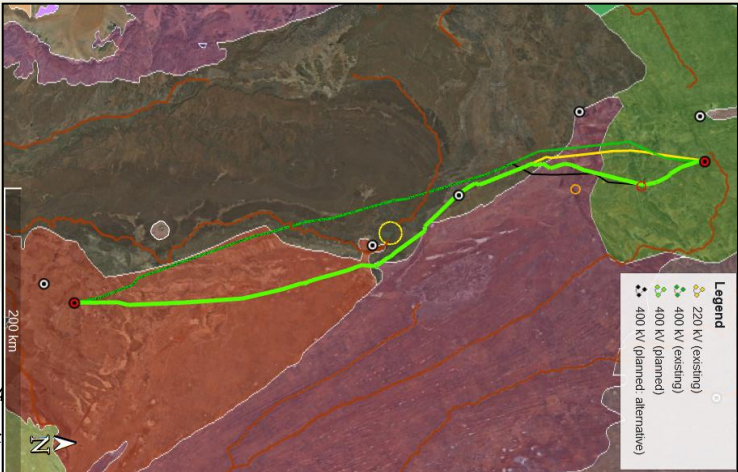
Table 2 Environmental features

Element	Description	Impact expected
Geology and topography	Important ephemeral river systems and their catchments and areas prone to erosion and flooding are highlighted in the ESIA. The line traverses steep terrain only at very specific points. Therefore only minor sections of steep terrain occur distributed throughout the length.	Pylons affected by the flooding and erosion which can be avoided if pylons remain outside of these areas.
Vegetation	<p>No critical vegetation habitat has been determined along the route.</p> <p>The vegetation specialist report (Mannheimer, 2016) describes the important biodiversity areas along the route as follows:</p> <p>“Areas along the route east of Tsumis, as well as the southern parts of Highland Savannah and the portion south and north of bend point 4 carry dense populations of <i>Acacia erioloba</i> (Camel thorn). However, there are scattered densities of this species over much of the route in sections Mixed Tree / Schrub Savannah and Highland Savanna.</p> <p>This species, and other protected species, such as <i>Albizia anthelmintica</i>, often favour dune areas. It is thus virtually impossible to define a “critical” area regarding these species without including most of Mixed Tree / Schrub Savannah and Highland Savannah.</p> <p>Slopes of koppies and mountains in the Highland Savanna carry numerous species of concern and should be avoided as far as possible. At present this habitat is almost untouched by the proposed route.</p>	Physical destruction of vegetation of high conservation, by vegetation clearance for the footprint and collateral damage.

Element	Description	Impact expected
	<p>Pan verges and banks of rivers and drainage lines are known to harbour higher than average numbers and sizes of protected woody species, as well as sedges such as <i>Cyperus rehmi</i>. Although it is very likely that this species is severely under-collected (most sedges are in Namibia), and may be more widespread and common than is presently known, the precautionary principle should be followed by avoiding this habitat for pylon sites. This will also favour the protected trees.</p> <p>Dense stands of <i>Aloe dichotoma</i>, although rare, may be encountered in the southernmost extent of the route. They are very easy to identify and, if encountered, should be avoided for pylon placement. Service tracks should easily be able to circumvent most individuals, which are usually sufficiently widely scattered.</p> <p>The key species are noted as of concern when near the route:</p> <p><i>Vachellia erioloba</i> (protected– Tsumis, BP4 – Hohewarte, riparian and dune areas),</p> <p><i>Albizia anthelmintica</i> (protected), <i>Aloe dichotoma</i> (protected/IUCN-LRlc/CITES II), <i>Aloe littoralis</i> (protected/IUCN-LRlc/CITES II), <i>Boscia albitrunca</i> (protected/IUCN-LRlc), <i>Cyperus rehmi</i> (endemic, farm Binsenheim / Rietfontein),</p> <p><i>Euclea pseudebenus</i> (protected), <i>Maerua schinzii</i> (protected/IUCN-LRlc), <i>Ziziphus mucronata</i> (protected).</p> <p>LRlc = Low Risk, least concern. None of the species has Red Data Status in Namibia.</p>	



Element	Description	Impact expected
	<p>Figure 2: Vegetation zones on the route.</p>	
Bio-diversity - Avifauna	<p>The study area covers areas of critical habitat for specific raptor, hornbill and bustard species as identified in the Preliminary Biodiversity Management Plan (Appendix A).</p> <p>The project area supports a relatively high diversity of red data species, including vultures, eagles, and bustards that are particularly vulnerable to power line collisions.</p> <p>The main impact on birds will be bird strikes once the line is operational. The route has been aligned along an existing 220kV transmission line to minimise cumulative impacts. However, there still remain habitats that harbour sensitive red data bird species.</p> <p>The following species are likely to be impacted by the planned 400kV transmission line:</p>	<p>Disturbance through noise, movement and temporary occupation of an otherwise undisturbed habitat.</p> <p>Habitat loss, including foraging, roosting and breeding habitat of the area occupied by the completed structures.</p> <p>Collision of priority species, including globally threatened birds and/or migrating birds.</p>

Element	Description	Impact expected
	<p>Ludwig's Bustard (IUCN G EN, N EN), White-backed Vulture (IUCN G CR, N CR), Secretarybird (IUCN G EN, N VU), Lappet-faced Vulture (IUCN G EN, N EN), Verreaux's Eagle (IUCN N NT), Great White Pelican (IUCN N VU), Kori Bustard (IUCN G NT, N NT), Rüppell's Parrot (IUCN N NE), Damara Hornbill (IUCN N NE), Monteiro's Hornbill (IUCN N NE)</p> <p>Only the Ludwig Bustard species triggers the requirements of CHA at this stage :</p> <p>Mitigation measures (including staggering the 220kV with the 400kV pylons, assure the two sets of pylons are the same height, and fitting bird markers) as well as a rigorous monitoring programme as prescribed in the Preliminary Biodiversity Management Plan (Appendix A), is crucial to reduce avi-fauna population declines to an acceptable level.</p> <p>The Preliminary Biodiversity Management Plan (Appendix A) monitoring requirements include:</p> <ul style="list-style-type: none"> • Pre-construction monitoring as per set criteria on both the existing 400 kV and 220 kV lines to start at least 9 months and 3 months prior to construction, including planning and design of bird diverters type and positions, to be included in the contract requirements. • Construction monitoring and final determination of positions of diverters. • Post construction monitoring sets at 3 and 9 months after completion of the line. 	
<p>NamPower: Proposed 400 kV Line</p> <p>Environmental and Social Impact Assessment</p>	 <p>The map displays a proposed 400 kV transmission line route in green, which follows a path through a landscape with various terrain features. Existing 220 kV lines are shown in yellow and existing 400 kV lines in orange. A legend in the bottom right corner identifies these line types: 220 kV (existing) as a yellow line, 400 kV (existing) as an orange line, and 400 kV (planned alternative) as a green line. A scale bar indicates 200 km, and a north arrow is present in the bottom left corner of the map area.</p>	

Element	Description	Impact expected
	<p>Figure 3. Avifauna map with vegetation zones (potentially sensitive avifauna habitats (orange circle = White-backed Vulture breeding area; red circle = Verreaux's Eagle breeding area; yellow circle = Hardap Dam IBA; brown lines = ephemeral rivers) (based on a Google Earth image; EIS 2023).</p> <p>Note: The Preliminary BMP will be updated with additional studies as set out in the Plan of Study in the biodiversity and critical habitat assessment report.</p>	
Archaeology	<p>The following important archaeological sites exist near the route (Figure 1).</p> <p>QRS 243/604 S26.14268 E18.30721: Pre-colonial burial cairn 2m diameter, slightly dispersed, on stream terrace.</p> <p>QRS 243/605 S26.14444 E18.30861: Colonial era grave, 2.2m long, unmarked, on stream terrace.</p> <p>QRS 234/615 S22.88937 E17.56039: Historic/modern farm cemetery >50 graves, fenced, 30m east of road centreline. Confirmation is required as to whether this is the site referred to by the I&AP Comments and Response Report (4th August 2016), Item B035, Mr Romeis. The site is an established cemetery and unlikely to be affected by the proposed Kokerboom to Auas transmission line corridor.</p> <p>These particular sites should be demarcated and no construction activities are to take place near them. No members of the team are to come near them.</p>	<p>Impact only expected if uncontrolled movement is allowed into the nearby area and particularly the hills. An archaeology chance-find procedure is to be implemented and overall degradation is to be limited.</p>

Element	Description	Impact expected
Traffic	The transport route for heavy equipment and materials will both national and district roads in the central and southern part of Namibia.	During the construction phase the increase in truck traffic along national and district roads transmission line site vicinity will be cumulatively moderate. However, the expected total traffic volumes along these roads will be temporary and still be well within the function of the roads and hence no operational issues are expected.
Socio-economic indicators.	<p>The rural areas in southern Namibia is sparsely populated, and due to its aridness is not attractive for significant population influx.</p> <p>Villages with populations large enough to provide labour is Dordabis (Komas Region), Kalkrand (Hardap Region), as well as Berseba, Tses and Kries (//Kharas Region).</p> <p>Towns near the transmission line route is Rehoboth, Mariental and Keetmanshoop.</p> <p>The rural areas in southern Namibia show high unemployment rates and very low potential for future job opportunities, making longer term scope for permanent influx of workers from other regions very unlikely.</p> <p>The project will employ up to 150 people over the entire construction period spread over three regions, making the overall economic upliftment effect very limited.</p>	<p>Limited job creation and economic upliftment if a locals first policy is followed.</p> <p>Engagement with the regional and village councils is essential to facilitate temporary employment opportunities for locals first.</p>
Cumulative features	Planned and future renewable energy development in the Komas, Hardap and //Kharas Region will require new transmission line infrastructure in and beyond these regions.	The areas with higher wind and solar potential is sensitive to large footprint projects, including transmission lines, and may cause significant cumulative impacts on impact on habitat, vegetation, tourism, archaeology and socio-economic environments.

Element	Description	Impact expected
		Recommend that a Strategic Environmental Assessment (SEA) be conducted for renewable energy development in Namibia to address matters of strategic concern, including impact on habitat, vegetation, tourism, archaeology and socio-economic impact.

The Environmental and Social Management Plan (ESMP) aims to provide a high-level management tool for the overall environmental management of the project in principle as well as direct mitigation measures related to the impacts expected.

5 MANAGEMENT OF ENVIRONMENTAL AND SOCIAL MEASURES

The following legal framework forms the backbone of this ESMP:

5.1 Contractual requirements

The ESMP must be included in all contractual agreement between the Project Developer (NamPower) and Contract Implementers. Strict adherence to the ESMP is essential in view of the sensitivity of the project area and the fact that the ESMP is a legally binding contract between the Project Developer and MEFT. The ESMP incorporates the following essential components:

- General mitigation measures that are applicable to all projects to ensure sound environmental and social management principles for a sustainable outcome.
- The specific mitigation measures for this project that have been identified to avoid and reduce the significance of impacts in this sensitive environment.

5.2 Management and auditing capacity requirements.

In order to be able to adhere to the above-mentioned requirements, the following capacity and system must be put into place:

- NamPower shall appoint a qualified and dedicated Environmental Specialist from the NamPower SHE Section and with Environmental and Social Risk Management Practice qualifications and experience as Environmental Control Officer (ECO) for each project to coordinate and monitor the adherence to the Environmental and Social Management Plan (ESMP), as well as the external environmental audit process.

This position will be responsible for:

- The coordination of and liaison with the MEFT.
 - The coordination of the various Management and Monitoring Plans, especially the Biodiversity Management Plan.
 - The implementation of the ESMP through the Contractor.
 - The coordination and reporting of the environmental audit and monitoring system.
- NamPower, in co-ordination with the ECO, should liaise with stakeholders at critical points to resolve specific matters, such as:
 - the local labour office recruitment,
 - Infrastructure provision and workforce accommodation.
 - The farm owners should also be contacted to inform them about the commencement and progress with the project and to iron out any grievances they may have.
 - Monitor and implement the various grievance resolution measures.
- NamPower should implement an environmental and social review system such that reviews are conducted on a quarterly basis during construction and audits

on an annual basis during the construction and operation of the Project. This is to be used to ensure the successful implementation of the ESMP, to verify the effectiveness of the ESMP, to implement adjustments if required, and to have an objective set of records. Throughout the project cycle, it will be ensured that the World Bank and its ESS requirements are considered and included in reporting requirements.

5.3 Promoting compliance

NamPower is responsible to ensure overall adherence to this ESMP by the various construction, operation, and maintenance operators throughout the entire life cycle of the project. The operator/contractor is however responsible for the enforcement of this ESMP to avoid contravention of this ESMP.¹ The system should incorporate the following guidelines:

- (a) The Contract Implementer shall comply with the environmental and social specifications and requirements as described in the ESMP on an ongoing basis. The Contract Implementer shall include the necessary training and awareness raising as a constant process on site, including to new staff. Any failure to comply should set in motion a corrective procedure by the ECO, which culminates in a payment retention or deduction with continual non-compliance. Payment retention is the first step toward correction, with a deduction as further enforcement, which can be repeated if non-compliance persists. Certain contraventions are of high importance and a deduction shall be charged regardless of the correction, especially in cases where the damage is irreparable.
- (b) Enforcement should be assured through specific, quantitative measures such as payment deductions for small scale or irrecoverable activities and payment retention for large scale recoverable activities (See example in Appendix C). The terms should be specified in the special conditions of contract of implementation and operations contracts.
- (c) In the event of non-compliance, the following recommended process shall be followed:
 - The ECO shall issue a notice of non-compliance to the Contract Implementer, stating the nature and magnitude of the contravention.
 - The Contractor shall act to correct the non-compliance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
 - The Contractor shall provide the ECO with a written statement describing the actions to be taken to discontinue the non-conformance and to replace it with confirming actions, as well as the actions taken to mitigate its effects and the expected results of the actions.

¹ In case NamPower remains the operator, a system promoting compliance is still required, with a disciplinary process being made applicable in cases of severe non-compliance, e.g. health and safety measures contravened, plants indiscriminately damaged, indiscriminate off-road driving undertaken or off-limit areas visited, etc.

- In the case of the Contractor failing to remedy the situation within the predetermined timeframe, the ECO shall impose a payment deduction or retention based on the special conditions of contract.
 - In the case of the Contractor not being able to remedy the situation due to irreversible environmental and social impact already incurred, the ECO shall impose a payment deduction based on the special conditions of contract.
 - In the case of non-compliance giving rise to physical environmental damage or destruction, NamPower shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
 - In the event of a dispute, difference of opinion, etc., between any parties in regard to or arising from interpretation of the conditions of the ESMP, disagreement regarding the implementation or method of implementation of conditions of the ESMP, etc., any party shall be entitled to require that the issue be referred to independent specialists to assist in the resolving of the dispute to the satisfaction of all the parties.
 - The ECO shall at all times have the right to stop work and/or certain activities on site via the appointed site manager / project manager in the case of ESMP non-compliance or failure to implement remedial measures.
- (d) A list of appropriate payment deductions and payment retention based on the content of the ESMP must be developed by the ECO before the project implementation starts and revised annually. Appendix C provides an example of an Environmental Payment Deduction or Retention System.
- (e) A record of all payment deductions and payment retention given and adhered to should form part of the Environmental Payment Deduction or Retention System. Repeat offenders will receive an official warning or will be ordered from the site if as deemed necessary. All staff and contractors should be made aware of the seriousness with which all Safety, Health, Environmental, and Quality (SHEQ) aspects of this ESMP and other legal requirements should be viewed at the site and the system should be knowledge to all on the team.
- (f) The formal NamPower Safety, Health, Environment, and Quality Policy (Appendix E) will be adhered to at all times. This policy is in line with all relevant ISO Systems and adherence to the SHEQ management system.

6 LEGAL REQUIREMENTS

Summarized below (**Table 3**) are the activities associated with the construction and operation of the power line that have specific requirements in terms of national legislation (such as permits).

Table 3: National Legislation and World Bank compliance.

LEGISLATION	REQUIREMENT
Labour Act 11 of 2007	<ul style="list-style-type: none"> Regulations relating to the health and safety of employees at work are contained in GN 156/1997 (GG 1617). Must be complied with on this project.
Forestry Act No 27 of 2004	<ul style="list-style-type: none"> Provision for the protection of various plant species. A permit will be needed for removal or destruction of protected species mentioned in Table 2. The act also requires any removal of any living tree, bush or shrub growing within 100 metres of a river, stream or watercourse to be done under to auspices of a permit issued by an appropriate official from the Directorate of Forestry. The forms can be obtained from the permit office at the Ministry of Environment and Tourism, Windhoek or the Directorate of Forestry: Ministry of Agriculture, Water and Forestry, Government Office Park, P/Bag 13184 Windhoek, Tel +264 61 208 7555. A period of three months should be allowed for obtaining this permit. Species and numbers/quantities involved will need to be specified.
Nature Conservation Ordinance 4 Of 1975	<ul style="list-style-type: none"> Permit needed for the removal or destruction of protected species (See the Vegetation Specialist study for a Complete list of species requiring a permit.)
National Heritage Act No 27 of 2004	<ul style="list-style-type: none"> No archaeological/heritage site or cultural remains may be removed, damaged, altered or excavated. Section 48 sets out the procedure for application and granting of permits, such as the permit required in the event of damage to a protected site occurring as an inevitable result of development. Section 51 (3) sets out the requirements for impact assessment. Part VI Section 55 Paragraphs 3 and 4 require that any person who discovers an archaeological site should notify the National Heritage Council.
Compensation Policy	<ul style="list-style-type: none"> The Compensation Policy for commercial areas as per the Resettlement Policy Framework (Appendix B), with its applicable forms are applicable to this project.
World Bank Environmental and Social Framework.	<ul style="list-style-type: none"> Specifically ESS 2 and ESS 6 (2016) and the relevant Guidance Notes (2018) To protect and conserve biodiversity and habitats. To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity. To promote the sustainable management of living natural resources. To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.
World Bank Group - Environmental, Health and Safety Guidelines for	<p>Relevant to</p> <ul style="list-style-type: none"> Terrestrial habitat alteration. Electric and magnetic fields once operational. Hazardous materials. Working at height on poles and structures. Live power lines once operational.

Electric Power Transmission and Distribution.	
World Bank Group - General Environmental, Health and Safety Guidelines.	<ul style="list-style-type: none"> General Health and Safety Guidelines that is to be read in conjunction with Namibian legislation and policies. Practical best practice should lead the decision making as to the standard followed.
Word Bank Group - Good Practice Notes	<ul style="list-style-type: none"> Managing the risks of adverse impacts on communities temporary induced labour influx. The impact is expected to be low and can be managed through ESMP requirements. Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works. The risk of SEA/SH is limited, but the impact if realised is high. The ESMP provides for deliberate avoidance measures during construction and include guards against gender violence.

7 MANAGEMENT REQUIREMENTS

7.1 Planning Phase

The planning phase constitutes the phase before the onset of construction. It ensures all design and preparation requirements are in place before construction commences.

Responsibility: The Project Developer shall consider these aspects in conjunction with the ECO.

Table 4 Management Requirements – Planning

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
Administrative, legal and policy requirements ESS 2 + GN	To fulfil the administrative and legal requirements in constructing and operating the proposed project.	NamPower Nampower will appoint a contractor with suitable experience with similar contracts and reputable E&S risk management measures to undertake the construction of the transmission line. Preference will be given to Namibia based companies or Namibian affiliations, where reasonably practical, and if tender requirements are met. .		Appropriate contract.	X				
		The Resettlement Policy Framework (Appendix B) must be implemented, and records provided before construction starts		Reord of implementation	X				
Monitoring requirements ESS 1 + GN	Implementation of the ESMP	The duration of the project should be taken into consideration when budgeting and planning for monitoring activities. Monitoring should be carried out every month.		Montly monitoring reports	X	X	X	X	

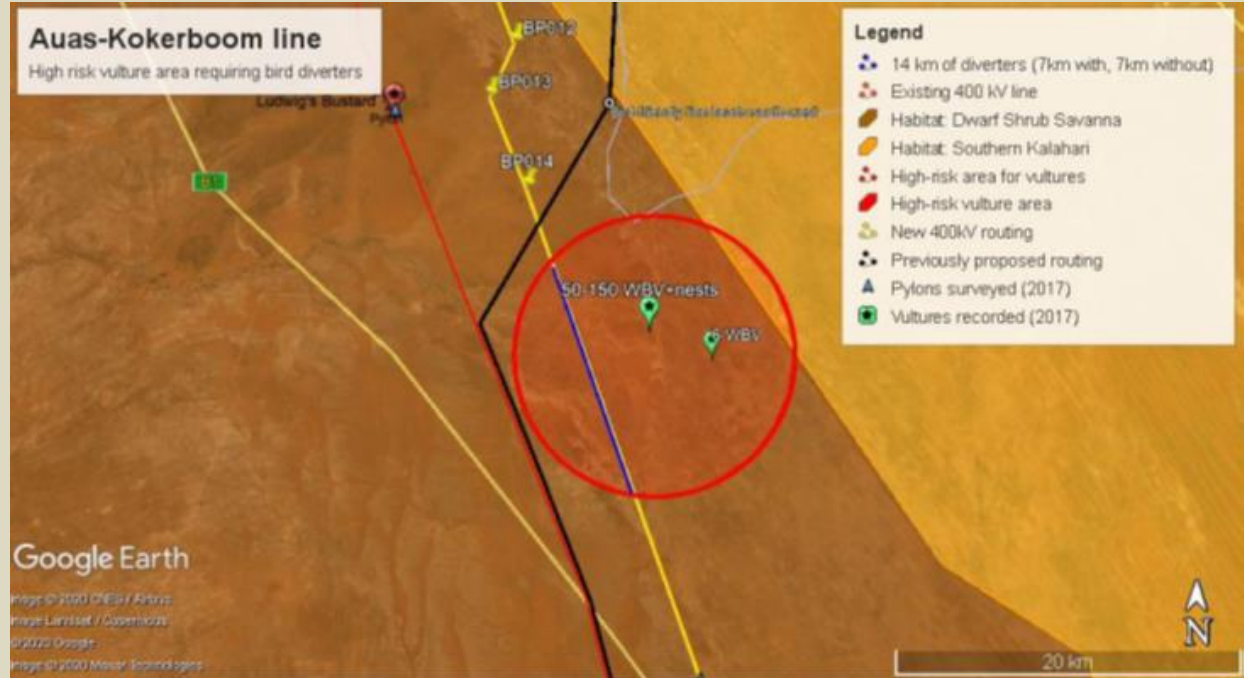
ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Critical periods during which significant environmental impact could occur are to be identified, and the presence of the NamPower representative (who will co-ordinate with the ECO) during those periods to avoid unwanted impacts is essential.			X	X			
		The Project Developer will avoid the manufacture, trade and use of chemicals and hazardous materials subject to international bans, restrictions or phaseouts unless for an acceptable purpose as defined by the conventions or protocols or if an exemption has been obtained by the Borrower, consistent with Borrower government commitments under the applicable international agreements		Checklist (incl. exemptions) and quarterly review.	X	X			
BIODIVERSITY MANAGEMENT SYSTEM ESS 6 + GN	To optimise the site in terms of avoidance of sensitive habitats. Compliance with ESS6	Update the preliminary BMP in accordance with the Plan of study contained in the Biodiversity and Critical Habitat assessment report. The objective is to integrate and coordinate the prerequisite design interventions and management plans for vegetation and Avifauna with the project construction and implementation systems.		Developed Biodiversity Management Plan	X	X	X		
		Clearly indicate the different sensitivity zones in the final layout design for the TL.		Design maps/drawings	X	X	X		

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Uncontrolled vehicle activity is of major concern. Careful pre-planning of construction activities must be done to identify where infrastructure will be absolutely necessary for both construction and maintenance, overlapping these in a single infrastructure corridor.		Infrastructure design drawings enforcing corridor.		X	X		
		These infrastructure corridors must be clearly marked prior to construction activities beginning, together with designated turning points and construction clearance areas. Turning points for heavy vehicles must be designated and adhered to. The area used must be constrained as far as possible.		Construction drawing Marked routes and turning points on site.		X	X	X	
		Specific actions are mentioned in the next two (2) sections in terms of vegetation and avifauna.			X	X	X	X	X
PROTECTION OF PLANTS OF CONSERVATION CONCERN ESS 6 + GN	To limit the removal of plants of conservation concern.	Review the existing Biodiversity Management Plan (BMP) (Appendix A) and determine amendments and implementation strategies with a vegetation specialist.		Develop system during final design / before construction starts. Updated BMP	X	X	X	X	X
		Involve a specialist to identify plants (eg aloes) that are candidates for potential removal. Consult with NBRI as to whether any of the plants must be brought to the National Botanic Garden.		Plant list with coordinates. Record of Communication with NBRI.			X		X

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Take care to make these arrangements well in advance so that NBRI staff can schedule and plan for any needed plant relocation.		Plan with 3 month lead time. Record of Communication with C Mannheimer.			X		X
FAUNA RELATED MONITORING REQUIREMENTS ESS 6 + GN	To continue or initiate the required monitoring procedures as per the bird specialist studies.	A bird monitoring programme, pre-construction, during the construction, and initial operational phase that includes searches for bird mortalities based on proposed guidelines in the specialist study (as per updated BMP).		BMP - Avifauna Monitoring Plan. Quarterly review / update.	X	X	X		X
		If deemed necessary by the specialist, extend monitoring to include nocturnal monitoring episodes as per proposed guidelines.		Evaluate with specialist.			X		X
		All monitoring data should be collated annually and made public via NamPower.		Annual Monitoring report in public domain	X		X		X
SOIL CONSERVATION	Avoid soil erosion instep terrain, riverbanks and 1:100 flood line	Pylons must be placed outside the 1:100 flood line, as described in the Drainage Specialist study (Muir, 2016). Where this is not possible the pylon bases must be designed to withstand erosion from flooding and be provided with flood protection.			X				

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
DESIGN OF TRANSMISSION LINE PYLONS ESS 6 + GN	To minimise the risk of power line-bird collisions.	<p>Implement staggered power line mitigation along the existing 220kV power line from Auas to Kokerboom for the majority of its length; In order to ensure the staggering, the following has been prescribed in the ESIA:</p> <ul style="list-style-type: none"> The new 400kV line will employ small pylon support towers to match the height, as far as possible, to that of the existing 220 kV line Throughout the route, the proposed 400kV line must run adjacent to and employ staggered pylons, such that the pylons of the proposed 400 kV line align with the midspan of the 220 kV line; The two lines (proposed 400kV and existing 220 kV) cannot deviate from each other for more than 2 km in any 100 km length as this will negate the staggered pylon mitigation. 		Designs reviewed.	X	X			
		<p>The routing follows that proposed from Auas south to the Kalkrand area to avoid the vulture-breeding areas north of Kalkrand.</p> <p>Near Kalkrand (BP010) 14 km of the line requires bird diverters as it traverses a high-risk vulture area.</p>		<p>Reviewed marking recommendations before construction.</p> <p>Marking recommendation on Maps and layout drawings.</p>	X	X			
		<p>As a mitigation for bird collisions, mark overhead conductors using bird flight diverters/deflectors, as indicated below (Figure 4). The marking recommendations are conceptual at this stage, and</p>		<p>Reviewed marking recommendations before construction.</p> <p>Marking recommendation on</p>	X	X	X		X

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>will need to be confirmed during the pre-construction site visit:</p> <ul style="list-style-type: none"> A short section of the line intersects a previously identified high-risk vulture site (south of point BP014: Figure 2). White-backed Vultures <i>Gyps africanus</i> use this area and it has been agreed with NamPower that bird diverters must be added to this 14 km section on the earth wire of the proposed 400 kV line to reduce further any possible impacts by these large and relatively unmaneuverable species. It was also agreed that the 14 km section would have 7km of diverters (ideally spirals on the earth wires of the proposed 400 kV) and 7km without. We suggest 2km section with diverters, alternating with 2km sections with no diverters to test their efficacy in reducing vultures collisions. These would then be searched for collision victims as set out in the monitoring section. This whole section will need to be included in the surveys described in the EMP below. <p>A specialist needs to mark the areas along the route that are a significant risk in terms of potential bird collision. <i>The areas above are only vulture breeding areas but there are also other areas, e.g. near the Hardap Dam that should be considered for marking.</i> The specialist needs to recommend the</p>		Maps and layout drawings.					

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		particular line markers (e.g. flappers) to be introduced to the line.							
		 <p>Auas-Kokerboom line High risk vulture area requiring bird diverters</p> <p>Legend</p> <ul style="list-style-type: none"> 14 km of diverters (7km with, 7km without) Existing 400 kV line Habitat: Dwarf Shrub Savanna Habitat: Southern Kalahari High-risk area for vultures High-risk vulture area New 400kV routing Previously proposed routing Pylons surveyed (2017) Vultures recorded (2017) <p>Google Earth</p> <p>Image © 2020 CNES / Airbus Image Landsat / Copernicus © 2020 Google Image © 2020 Maxar / TerraMetrics</p> <p>Figure 4: A 14-km section (= blue line) of the new routing that passes close to known vulture areas. This section south of the NamPower coordinate of BP014 requires extra mitigation in the form of bird diverters.</p>							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		A specialist should provide perch structure positions for raptors on selected power line poles (mainly in large wash area; further sections outside the main study area to be confirmed).		Designs reviewed.	X	X	X	X	
		Work on construction to be undertaken outside the winter breeding months where large vulture or raptors are found breeding < 100 m from the line		Construction program	X	X	X	X	
		Construction activities must be carefully planned so as not to interfere with the breeding seasons of sensitive species.		Construction program	X	X	X	X	X
		Avoiding large tree nests or cliffs where raptors or vultures are breeding		Designs reviewed.			X	X	
POVERTY ALLEVIATION AND GENDER EQUALITY ESS 2 + GN	To ensure that the project renders the maximum level of poverty alleviation possible, and to promote gender equality in economic opportunities.	During drafting of tender documents, NamPower (or appointed labour consultant) shall include provisions designed to maximise the use of local labour. All unskilled and where available semi-skilled labour shall be sourced from local communities. Specific recruitment procedures shall be confirmed with Regional and Village Councils, and spelled out.		Criteria design and Plan to include in Tender / Bid review.	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Identification and appointment of local people should be undertaken in consultation with the regional and constituency-level authorities at least 6-months prior to the commencement of construction.		List of potential employees from local communities	X				
		NamPower shall include provisions in all contracts to ensure gender equality, i.e. equal access to all positions, given personnel qualifications including aptitudes, experience, skills and abilities.		Criteria design and Plan to include in Tender / Bid review.	X	X	X	X	
		The successful Tenderer should specify what percentage of the contract value will be assigned to capacity building (as per NEEP). The Tenderer should compile a capacity building plan that benefits all employees but specifically aims to enhance the skills of workers originating from the directly affected constituencies.			X			X	
	Optimise local service and contractor procurement.	The Project Developer shall ensure that local firms enjoy preference during tender adjudication, subject to the provisions of the Public Procurement Act.		Criteria design and Plan to include in Tender / Bid review.	X	X			
TENDERING PROCESS ESS	Ensure all environmental and social requirements are included in all contracts of contractors	Ensure this ESMP is included in all tender documents and contracts. To make all bidding and implementation parties aware of all ESHS requirements and is addressed in implementation methodology.		Tender documents review.	X	X			

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
	involved in the project.								
		Ensure adequate budgeting and financial provision is allowed for the items in the above documents.		Tender documents review.	X	X			
ESS 2 + GN		Develop, adopt, and implement Labor Management Procedures (LMP) for the Project in line with national legislation and ESS2. The LMP will be applicable to direct workers, contracted workers, including casual laborers.		LMP document. LMP records					
		Ensure that sub-contractor(s) in particular the civil works contractors, have appropriate environmental and social management systems and plans in place, which will likely include (as applicable) plans that cover:		Schedule of Plans	X	X	X	X	
		<ul style="list-style-type: none"> Occupational health and safety that comply with national standards as well as EHSG-G and EHSG-ET. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
ESS 2 + GN GPN-LI GNP-SEA/SH		<ul style="list-style-type: none"> Labour force management including a grievance management mechanism for workers; 							
		EPC to report to NamPower regularly on ESHS performance including labor management and grievance management (see Labour Management Procedures).		Monthly report	X	X	X	X	
EMERGENCY PREPAREDNESS AND RESPONSE PLAN	Ensure the requirement for an Emergency Preparedness and Response Plan is included in the tender documents.	<p>An item shall be included in the contract documents of all contractors, as follows:</p> <p>The Contractor will establish and maintain an emergency preparedness and response system so that the client, in collaboration with appropriate and relevant third parties, will be prepared to respond to accidental and emergency situations associated with the project in a manner appropriate to prevent and mitigate any harm to people and/or the environment.</p> <p>Consult https://www.ifc.org/en/insights-reports/2015/publications-handbook-esms-general (Section 5, p 36. for guidelines to prepare an emergency preparedness and response plan).</p> <p>This preparation will include:</p> <ul style="list-style-type: none"> the identification of areas where accidents and emergency situations may occur; communities and individuals that may be impacted; 		Tender documents review.	X	X		X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> • response procedures; • provision of equipment and resources; • designation of responsibilities; • communication, including that with potentially Affected Communities; • periodic training to ensure effective response; and • collaboration with other relevant emergency agencies. 							
		The emergency preparedness and response activities will be periodically reviewed and revised, as necessary, to reflect changing conditions.		Monthly report	X	X	X	X	
CONTRACTOR'S ROLE		<ul style="list-style-type: none"> • Is responsible for the implementation of the ESMP. • Ensuring all tasks undertaken under the scope of work, are in accordance both with NamPower's SHE policy as well as to the requirements of this ESMP. • Ensure that relevant management plans as set out in the ESIA including but not limited to the Construction ESMP and OHS Plan are developed to the satisfaction of NamPower and World Bank prior to commencing with construction activities • Putting in writing a system of communication, in which all incidents and accidents are reported to the NamPower SHE section. • Ensuring that all employees receive SHE induction and are made aware of the occupational health and safety hazards and risks associated with each task before commencing with works. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> Ensuring that the work being done does not create a nuisance to the residents or animals on the property. If the contractor deems to continue work after the usual working hours, in the evenings and at night or over weekends, he must obtain the NamPower's (Project Manager) and landowner's permission before proceeding with such work. 							
SURVEYOR ROLE		<ul style="list-style-type: none"> Ensures route alignment for the proposed power line is as per route given in the final ESIA (or after consultation with the SHE section if no EIA has been done). Ensures that the final alignment of the route be fine-tuned to keep at least 50m away from any farm infrastructure (such as reservoirs, cattle kraals, pumps etc.). Ensures that the servitude or power-line route, should it run in parallel to a stream or riverbed has a buffer of between 15 m between the servitude and the river. Ensures that the ECO accompanies the surveyor during site handover. The surveyor is to align the straight sections of the power line so that its centre line would avoid significant tree species (such as a valuable shade trees or endangered tree species) as far as possible. Documents the removal of any economically valuable trees or bushes (such as valuable shade trees) and clearly communicated to the ECO the reasons for removal. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> The Surveyor, together with the ECO, should carefully consider the need to remove large trees in the servitude, and specify this only where technically necessary. Rocky outcrops and inselbergs in the project area are sensitive from an ecological aspect; they harbour vegetation worthy of conservation, and the final power-line alignment must avoid all such sites. The Surveyor should ensure all coordinates given in the ESMP of environmental or social sensitive areas are included on the spanning sheets for the powerline prior to construction. 							

7.2 Construction Phase

Responsibility: The **NamPower** shall take ultimate responsibility for these aspects, with delegation to the applicable project operator, and the various contractors.

Table 5 Management Requirements – Construction

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
ENVIRONMENTAL MANAGEMENT ESS 2/6 + GN	To ensure adherence to the ESMP.	The Project Developer shall appoint an Environmental Control Officer (ECO) who will be responsible to coordinate and monitor the adherence to the Environmental and Social Management Plan (ESMP), as well as the external environmental audit process. The ECO shall report regularly to NamPower (NP) and Project Manager (PM) on the implementation of Environmental & Social measures.		Monthly feedback to NP/EPC Scope of responsibility. Quarterly performance review. See section 5.3.	X	X	X	X	
		The ECO is responsible for the coordination of and liaison with external stakeholders such as village councils and communities, neighbouring landowners, and the affected land owner.		Communication records			X		
		Implement an external environmental and social audit system on a quarterly basis during construction and on an annual basis during the operation of the Project. This shall be used to verify the effectiveness of the ESMP and implement adjustments if required.		Quarterly audit schedule	X	X	X		

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Use the Biodiversity Management Plan to integrate and coordinate the management plans for vegetation, and Avifauna with the project construction and implementation systems.		Monthly feedback		X	X		
		Structure and operate 1) Stakeholder engagement (communication, publication, awareness campaign etc), 2) appropriate Grievance mechanisms including an option for complainants to submit anonymous grievances (see Stakeholder Engagement Plan).		Monthly system feedback		X			
		An audit shall be undertaken during bush clearing (i.e. at the start of the work) , during, as well as within a specified period after completion of the work but before the contract is signed off. The audit shall be used to identify non-conformance for which the Contractor shall take corrective action. The auditor may either be internal or external to NamPower.		Quarterly reporting	X				
		The contractor shall arrange an inspection with the project manager, who will inform the ECO, for the final inspection of the works. A first inspection will be done on which NamPower will draw up a snag list. Should the same items on the snag list still not be according to NamPower's satisfaction on the second inspection, all direct costs incurred for re-inspection will be on the contractor's account.			X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
CONSTRUCTION PROGRAMME	Manage interaction with the land owners.	<p>The construction schedule and process should be designed to avoid the high tourist and hunting seasons. The landowners and users involved in tourism activities should be requested to confirm this information as part of the detailed planning process prior to construction.</p> <p>The construction schedule should be discussed with the commercial farmers to enable them to plan the rotation of livestock accordingly. Their limitations should be accommodated, where possible.</p> <p>The schedule and approach to construction must be presented to the directly affected receptors and constituency leaders for input prior to finalisation.</p> <p>Before work commences, NamPower should inform all affected landowners, nearby community members, and authorities about the project, at least 14 days before the start of the project.</p>		Programme and monthly records of implementation.	X	X	X	X	
PERSONNEL CONTACT WITH RESIDENTS ESS 2 + GN GPN-LI GPN-SEA/SH	To ensure personnel contact with residents or the community is a safe and regulated process.	Personnel should limit their contact with farm workers and other permanent residents of the area.		Minimise incidents involving contractor employees.			X	X	
		Any person making himself guilty of violence, harassment or any other activity deemed inappropriate by the landowner, must immediately be removed from the site.		No complaints received by landowners concerning		X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		The distribution or supply of intoxicating liquor or drugs of any kind by the employees of the contractor or any contractor is strictly prohibited.		inappropriate behaviour of contractor employees.					
		<p>The contractor shall inform the owner or his legal representative before entering onto any private property, of his intention to do so and shall make such arrangements with such owner or his legal representative as may be necessary to ensure free and unhampered entry to, and movement on or over the property concerned, for the duration of the project. This should be done at least one month in advance and written proof of such communication should be available at all times.</p> <p>Whenever reasonably possible, the contractor shall meet with the landowner / representative of the property, introduce himself and the company he represents and explain the scope of the work. The landowner / representative must have knowledge of the planned route and duration of work on the property prior to the commencement of the work. This shall be done in due courtesy to the owner / representative.</p> <p>The contractor must ensure that the owner or his legal representative fill in forms containing the following information, before and after the contractor has worked on the property (these forms must be presented by the contractor to NamPower, whenever</p>		Contact record		X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		the company requests it) and a copy shall be handed to NamPower at the end of the project.							
		<p>Before entry, to be completed and signed by the farm owner:</p> <ul style="list-style-type: none"> • The state of their properties and assets prior to construction; the inclusion of photographs should be encouraged. Activities to be conducted on the farm (e.g. camping, construction etc.). • Specific conditions to be met on the farm. • Dates when entry is needed. • Farmer's signature (if the farmer or his legal representative does not agree to sign the form, this must be noted on the form along with a list of names of all the people present at the meeting). • Contractor's signature of commitment to adhere to the requirements. 							
		<p>Upon leaving the farm, to be completed and signed by the farm owner:</p> <ul style="list-style-type: none"> • Post-construction, the affected landowners or users should be invited to join NamPower and the appointed contractor for a 'walk down' the power line route to identify any outstanding issues. • Remarks on compliance and misconduct • Issues still to be resolved • Post-construction, the site should be reassessed to ensure that the farm is left in an acceptable state. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
ACCESS TO PRIVATE PROPERTY	To ensure rights of property and owners	<ul style="list-style-type: none"> Roads marked with no entry signs, shall not be used. Fences or gates of landowners shall not be damaged when gaining access to the servitude. Gates and locks shall be regularly monitored to ensure that they are secure. Gates to be left as they are found. If found opened, they must be left open, and if closed, they must be closed again upon entry. If no gates are available at crossing points, landowners shall be informed prior to the loosening and crossing of fences. Fences loosened and crossed shall be immediately restored to its original state and to the complete satisfaction of the landowner. All gates shall be fitted with locks and kept locked at all times during construction. NamPower must be supplied with three copies of these keys. Once the contractor has left the site, all gates shall be fitted with NamPower locks. 							
STAKEHOLDER ENGAGEMENT AND GRIEVANCE PROCEDURE ESS 2 + GN GPN-LI GPN-SEA/SH	To ensure there is a clear mechanism for the public to remain updated on the construction process and to have access to a clear grievance	<p>Reasonable contact should be made and maintained with the stakeholders of the project.</p> <p>The Stakeholder Engagement Plan provides the standard NamPower Grievance Mechanism.</p>		Monthly system feedback	X	X	X		

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
	mechanism for complaints.								
		<p>A grievance procedure should be in place to deal with community grievances in a satisfactory manner, and should at least include the following:</p> <ul style="list-style-type: none"> Identify the position on site where responsibility will be assumed for putting in place and managing the grievance procedure. Ensure the current stakeholder database is updated. Publish at the onset of the project, with the basic elements of it – construction time frame, contact details, who to contact for job opportunities, grievances, etc. The publication should be made in the local newspapers and on posters put at the local retail stores in Rosh Pinah and as advised by Roshkor. The publication should also be placed on the website and Facebook page of the project and e-mailed to the applicable parties on the stakeholder database. The poster shall contain a grievance mechanism – a method for community members to lodge complaints. The grievance mechanism shall state (1) Who can raise complaints (affected communities) (2) Where, when, and how community members can file complaints (this should preferably be in writing, unless the 		Monthly grievance procedure feedback	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>complainant is illiterate, in which case the ECO should assist the complainant to articulate the complaint (3) Who is responsible for receiving and responding to complaints, and any external parties that can take complaints from communities (4) What sort of response complainants can expect from the company, including timing of response (5) What other rights and protection are guaranteed.</p> <ul style="list-style-type: none"> The community shall be regularly reminded as above, of their right to submit and receive responses to grievances. The ECO, who is responsible for handling grievances, shall ensure that the grievances (1) are received and registered (with adequate documentation as reference), (2) reviewed and investigated, (3) resolution options are considered and an appropriate one is selected and implemented, (4) the grievance is properly responded to and the matter closed out, and (5) the success of the resolution option is monitored and adapted where necessary. 							
ACCOMMODATION AND PERSONNEL MANAGEMENT ESS 2 + GN	To ensure that the impact of Contractor personnel on the environment is minimised.	<p>The locations of the worker camps and laydown areas should be identified in consultation with the relevant local authorities and land owners. Agreement should be given by the landowner and all neighbouring landowners in writing.</p> <p>Such accommodation should be placed in an already disturbed area.</p>		Accommodation plan in place, Periodical review.	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		No permanent accommodation facilities shall be allowed on site.		Periodical review.	X	X	X	X	
		Provide facilities including access to canteens/hygiene facilities/appropriate areas of rest to promote health, safety and well-being of the Contractor workers.		Periodical review.	X	X	X	X	
		A Labour Management Plan will be required which comply with the Labour Act and national employment regulations.		Monthly system feedback	X	X	X	X	
		<p>The worker camps should be established and managed in a manner that ensures that the workers have access to all basic services and occupational health and safety regulations are to be adhered to by the contractor. Workers should not need to exit the camp. Basic needs will include but may not be limited to food, water, sanitation, accommodation, recreation and medical care.</p> <p>The worker camp should be fenced and access to and from the camp strictly controlled to prevent trespassing into unauthorised areas.</p>		Accommodation plan in place, periodic review.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
GPN-LI		Uncontrolled labour influx may cause socio-economic and environmental risks such as prostitution, health and disease risks, and uncontrolled access to the site. The contractor must have a clear communications instrument, distributed to the local community and regional population, which make employment policies and procedures clear.		Communication schedule and records.			X	X	
EMPLOYEE AWARENESS RAISING ESS + GN	To ensure that the entire construction workforce is aware of the provisions of this ESMP and the reasons for enforcing them.	All staff shall receive an induction course prior to commencing work. The ECO shall discuss the ESMP and Code of Conduct (CoC) with all employees and make sure that all understand the contents and importance thereof. All employees will agree to the CoC in writing.		Induction and reinforcement plan and records.			X	X	
		Photographs of specific sensitivities such as vegetation, etc. shall be used to sensitise the workforce.		Photos in induction and reinforcement material.			X	X	
GPN-LI GPN-SEA/SH		Workers Code of Conduct to comprehensively cover, but not be limited to the areas of respecting local residents, their livelihood activities and privacy, right to property, Gender Based Violence, SEA and Sexually Transmitted Disease, including relevant disciplinary measures, penalties and provisions for prosecution, prohibition of poaching, hunting and any other		Code of Conduct review		X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		damage to biodiversity, flora and fauna, specifically in the designated "no go" areas. Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) should be specifically addressed and the criminal consequences of the contravention emphasised.							
		The employees shall be explained why this ESMP is being enforced, i.e., the need to protect the environment.		Induction and reinforcement plan and records.			X	X	
		Constant reinforcement is crucial.		Induction and reinforcement plan and records.			X	X	
		New employees who join the project later shall receive an induction course before they commence with work.		Induction and reinforcement plan and records.			X	X	
		Acknowledgement of attending the induction course and understanding the contents of it shall be signed off and the attendance register kept on record.		Induction and reinforcement plan and records.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Personnel performance appraisal shall include environmental compliance issues.		Records of contravening the ESMP.			X	X	
SAFETY AND SECURITY ESS 2 + GN EHSG-G	<p>To aim for zero incidents and accidents on the construction site.</p> <p>To ensure there are emergency response procedures in place in case of incidents and accidents.</p> <p>To ensure security measures are in place to protect property and life for the duration of the contract.</p>	<p>Draw up and implement an Occupational Health and Safety Management Plan that includes the following in addition to the requirements set out in ESS2 of the World Bank ESF:</p> <p>Site visitors</p> <ul style="list-style-type: none"> The site supervisor shall be contacted before an intended visit by an outside visitor from an authority such as from MEFT, MHSS, etc. so that he/she can inform such visitors of the necessary safety requirements before entering the site. Visitors shall also be made aware that they will be required to wear the necessary PPE (Personal Protective Equipment) on site. The Contractor shall ensure the least potential safety hazards during construction. The Contractor's plan to achieve this shall be discussed at the project initiation meeting. <p>Local community and general public</p> <ul style="list-style-type: none"> Develop and apply a Public Safety and Awareness Plan. Develop danger signs along the farm boundaries and public roads that warn the public of the construction activity. 		OHSMP approved, monthly implementation reports and periodical review records.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> Abnormal loads will operate under an approved transportation plan with the necessary traffic routes and traffic accommodation plans in place The Contractor shall liaise with the Roads Authority for their approval of road use and the conditions to be imposed. Abnormal load permits are to be acquired for every load. Regional and Local traffic officials should assist abnormal load vehicles through the towns. Construction and abnormal load traffic should be limited to outside the typical traffic peaks in build-up areas. Abnormal loads should not be transported during the normal traffic daytime hours from 08h00-17h00. Once construction is completed the roads should be inspected and repaired where necessary. Proper traffic and safety warning signs shall be placed at the construction site entrance to the satisfaction of the Project Engineer (NamPower) and the Roads Authority. Develop a Traffic Emergency Preparedness and Response Plan. <p>Construction personnel</p> <ul style="list-style-type: none"> The Contractor shall adhere to the regulations pertaining to Health and Safety of the Labour Act, including the provision of protective clothing, failing which the Contract may be ended with immediate effect. The Contractor shall enforce 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>relevant Health and Safety Regulations for these specific activities.</p> <ul style="list-style-type: none"> • The contractor shall have a designated HSE officer who will be responsible to assist the contractor team with identification of HSE risks and hazards and preparation of risk assessments • Staff will be trained in the appropriate use of PPE and the potential consequences if it is not used. The use of PPE shall be enforced. • Make sure that all staff are equipped and know how to use safety and Personal Protective Equipment (PPE). This includes safety goggles, ear plugs, dust masks, steel-toed shoes, gloves, overalls, etc. • Signage indicating the use of PPE will be required at appropriate locations. • Keep a comprehensive first aid kit at construction points. • Ensure that all staff know where the first aid kits are located and who is trained in first aid. • At least one person must be available on site that is trained in first aid. • All injuries and near miss incidents will be reported to the Project Engineer (NamPower) and recorded in a Health and Safety report to be submitted to the developer's operational manager on a monthly basis. Measures to prevent recurrence shall be implemented and included in the monthly report. • Establish an emergency rescue system for evacuation of injured people, if needed. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> Emergency procedures for accidents shall be communicated to all employees. Emergency facilities to be identified as near to work as possible (police, fire brigade, and hospital). Emergency telephone numbers shall be prominently displayed in the site office as well as on the outside of the site office. Contact details of the Contractor and the second in charge must be forwarded in writing to land owners and village councils. The local farmer association or community shall be informed in a case of fire as soon as possible. Do not wait until the fire is out of control. No alcohol/drugs are allowed on site and anyone found to be under the influence of alcohol/drugs will be disciplined accordingly. A procedure for reporting of incidents and non-conformances to ensure incidents and any other OHS non-conformance are adequately closed <p>Transport related safety</p> <ul style="list-style-type: none"> Contractor will be required to make provision for road traffic management measures as part of its OHSMP All drivers must adhere to traffic regulations at all times. No speeding shall be allowed. All vehicles shall use the 4-wheel drive mode only on site. The speed limit at the construction site will be 30km per hour. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> No driving on site shall be allowed after 19h00, unless with agreement (permission) from relevant authorities. Make sure all drivers/operators have valid licenses for the vehicles/equipment they are driving or operating. Copies of these records must be kept on file and must be readily accessible on site for inspection. Make sure all vehicles are roadworthy. Repair faulty brakes, exhausts, etc. immediately. Good driving and adherence to safety rules will result in a minimum number of road and workplace accidents. Permanently wet areas should be shown on the spanning sheets. No vehicles shall be allowed in such areas. Only existing roads through such areas may be used with the approval of the landowner. No equipment that can cause irreparable damage to wet areas shall be used. There must be a buffer line of at least 15m between the servitude of the power line and any water-containing body (rivers, vleis and pans), if the power line happens to run parallel to it. <p>Fire safety</p> <ul style="list-style-type: none"> Fire extinguishers (with valid service date) shall be readily available at the construction site and where hot works takes place. Staff members from the construction team must be designated and trained to handle emergency situations 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>such as fires, and trained to handle the necessary emergency equipment.</p> <ul style="list-style-type: none"> Fires are to be limited to the campsite only, as this will reduce the fire hazard. Any cases of veld fires caused during the construction period must be reported immediately. Damage caused by these fires will be remedied by the contractor. If the need to make a fire on route (along the line, at any place except the campsite) arises, such a fire must be made inside a container or on the ground, inside a shallow hole, surrounded by rocks. All fires must be fully extinguished before it is left un-attended. <p>General Safety</p> <ul style="list-style-type: none"> Emergency procedures shall be in place for incidents and accidents on site and staff trained in these procedures (See the requirement for an Emergency Response Plan). Indiscriminate movement outside the construction areas shall be avoided. The area to be used for construction should be demarcated. It is important that the necessary precautions be taken to protect property against theft. Nobody shall carry any firearm or store it in his vehicle or at the construction site. Dangerous areas shall be clearly marked and access to these areas controlled or restricted. 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<ul style="list-style-type: none"> All site visitors shall report to the site office before entering the construction site. No visitors shall be allowed on site without the permission of the Contractor, and without receiving safety induction. Train people who handle fuels in the correct procedure / technique to transfer fuels. Food catering and preparation shall be done by the Contractor in an enclosed space only, using gas/electrical/solar cooking methods. No fires shall be lit on the construction site. Smoking is prohibited in areas where it is a fire hazard, e.g., fuel storage areas, workshops, etc. 							
HAZARDOUS MATERIAL MANAGEMENT EHSG-ET	<p>Thorough management of hazardous waste materials.</p> <p>The protection of the natural integrity of the environment.</p> <p>Adequate staff awareness of procedures and Emergency Response Plans.</p>	<p>Develop and apply a Hazardous Material Management Plan including a Hazardous Material Emergency Preparedness and Response Plan</p> <ul style="list-style-type: none"> All hazardous materials shall be stored (on bunded area), handled and disposed of according to the applicable Material Safety Data Sheets (MSDS), as well as applicable regulations (e.g. the Health and Safety Regulations). Hazard identification signage shall be erected at appropriate locations. All items for treatment as specified in the Material Safety Data Sheets (MSDS) for hazardous materials shall be available in the first aid kit. 		<p>HMMP approved, monthly implementation reports and periodical review records.</p> <p>Zero spills.</p> <p>No environmental pollution occurring.</p> <p>Management according to procedures.</p>			X	X	

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		<ul style="list-style-type: none"> Used oils, fuel, paints, grease, and solvents should be stored in drums or other suitable containers, which must be labelled, sealed, and removed from the site to an appropriate disposal site or recycling facility. Areas shall be monitored for spills and any spills shall be contained, cleaned, and rehabilitated immediately. Oil contaminated soil must be collected, stored and removed for disposal at an appropriate waste storage facility. The area, from which the contaminated soil was taken, must be filled with new soil. The new soil must be free of contamination, and should not be taken from a spot within a 100-metre radius of where the spill occurred. In the event of a hazardous spill on site or during transportation of these substances to or from the site, the followings actions must be taken: <ul style="list-style-type: none"> Stop the source of the spillage immediately. Immediately contain the spillage by shovelling a soil bund wall with around it. Absorb the oil spill as quickly as possible with the supplied spill kit. Report the spill to the site supervisor. In case of a major spill the Manager: SHE (NamPower) must be contacted and arrangements must be made for the 							

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		<p>implementation of the necessary clean-up activities.</p> <ul style="list-style-type: none"> Collect contaminated soil, water and other materials and dispose of it at an appropriate hazardous waste storage site. Any rehabilitation activities needed because of an oil spill will be at the cost of the contractor. Have sufficient fire fighting equipment available at the campsite. Ensure that all staff are adequately protected and educated about the safe and proper handling and disposal of hazardous substances. Hazardous substances should not be stored in an area that is situated within the migratory path of large mammals. 							
MAINTENANCE OF VEHICLES EHSG-G	Thorough management of hazardous waste materials.	Vehicle maintenance and refuelling activities must be conducted within a bunded area.		<p>Mitoring weekly and records of spills.</p> <p>No environmental pollution occurring.</p> <p>Management according to procedures.</p>		X	X		
	The protection of the natural integrity of the environment.	Vehicle maintenance and refuelling activities may not be carried out outside the campsite, except in cases of emergency.				X	X		
	Adequate staff awareness of procedures and	During servicing of vehicles, especially during emergency veld repairs, a suitable drip tray shall be used to prevent oil spills.				X	X		

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	Emergency Response Plans.	<p>In the event of a breakdown in the veld any oils spills shall be cleaned up immediately. The following shall apply:</p> <ul style="list-style-type: none"> All contaminated soil shall be removed and placed in containers. Contaminated soil can be taken to one central point, where soils can be treated or removed for disposal at an approved site. Bigger spills can be treated on site with absorbent chemicals such as Peat-Sorb. Major spills must immediately be reported to the project manager and the contractor shall employ a specialist contractor for the bio-remediation of contaminated soil. 				X	X		
COMMUNITY HEALTH ESS 2 +GN EHS-G	To prevent or minimise the potential for community exposure to water-borne, water-based, water-related, and vector-borne diseases, and communicable diseases that could result from project activities,	<p>Develop a relevant Community Health and Safety Management Plan based on the content of the Occupational and Public Health and Safety Management Plan as well as the following items:</p> <ul style="list-style-type: none"> All Contractor's staff and any sub-contractor shall identify all known water-borne, water-based, water-related, and vector-borne diseases, and communicable diseases that could result from or spread further due to the project activities and/or the influx of temporary or permanent project labour. These shall at least include HIV/AIDS, Tuberculosis, Covid-19, bacterial diarrhoea, 		<p>Community Health and Safety Management Plan</p> <p>Weekly disease awareness raising under workers</p> <p>Review absenteeism and screen recorded illness for target diseases.</p>			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
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	taking into consideration differentiated exposure to and higher sensitivity to vulnerable groups.	<p>hepatitis, and any other applicable diseases at the time of project implementation.</p> <ul style="list-style-type: none"> The Contractor shall develop documented programmes to prevent and minimise the spread of such diseases during the construction period. The prevention shall include the in-country guidelines for the prevention of the identified diseases, as well as international guidelines that may be available at the time, such as those of the World Health Organisation. 		<p>Have a disease management procedure in place.</p> <p>Weekly PPE monitoring.</p> <p>Health check-up procedure in place and monitored monthly.</p>					
		All staff shall be made aware of such programmes and it shall be mandatory for all staff to adhere to the precautions being put in place.		Awareness raising records			X	X	
		The Contractor shall provide to staff any personal protective equipment (PPE) as well as cleaning agents and sufficient clean water that may be necessary to ensure good hygiene at the workplace and prevent any of the identified diseases.		Record of material			X	X	
		The Contractor shall have a trained nurse available to the staff, who shall provide a protocol for regular health check-ups and treatments.		Station with qualified person available.			X	X	
CONSERVATION OF THE NATURAL AND HISTORICAL ENVIRONMENT	To minimise damage to soil, vegetation, habitat and heritage resources during the	The planning and design of the vegetation and soil rehabilitation starts before construction is allowed . The rehabilitation section on p43 and forward should be read in conjunction with this section.		Activity planning, approval and review of plan.	X	X	X	X	X

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
ESS 6 + GN Flora	construction phase.	The objective of bush clearing is to trim out or clear the minimum number of trees and bush necessary for the safe electrical operation of the power line.		Audit and review periods.					
		The contractor, NamPower and the landowner prior to bush clearing shall discuss all environmental factors. Should there be any changes to the route due to environmental factors, NamPower must first be consulted.			X	X	X	X	
		Before construction, areas to be disturbed should be prepared by plant relocation and topsoil preservation. Any topsoil heaps should be placed upwind of the damaged area (i.e.: south west, in the path of the prevailing winds). Smaller heaps at each construction area would be preferable to large heaps. Once construction is complete, these heaps should be used to return the site to as natural an appearance as possible	Q2 24 ff	Records of planning process and implementation.			X	X	
		A permit is required from the Ministry of Environment and Tourism for the removal of vegetation within 100m from a riverbed or any protected species (in terms of the Forest Act of 2001). NamPower is responsible for applying for such a permit.					X	X	
		A strip, only wide enough to allow for vehicular movement, shall be cleared for access roads. No bush clearing is allowed outside the servitude.					X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		While clearing the trees near the power line route, falling distance of any tree or trees, which are likely to fall on the conductors of the power line, as has been identified by visual inspection, shall be considered. Such "high risk" trees, or its branches, shall be felled only under supervision of a NamPower representative.					X	X	
		Environmental sensitivity shall be taken into account when clearing is done. Laws protect environmentally sensitive areas (such as wetlands, river crossings, areas of endemism etc) and it is essential to obtain permits before the undertaking of any activities in such areas. The sketch plans should indicate existing or potential problem areas identified during site inspection of the power line route.					X	X	
		Vegetation shall only be cut to allow for the passage of the pilot-cables and headboard. No vegetation clearing shall be allowed across ravines and gullies, as this vegetation will very rarely interfere with the clearance to a strung conductor.					X	X	
		It is imperative that while maintaining the specified clearances, all tree branches capable of producing off-shoots in due course shall be cleared in such a way that it will be impossible for any of the off-shoots of these trees to grow towards the power lines. Near the power line, overhanging branches are not impermissible.					X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>Manual bush clearing, as opposed to clearing using a bulldozer, is preferable, in order to minimise vegetation loss and hence reduce the risk of soil erosion.</p> <p>Where there are no real obstacles, where vehicles can simply drive over an area, or where obstacles can simply be removed by hand, blading shall not be used.</p> <p>To minimise soil erosion, vegetation should be trimmed as opposed to the complete removal of vegetation.</p>					X	X	
		<p>When manual bush clearing is impractical, blading shall be used, but the blade shall be kept approximately ten centimetres from the soil surface to minimise the impacts to the soil surface and top layer, small plants and the root systems of larger plants.</p> <p>Big trees with large root systems shall be cut manually and removed, as the use of a bulldozer will cause major damage to the soil when the root system is removed. Stumps shall be treated with an approved herbicide.</p>					X	X	
		<p>All the felled branches, cleared bushes/shrubs, and tree stubs etc. shall be removed from the line route and carted away in order to allow the free movement of maintenance vehicles and crews. This plant material may however not remain in heaps and should be scattered over the terrain. When needed, this plant material can also be used to combat soil erosion.</p>					X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		No burning of vegetation is allowed as an alternative to cutting of vegetation.							
		At the outset of construction (and during construction as may be applicable), the ECO and the Contractor shall visit all areas to be disturbed, including the access road and other areas. Work shall be carefully planned before entering the worksite to limit the total footprint of the operations: <ul style="list-style-type: none"> at the towers to 80m by 80m maximum, at access roads to 3m wide and line clearing to 12m wide. 	Q2 24 ff	Construction activity and photographic records, incl. construction drawings indicating no-go areas.			X	X	
		Access and parking at work sites shall be planned and organized in order to facilitate the work intended at each site while preventing the creation of new tracks around work sites.	Q2 24 ff	Construction activity and photographic records, incl. construction drawings indicating no-go areas.			X	X	
		Areas to be disturbed shall be clearly demarcated with small pole markers, and no land outside these areas shall be disturbed or used for construction activities. The pole markers shall remain in place during the operation of the project and shall be removed during decommissioning.	Q2 24 ff	Construction activity and photographic records, incl. construction drawings indicating n-go areas.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		A Botanist or rehabilitation specialist in conjunction with the ECO and NBRI shall be responsible for any plant relocation (eg aloes).	Q2 24 ff	Records of planning and implementation.			X	X	X
		In the case of relocation on-site (eg. Aloes), plant survival shall be assessed until relocation is deemed complete and stable , notably each growing season when others of this species in the area are found to have come into flower or leaf. Monitoring Method to be determined by rehabilitation practitioner involved.	Q2 24 ff	Records of assessment as determined			X	X	X
		No bush clearing shall be allowed on river- and stream banks unless the line crosses the river or stream and this vegetation poses a risk to the line. In such cases, NamPower should be consulted on the action to be taken. Where the power line crosses river beds, an attempt should be made to prune riverine vegetation (over 4 m in height) as opposed to its removal. Where clearing is done near a river, the contractor must ensure that no felled bushes/branches/shrubs are left behind in the riverbed.					X	X	
		All vehicles must stay strictly in the one track made – be careful to drive carefully in this track and not to deviate from it. Existing tracks should be used to at least reach the tower sites rather than to drive through the fields. A	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>detailed plan with routes to the poles should be produced and availed to the contractor.</p> <p>All conditions that the landowner may have shall be noted and adhered to.</p>		and corrective measures.					
		Turning points for vehicles should be carefully planned and designated to cause minimal disturbance to the environment.	Q2 24 ff	<p>Access designs implemented.</p> <p>Weekly monitoring, records of incidents and corrective measures.</p>			X	X	
		<p>Reasonable precautions shall be taken to avoid damage to land, crops, grazing fields, farm gates, or property.</p> <p>No cultivated lands, fences, or structures (permanent or temporary) may be removed or damaged, unless NamPower's written consent for doing so has been obtained.</p> <p>All damage to commercial crops shall be recorded immediately and a photographic record of such damage must be kept.</p>							
		Alien species and declared weeds must be identified and eradicated during rehabilitation.							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Consult the ECO before any new areas are disturbed which have not yet been visited.	Q2 24 ff	Activity planning, approval and review. Audit and review periods.			X	X	
Fauna		Before construction starts, inspect each section for any signs of bird nesting activity; avoid disturbance of nesting birds, in particular large raptors, bustards species	Q3 23 - Q1 24	Site review			X	X	X
		Offsite drainage lines must remain strictly undisturbed.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		No interaction, poaching or harvesting of birds, chicks or eggs are allowed. Red data species must not be disturbed in any way, especially when breeding.					X	X	
		No off-road driving shall be allowed.	Q3 23 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		Construction activities must be planned carefully so as not to interfere with the breeding, calving and lambing season for most animal species.						X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Termite mounds should only be disturbed if they pose a significant technical constraint. Only termite mounds inside the construction corridor should be demolished. Care should be taken when demolishing the termite mounds, since many other animals, other than termites, live inside these mounds. Some of which can threaten the safety of people.						X	
		Underground burrows must not be flushed, closed up, or destroyed, on purpose, even if within the servitude area.					X	X	
		Introduce 30 km/h speed limits on site. On gravel roads, the speed limit for trucks will be 40 km/h and for other vehicles, it is 60 km/h – 80 km/h depending on the condition of the road.	Q3 23 ff	Awareness raising a induction and refresher courses. Weekly monitoring, records of incidents and corrective measures.	X	X	X	X	
		Educate personnel to be sensitive to animal movement on roads, especially tortoises and chameleons.	Q2 24 ff	Awareness raising an induction and refresher courses. Weekly monitoring, records of incidents and corrective measures.	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Snaring, poaching, killing, taunting, collecting, smuggling, or abuse of animal wild or domestic animal is prohibited.	Q2 24 ff	Awareness raising a induction and refresher courses. Weekly monitoring, records of incidents and corrective measures.			X	X	
		If any reptiles, such as Namaqua chameleons as well as varied tortoise species, are encountered during construction activities, they need to be carefully removed and relocated to an undisturbed area.	Q2 24 ff	Awareness raising a induction and refresher courses. Weekly monitoring, records of incidents and corrective measures.			X	X	
		No animal shall be killed intentionally, chased, baited or harassed, and no eggs shall be removed from a bird's nest, nor may the nest be tampered with or damaged. Any staff members caught in such an activity shall be handed over to the relevant authorities and shall be dismissed/disciplined according to their employment contract.	Q2 24 ff	Awareness raising a induction and refresher courses. Weekly monitoring, records of incidents and corrective measures or legal actions taken.			X	X	
		Avoid small mammal / reptile and bird nesting.	Q2 24 ff	Awareness raising a induction and refresher courses.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
				Weekly monitoring, records of incidents and corrective measures.					
		Keep an eye out for ground nests and mark their position to avoid accidental destruction. Ask a bird specialist for advice on protocols regarding particular nests.	Q3 23 ff	Awareness raising a induction and refresher courses. Weekly monitoring, records of incidents and corrective measures.			X	X	X
		No domestic animals (such as cows, chickens, dogs, cats, goats or sheep) may be kept either at the campsite on the construction site since they can introduce diseases or interbreed with the animals occurring naturally in the area.		Awareness raising a induction and refresher courses. Monthly monitoring, records of incidents and corrective measures.			X	X	
		No domestic or wild animals belonging to the landowner, may be caught and killed, unless written consent was given by the owner of the animal.		Weekly monitoring, records of incidents and corrective measures. Incident record.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		No wood shall be collected from the construction area. Meals shall be provided and prepared only by the Contractor, using only electrical and/or gas cooking methods in an enclosed area (no fires/firewood).	Q2 24 ff	Awareness raising a induction and refresher courses. Facilities inspections. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Avoid unnecessary noises such as hooting.	Q2 24 ff	Awareness raising a induction and refresher courses.			X	X	
ARCHAEO - LOGICAL SITES ESS 8 + GN	To ensure a proper chance-find procedure for archaeological sites.	Under the Heritage Act of 2004, it is illegal to remove a fossil or an archaeological site without the consent of the National Heritage Council of Namibia. Known areas of archaeological importance should be indicated on a map and noted as no-go areas The chance-find procedure provided in Appendix D should be in place. Before construction, the contractor shall inspect the area for any heritage sites that may be of significance. These would include any mounds, walls packed of stones, gravesites etc. If any such site is found, the area shall be cordoned off, and	Q3 23 ff	Awareness raising an induction and refresher courses. Implement procedure with weekly monitoring. No destruction of or damage to known sites. Management of existing sites and new discoveries.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		NamPower must be informed, who will, in turn, inform the Monuments Council or an Archaeologist.		No litigation due to the destruction of sites.					
		Should any new finds come to light at any stage during the construction phase, the site shall be demarcated to prevent damage and the chance-find procedure be implemented.	Q2 24 ff	Incident monitoring, records of incidents and corrective measures.			X	X	X
SOIL CONSERVATION	Avoid soil erosion instep terrain, river banks and 1:100 flood line	Access tracks for construction to be with as little disturbance to the stream bed as possible. The track surface should follow the stream bed level as closely as possible. Erosion and drainage problems must be minimised by avoiding tracks crossing contours at right angles.					X	X	
		Construction activities within the streams should be stopped for the duration of flow.					X	X	
		Measures must be put in place to avoid erosion at river and stream channel crossings, and at places where existing erosion scars and dongas are encountered to avoid any further erosion at these points.					X	X	
		Deep ruts and inaccessible sections must be repaired to avoid vehicles having to drive around bad sections (i.e. mud, deep ruts, and loose sand) thereby creating new tracks.					X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		After construction in sandy areas, the entire width of the servitude should be levelled. Dicing is a suitable means of achieving this. Levelling of the servitude width is required to ensure compaction by construction vehicle tracks is minimised as well as to reduce preferential flow paths during rainfall runoff.				X	X	X	
		Crossings of dongas and eroded areas shall be thoroughly planned. Water diversion berms shall be installed at donga crossings to ensure runoff water on the servitude does not run into dongas and cause an erosion hazard.					X	X	
		Disturbances of topsoil on tower sites with severe slopes shall be minimised at all costs. At any tower site, where conventional foundations are installed, the contractor shall remove the topsoil (the top 10 cm of soil) separately and store it for later used during rehabilitation of such tower sites. Slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced. Other methods of rehabilitation of tower sites may also be used. Contour banks shall be spaced according to the slope on tower sites.			X	X	X	X	
		The option of re-seeding should be investigated in disturbed area			X		X	X	

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					NamPower	Project Manager	ECO	Contractor	External Expert
		In mountainous / rough terrain, the contractor shall be responsible for any reasonable prevention of soil erosion should either the landowner or NamPower require it.			X	X	X	X	
ACCESS ROAD UPGRADING AND DRIVING	<p>To ensure the making of roads are kept to a minimum, so as to avoid unnecessary damage to the fragile desert plains.</p> <p>To ensure the roads used are well maintained.</p> <p>To ensure that track discipline is maintained at all times by the entire construction team.</p> <p>To minimise amount of dust generated.</p>	<p>Construction of access roads should be only for essential access.</p> <p>All track construction and changes to tracks will only be allowed with written consent of the Project Manager and land owner.</p> <p>Damage to access roads due to the movement of vehicles must be reported to the Project Manager and the landowner. All repairs must be done immediately and to the satisfaction of the landowner.</p>	Q2 24 ff	<p>Planning and design review at each step of approval.</p> <p>Access designs implemented.</p> <p>Weekly monitoring, records of incidents and corrective measures.</p> <p>Continuous monitoring and review.</p>		X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		No roads shall be constructed on slopes of more than 20% unless such roads follow contours. In such areas, the contractor shall use existing roads or alternative methods of construction.				X	X	X	
		Do not make new roads when the quality of existing roads deteriorates. Repair or upgrade existing roads.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Road construction methods shall ensure good road surfaces to preclude vehicles driving off road to find smoother surfaces with less corrugations or potholes.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Do regular road maintenance to ensure good road surfaces i.e., grading of the road once every two weeks (or as frequently as necessary) during the construction phase. The road should also be sprayed with water and biodegradable dust suppressor (grey water if available) once a day to limit dust pollution. A proposal could be made to the contractor's representative if it is found that the dust suppressor keeps down the dust for longer than one day, in which case the daily restriction may be extended.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.		X	X	X	

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					NamPower	Project Manager	ECO	Contractor	External Expert
		Demarcate areas that are prone to corner cutting to avoid such.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		<p>The drainage lines which are more sandy, are prone to parallel tracks, but are also sensitive to disturbance. They are more prone to erosion and are good habitat to birds nests, bat foraging, and other small fauna. Particular care should be taken to avoid parallel tracks and unnecessary driving in the drainage lines.</p> <p>No roads shall cut through a river and stream banks as this may lead to erosion. If no other alternative is available, care should be taken to stabilise the bank.</p> <p>Existing drifts and bridges may be used if the landowner gives his consent. Such structures shall then be thoroughly examined for strength and durability before they are used</p> <p>New drifts and bridges shall only be constructed with the approval of NamPower and the landowner.</p> <p>The installation of concrete pipes and drifts, to facilitate access, shall be at the discretion of the project manager.</p>	Q2 24 ff	<p>Access designs implemented.</p> <p>Weekly monitoring, records of incidents and corrective measures.</p>			X	X	
		Activities causing dust shall be limited along access roads by keeping to the driving speed (30 km/hr) on all tracks in the project area.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		As far as possible existing tracks within the present servitude shall be utilized for both construction and maintenance. These shall be clearly indicated, together with designated turning points.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Vehicles driving along the Project Area shall engage four wheel drive to prevent spinning and consequent impacts on fragile desert surfaces.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		Large vehicles shall have right of way and light vehicles shall leave the road (at the designated areas) to allow for an oncoming heavy vehicle to pass.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		In order to promote visibility and communication between drivers (and prevent accidents with consequent environmental impacts) vehicles shall always be driven with their lights on and indicators as per road traffic rules shall be used on the Project Area.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		Markers shall be used to delineate the chosen access tracks into the construction area.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Only Roads Authority (RA) recognised access points may be used when turning off a RA proclaimed road (trunk, main, district and farm roads). Where a deviation from this is unavoidable, appropriate temporary warning signs should be erected and clearly visible to road users. Erect warning signage at the access points to warn motorists about construction activities and heavy vehicle movement where appropriate.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Only use designated turning circle areas. Use 3-point turns and not U-turns.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Prevent shortcuts between roads.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		Tyre pressures should be as low as possible to reduce impacts.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		All material for road or site construction to be brought in from sources to be approved by the ECO.	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.			X	X	
		Roads no longer in use shall be rehabilitated. (See Rehabilitation section).	Q2 24 ff	Access designs implemented. Weekly monitoring, records of incidents and corrective measures.		X	X	X	
WASTE MANAGEMENT AND WATER RESOURCE MANAGEMENT ESS 3 + GN	To avoid potential surface and groundwater pollution. To ensure that sound waste management practices are adhered to during construction.	The Contractor shall submit a waste management plan, including how it is intended to dispose of hazardous and general waste, as described hereunder. This plan shall be reviewed and approved by the ECO.	Q1 24 ff	Management plan approval and periodic monitoring and review. Design planning and review.	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		All sewerage waste shall be removed regularly and disposed of at a designated sewerage treatment facility (i.e. not to be disposed of anywhere at the construction site).	Q2 24 ff	Waste management records, Monthly review. Weekly site compliance inspection.			X	X	
		The site should be inspected regularly for standing or leaking water or wastewater points and attended to immediately.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		Make sure that portable chemical toilets to be used on site are in good working order and that they are clean. Cleaning record should be kept on site and readily accessible for inspection. Temporary toilet facilities (preferably chemical toilets) used at the camp site and on terrain shall be sited away from any riverbed, vleis, or pan, even when dry.	Q2 24 ff	Weekly monitoring, records of incidents and corrective measures.			X	X	
		All waste (including domestic and construction waste) produced daily shall be sorted and taken to the waste disposal site as arranged, i.e. Rosh Pinah for general waste and a reputable waste salvage company for hazardous waste. The construction site shall be left clean daily	Q2 24 ff	Waste management records, Monthly review. Weekly site compliance inspection.			X	X	
		The Contractor shall arrange with towns along the route for the use of their waste disposal site.	Q2 24 ff	Disposal agreement			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		No waste shall be buried or burned on site	Q2 24 ff	Weekly site compliance inspection.			X	X	
		All recyclable waste shall be taken to a recycling depot.	Q2 24 ff	Waste management records, Monthly review. Weekly site compliance inspection.			X	X	
		Adequate separate containers for hazardous and domestic waste shall be provided on site. They shall be clearly marked.	Q2 24 ff	Weekly site compliance inspection.			X	X	
		The workforce shall be sensitised to dispose of waste in a responsible manner and not to litter.	Q2 24 ff	Regular awareness raising. Monthly records.			X	X	
		Provide sufficient waste bins at work sites. Make sure that all waste is removed from work and campsites.	Q2 24 ff	Weekly site compliance inspection.			X	X	
		Refuse bins must be stable, i.e. cannot be tipped by animals, and have scavenger and baboon proof lids.	Q2 24 ff	Design, test and approve			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Make sure that the bins are covered so that plastic bags, paper, etc., are not blown away.	Q2 24 ff	Design, test and approve			X	X	
		No waste shall remain on site after completion of the project.	Q2 24 ff	Completion inspection	X	X	X	X	
		Servicing of vehicles in the field or at the construction site is not permitted.	Q2 24 ff	Weekly site compliance inspection.			X	X	
		Drip trays shall be available for all heavy vehicles that are intended to be used during construction. These trays shall be placed underneath each vehicle while the vehicles are parked. The drip trays shall be cleaned every morning and the spillage handled as hazardous waste.	Q2 24 ff	Weekly site compliance inspection.			X	X	
		Accidental spills shall be cleaned immediately. The contaminated soil shall be treated as hazardous waste.	Q2 24 ff	Weekly site compliance inspection. Incident & correction reports and records.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		In the event of a hazardous spill: <ul style="list-style-type: none"> Immediately implement actions to stop or reduce the spill. Contain the spill. Arrange implementation of the necessary clean-up procedures. Collect contaminated soil, water and other materials and store it in an appropriate container for collection. All spills shall be reported and a "spills register" kept. A hazardous material spill kit shall be available at the construction site and there shall be at least one person with appropriate authority who is trained in hazmat response. 	Q2 24 ff	Incident & correction reports and records.	X		X	X	
		Refuelling vehicles shall be equipped with specific vehicle spill kits. Drivers shall be trained in relevant spill response procedures.	Q2 24 ff	Monthly site compliance inspection.			X	X	
		Explosives shall be stored according to the prescribed regulations. Blasting will only be allowed if no alternative is available and change to ESMP effected and approved by DEA.	Q2 24 ff	Safety certificate to be in place. Revised ESMP if approved.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		The floors of the designated bunded areas for the storage of potentially hazardous material shall be lined with concrete. The bunded floor area shall be of adequate capacity to contain 1.2 times (120%) the volume of the hazardous material to be stored in the bunded area, unless otherwise specified in relevant regulations and standards.	Q2 24 ff	Spill prevention designs reviewed and implemented. Weekly inspection, records of incidents and corrective measures.			X	X	
		Corrosive, explosive, toxic, and flammable material shall be stored in separate areas which are access controlled (locked)	Q2 24 ff	Weekly inspection, records of incidents and corrective measures.			X	X	
		All hazardous materials (such as oil) shall be stored in separate containers (concrete liner, container, or metal or plastic drip tray) and stored for transport and proper disposal at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage (this company collects significant quantities of oil from central locations throughout the country).	Q2 24 ff	Spill prevention designs reviewed and implemented. Weekly inspection, records of incidents and corrective measures. Disposal records.			X	X	X
		The nearest Hazardous waste disposal site is in Windhoek or Walvis Bay but WESCO Salvage currently removes hazardous waste from the area and they or any other available and reputable contractor shall be contacted to remove all hazardous waste. No hazardous waste shall be burned or buried on site	Q2 24 ff	Weekly inspection, records of incidents and corrective measures. Disposal records.			X	X	X

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Fuel tanks on site shall be properly bunded. The volume of the bunded area shall be sufficient to hold 1.2 times (120%) the capacity of the storage tanks. The floor of the bunded area shall be concrete and the sides high enough to achieve the 1.2 times (120%) holding capacity.	Q2 24 ff	Spill prevention designs reviewed and implemented. Weekly inspection, records of incidents and corrective measures.			X	X	X
		Foam fire extinguishers shall be in close proximity to fuel kept on site. There shall be trained personnel to operate and handle this equipment. At least two fire extinguishers shall be placed at every fuel storage area.	Q2 24 ff	Records of training and refresher courses. Weekly inspection, records of incidents and corrective measures.			X	X	X
		Water may only be taken from private, communal, or government-owned property on a basis agreed upon in writing between the Contractor and such owner. Proof that the resource, if a borehole will have a sustainable yield, must be in place before use. Should the contractor be required to use water from a natural source, the contractor shall supply a method statement to that effect.	Q2 24 ff	Water demand and design optimisation review. Monthly water use reports record.			X	X	X
		The Contractor shall utilise water only as specified in the approved water resource plan for the project. Low water consumption project technologies and methods should be investigated and implemented.	Q2 24 ff	Water demand and design optimisation review.			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		Water shall be used sparingly and all faulty and leaking taps, toilets and pipes shall be immediately repaired.	Q2 24 ff	Monthly inspections and records of incidents and corrective measures.			X	X	
BORROW MATERIAL AND BORROW PITS	Use of soil and rock from the site for construction purposes.	Only materials from commercial borrow-pits, with Environmental Clearance Certificates (ECCs), shall be used for construction. No soils on site shall be used for construction except for material excavated for foundations, and compaction of in-situ material for roads. Should the opening of a new borrow pit be contemplated, this will require a separate ECC application.	Q2 24 ff	Record management and review.		X	X	X	
INFRASTRUCTURE	Prevent damage to third party infrastructure and services.	No telephone lines shall be dropped during the stringing operations.		Record management and review.		X	X	X	
		Where pipe lines are found along the route, the depth of the pipes under the surface shall be determined to ensure that proper protection is afforded to such structures.		Record management and review.		X	X	X	
REHABILITATION	Re-establishment of pre-disturbance form and ecological function (soil crusts, plants and animal burrows).	Rehabilitation design starts before construction is allowed . The Contractor must provide a Rehabilitation Plan before construction can commence.	Q1 24 ff	Rehabilitation design and review records before construction starts. Rehabilitation plan in place.	X	X	X	X	X

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
				Audit rehabilitation. Apply Biodiversity Management Plan.					
		Rehabilitation should only be planned in conjunction with the Biodiversity Management Plan (Appendix A).	Q1 24 ff	Rehabilitation design and review records before construction starts.	X	X	X	X	X
		Once the final route and tower positions have been fixed, the area of unavoidable and certain damage should be mapped. This should include all zones of collateral damage, such as access roads.	Q2 24 ff	Create a site disturbance map overlay for the contractor's layout drawings.		X	X	X	
		Before construction, areas to be disturbed should be prepared by potential aloe relocation and topsoil preservation. Any topsoil heaps should be placed upwind of the damaged area (i.e.: south west, in the path of the prevailing winds). Smaller heaps at each construction area would be preferable to large heaps. Once construction is complete, these heaps should be used to return the site to as natural an appearance as possible.	Q2 24 ff	Records of topsoil conservation stockpiles, and records of restoration.			X	X	
		Once construction is completed and essential operations infrastructure identified rehabilitation should be done in the following manner: <ul style="list-style-type: none"> • Compacted areas such as where tracks may have crossed shrubland shall be ripped by using 	Q2 24 ff	Rehabilitation procedures reviewed and implementation records with a			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>picks and rakes, avoiding parallel furrows that will promote erosion. Calcrete should only be raked to assure surface soils are loosened ONLY if compacted. No mechanical ripping should be allowed at all.</p> <ul style="list-style-type: none"> • Ripping shall occur to full rooting depth. On gravel plains a depth of about 50 mm should be adequate as this will break down the compaction without loosening too much of the soil. • The disturbed area shall be remodelled to, as far as possible, resemble previous conditions and fit in with the adjacent landscape. • Ripping should only be done of compacted, disturbed areas, NOT of vegetated areas. The areas to be ripped should be carefully marked off before this process is initiated. Continuous supervision of this process is required. • Stored topsoil, as well as soil and gravel shall be raked from adjacent areas to try and recreate the same texture and look as surrounding areas. Stones shall be redistributed with rakes so that the surface texture resembles the surroundings. • Plants should be transplanted and watered in thoroughly, using a watering can with a rose tip. They must be very carefully dug out, taking care to damage the root system as little as possible, and must be replanted equally carefully. The sites for relocation must be carefully chosen so as not to compromise other plants of concern that 		rehabilitation layout drawing.					

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>may already be there, and the aim should be for the resulting plantings to look as 'natural' as possible i.e., the plants should be spread out and planted randomly, not in clumps or rows. This should be done under supervision of a botanist.</p> <ul style="list-style-type: none"> In order to prevent re-disturbance of rehabilitated tracks, physical barricades (e.g. rocks or sign boards) shall be implemented as an interim deterrent. All district personnel will be allowed to use the existing access/servitude roads only. Any temporary roads (i.e. turning points for heavy vehicles) will be closed and rehabilitated. 							
		<p>Monitoring of relocated plants and areas of relocation should be implemented as follows:</p> <ul style="list-style-type: none"> Once roads are demarcated, fixed point photography before construction activities can be used to assess overall compliance. Several permanent transects, as well as fixed point photography should be used for at least three (3) years after construction, to monitor rehabilitation success. These should be repeated annually after the rainy season (i.e.: in September/October). The condition of any plants of high conservation concern, such as <i>Laryleachia</i> for instance, that are transplanted should be assessed annually during late September to early October for at least three (3) years to determine translocation 	Q2 24 ff	Relocation procedure design, implementation records.					

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		<p>success. This will provide information for future translocation efforts.</p> <ul style="list-style-type: none"> The specialist should advise the level of success of the translocation plan. He or she should also provide instruction for adapting or re-organising the plan according to the level of success. 							
REHABILITATION STRUCTURES	To rehabilitate the site office, work sites, servitude areas, tracks and other areas disturbed during construction as close to their original state as reasonably possible.	All equipment, waste, temporary structures, stockpiles, etc., shall be removed from the work sites.	Q3 25	<p>Design of rehabilitation and review.</p> <p>Audit rehabilitation.</p> <p>Apply Vegetation Management Plan.</p>		X	X	X	
		Final payment shall not be issued unless the environmental consultant is satisfied with the obligations listed under this section ("rehabilitation").	Q3 25	Compliance Audit Report	X	X	X	X	
		Contractor shall be held responsible for all unnecessary damage due to non-compliance, whether caused by his/her company or by subcontractors.	Q2 24 ff	<p>Compliance Audit Report.</p> <p>Agreed penalty if needed.</p>	X	X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
REHABILITATION MONITORING	To ensure successful rehabilitation	During the first month of rehabilitation, monitoring is very crucial and it is recommended that the ECO visit all rehabilitated sites at least twice a week. During this visit, the ECO shall check for any signs of erosion and check the progress on re-establishing the surface crust. Any indications of unsuccessful rehabilitation shall require that the rehabilitation process to be repeated again and at this point it shall be necessary to gain the expertise of a desert rehabilitation specialist.	Q2 24 ff	Design of rehabilitation and review. Weekly monitoring reports for 6 weeks. Audit rehabilitation. Apply Vegetation Management Plan			X	X	
		The ECO shall oversee the project and implement management and monitoring recommendations.	Q2 24 ff	Review rehabilitation weekly. Recommendations and adjustments reporting weekly Apply Vegetation Management Plan.			X	X	
		Workers shall be familiarized with the management recommendations and contractually bound to its stipulations.	Q2 24 ff	ESMP implementation Audit recommendations applied in Induction and refresher courses. Records of induction amendments			X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Project Manager	ECO	Contractor	External Expert
		The ECO shall conduct regular site inspections and submit reports in this regard to the MEFT.	Q2 24 ff	Annual Audit Reports. ECC Renewal Application reports.			X		

7.3 Operation and Maintenance Phase

Responsibility: The Operator shall be responsible to ensure all obligations are being met and shall audit them at least annually.

Table 6 Management Requirements – Operation and Maintenance

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Facility Manager	ECO	Contractor	External Expert
CONTINUITY OF SOCIAL AND ENVIRONMENTAL MANAGEMENT	To ensure continuity of environmental and social management actions once the RPSP is operational.	Implement an external environmental audit system on an annual basis during the operation of the Project. This shall be used to verify the effectiveness of the ESMP and implement adjustments if required.	Q4 25 ff	Periodic review.	X	X			
		<p>The ECO shall provide staff with appropriate guidelines for environmental management during operation of the Project, including:</p> <ul style="list-style-type: none"> All relevant provisions contained in the "construction" ESMP such as keeping a complaints register, sound disposal of hazardous and general waste, track discipline, health and safety precautions, etc. Keeping an appropriate complaint and stakeholder grievance system and register in place. The ECO shall design a record system for environmental, health and safety incidents and accidents along this power line and at the site. 	Q4 25 ff	Monthly ESMP implementation and review report		X	X		

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Facility Manager	ECO	Contractor	External Expert
		All contractors to be working on site during operation and maintenance, should have an Environmental and Social Management Plan as part of their contract (see "Construction" section.)	Q4 25 ff	Contract including ESMP on record		X	X	X	
		Reasonable contact should be made and maintained with the stakeholders of the project.	Q4 25 ff	Consultation records			X	X	
		<p>A grievance procedure (as proposed above) should be in place to deal with community grievances in a satisfactory manner, and should at least include the following:</p> <ul style="list-style-type: none"> Identify the position on site where responsibility will be assumed for putting in place and managing the grievance procedure. Ensure the current stakeholder database is updated. Publish at the onset of the project, with the basic elements of it – construction time frame, contact details, who to contact for job opportunities, grievances, etc. The publication should be made in the local newspapers and on posters put at the local retail stores in Rosh Pinah and as advised by Roshkor. The publication should also be placed on the website and Facebook page of the project and 	Q4 25 ff	Grievance Procedure implementation strategy and records.		X	X	X	

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Facility Manager	ECO	Contractor	External Expert
		<p>e-mailed to the applicable parties on the stakeholder database.</p> <ul style="list-style-type: none"> The poster shall contain a grievance mechanism – a method for community members to lodge complaints. The grievance mechanism shall state (a) Who can raise complaints (affected communities) (b) Where, when, and how community members can file complaints (this should preferably be in writing, unless the complainant is illiterate, in which case the ECO should assist the complainant to articulate the complaint (c) Who is responsible for receiving and responding to complaints, and any external parties that can take complaints from communities (d) What sort of response complainants can expect from the company, including timing of response (e) What other rights and protection are guaranteed. The community shall be regularly reminded as above, of their right to submit and receive responses to grievances. The officer responsible for handling grievances shall ensure that the grievances 1) are received and registered (with adequate documentation as reference), 2) reviewed and investigated, 3) resolution options are considered and an appropriate one is selected and implemented, 4) the grievance is properly responded to and the matter closed out, and 5) the success of the 							

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	Facility Manager	ECO	Contractor	External Expert
		resolution option is monitored and adapted where necessary.							
CONTINUOUS MONITORING – AVIFAUNA	To determine the long-term incidences of bird mortalities during the operational phase of the project.	Implement bird monitoring programmes as per the Biodiversity Management Plan (Appendix A) during the operational phase that includes searches for bird and bat mortalities, as per World Bank requirements. Searches should follow detailed protocols and should, at least initially, be intensive (e.g., daily for the first two months) to gauge scavenger effects, after which search protocols may be amended.	Q4 25 ff	Monitor programme records		X	X		X
		The landowners must be sensitised to the fact that the feeding of vultures close to a power line may create a high-risk collision potential for threatened vultures, and the vulture restaurant moved away from the line.							
		All bird-power line interactions must be reported to the project manager, who will notify the SHE section.							
		Reporting of the specialist/s should include an impact assessment, indicating low, medium or high significant of impact on birds and bats, based on the monitoring data. In case of medium and high impact, recommendations should be provided and implemented by the Operator to address the identified impact.	Q4 25 ff	Monitor programme findings and recommendations. Design and operational changes	X	X	X		X

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	Facility Manager	ECO	Contractor	External Expert
		Information on the entire procedure shall be published or made available online so as to contribute to future rescue/relocation attempts in the southern Namib.	Q4 25 ff	Publications records.	X	X			X

7.4 Decommissioning Phase

Responsibility: NamPower shall consider these aspects in conjunction with the ECO and Contractor.

Table 7 Management Requirements - Decommissioning

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY/ PARTNERSHIP				
					NamPower	EPC	Project Manager	Contractor	External Expert
DE-COMMISSIONING	To ensure that the project does not have cumulative negative effects after decommissioning.	All provisions under the Construction section shall be applicable for all contractors during decommissioning.	TBD	Design of rehabilitation and review. Audit rehabilitation. MEFT to review and approve final decommissioning results.	X	X	X	X	
		No waste may remain on site after completion of the project.	TBD	Site Closure Audit	X	X	X		
		An investigation shall be commissioned to determine the best practical environmental solution for the disposal of structural components and SPV components, according to the solutions available at the time.	TBD	Disposal Plan design and records	X	X			
		Eradication of all exotic or invasive plants shall be conducted before decommissioning.	TBD	Invasive eradication plan, implementation records, and Audit.	X	X			

ASPECT	OBJECTIVE / reference to ESS	Mitigation measures and products (highlighted)	Timeframe (Quarter/year)	Monitoring measures	RESPONSIBILITY / PARTNERSHIP				
					NamPower	EPC	Project Manager	Contractor	External Expert
		Implement staff severance packages according to labour legislation and inform staff of this step in advance.	TBD	Human Resource Closure Plan review and implementation records					
		All areas used during the construction and operation (haul roads, site offices, etc.) shall be cleared and inspected for decommissioning approval by the ECO. Before approval, the contractor shall still be liable for any costs to ensure proper decommissioning.	TBD						

APPENDIX A Preliminary Biodiversity Management Plan

APPENDIX B RESETTLEMENT POLICY FRAMEWORK

APPENDIX C Example of Environmental Enforcement System

This is only an example and must be reviewed and compiled for site conditions by the ECO, NamPower and the Implementation Team.

The following payment retention and deduction methods are in place for non-compliance listed below. It shall be issued after the non-compliance procedure has been duly followed. The ECO shall be the judge as to what constitutes non-compliance in terms of this document.

Where the Operator inflicts non-repairable damage upon the environment or refuse to comply with any of the environmental specifications, he shall be liable to criminal and civil prosecution over and above any other contractual consequence.

The ECO shall be responsible for a Report on the non-repairable damage and / or non-compliance with visual and other evidence as well as issuing the penalty to the Operator with the report attached.

The Operator is deemed NOT to have complied with this Specification if:

- within the boundaries of the site, site extensions and haul/ access roads there is enough evidence of contravention of ESMP specifications;
- attributable environmental damage due to negligence;
- destruction of vegetation without permission of the ECO and NamPower.
- Safety of Operator personnel and public has been compromised due to negligence;
- the Operator fails to comply with corrective or other instructions issued by NamPower or the ECO within a specific time;
- the Operator fails to respond adequately to complaints from the public; and
- Payment deductions or retention in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

Retention and/or deductions shall be issued per incident at the discretion of the ECO. Such deductions shall be issued in addition to any remedial costs incurred as a result of non-compliance with the ESMP. The ECO shall inform the Operator of the contravention and the amount of the fine, which NamPower shall deducted from payments due under the Contract.

The activities detailed below may guide the ECO in terms of recommending payment retention or deduction by NamPower on the Operator and/or his Subcontractors:

Item	Activity	Retention amount	Deduction amount
1	Damage to key sensitivities		
1.1	General damage to sensitive environment such as sensitive vegetation and bird habitat. (Deal separately with each individualised damage as per items 1.2, 1.3, 1.4 and 1.5 below)	Estimated value of the cost of restoration operation plus 75%.	150% of the value of the cost of full restoration operation (if NamPower has to take restoration responsibility), or 25% (if the contractor successfully restores the damage)
1.2	Movement of the Contract Implementer onto an area on the site before the vegetation specialist has identified sensitive vegetation and identified no-go zones.	N\$ 100,000 and apply item 1.1.	N\$ 100,000 and apply item 1.1.
1.3	Significant damage to the construction site without a map in place specifying where construction/movement is permitted.	N\$ 100,000 and apply item 1.1.	N\$ 100,000 and apply item 1.1.
1.5	Damage to sensitive vegetation per incident.	N\$ 50,000 and apply item 1.1.	N\$ 50,000 and apply item 1.1.
2	Non-compliance to ESMP items		
2.1	Any person, vehicle, equipment, etc. activity related to the Contract Implementer's operations outside the designated boundaries and restricted zones.	N\$ 50,000 and apply item 1.1.	Loss of each previous retention amount per follow-up incident.
2.2	Person caught trespassing outside the demarcated construction area.	N\$ 50,000 and apply item 1.1.	Loss of each previous retention amount per follow-up incident.
2.3	Any personnel guilty of reckless driving on and in the vicinity of the site, including excessive speeds.	N\$ 10,000 and apply item 1.1.	Loss of each previous retention amount per follow-up incident.

Item	Activity	Retention amount	Deduction amount
2.4	Accident due to safety negligence.	Estimated value of the cost of recovery / compensation plus 150%.	150% of the value of the cost of full recovery / compensation (if NamPower has to take restoration responsibility), or 25% (if the contractor successfully implement recovery / compensation)
2.5	Deliberate non-compliance with Safety Policy	N\$ 50,000 and closure of site until compliance achieved.	Loss of each previous retention amount per follow-up incident.
3	Pollution activities		
3.1	Persistent and un-repaired spilling of hazardous materials and materials causing pollution.	N\$ 50,000 and estimated value of the cost of restoration operation plus 25%.	Loss of each previous retention amount per follow-up incident.
	Persistent littering on site.	N\$ 10,000 and apply item 3.1.	Loss of each previous retention amount per follow-up incident.
	Individuals repeatedly not making use of the designated toilet facilities.	N\$ 10,000 and apply item 3.1.	Loss of each previous retention amount per follow-up incident.
	Disposal of waste in a manner other than what was agreed upon on site or the prescribed method in the waste management plan section.	N\$ 10,000 and apply item 3.1.	Loss of each previous retention amount per follow-up incident.

APPENDIX D: Archeology Chance Find Procedure

Areas of proposed development activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development works. The procedure set out herein covers the reporting and management of such finds.

Scope: The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item, to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The “chance finds” procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “ a person who discovers any archaeological objectmust as soon as practicable report the discovery to the Council”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Responsibility:

Operator	To exercise due caution if archaeological remains are found.
Foreman	To secure site and advise management timeously.
Superintendent	To determine safe working boundary and request inspection.
Archaeologist	To inspect, identify, advise management, and recover remains.

Procedure:

Action by person identifying archaeological or heritage material includes the following:

- a) If operating machinery or equipment stop work.
- b) Identify the site with flag tape.
- c) Determine GPS position if possible.
- d) Report findings to foreman.

Action by foreman:

- a) Report findings, site location and actions taken to superintendent.
- b) Cease any works in immediate vicinity.

Action by superintendent:

- a) Visit site and determine whether works can proceed without damage to findings.
- b) Determine and mark exclusion boundary.
- c) Site location and details to be added to project GIS for field confirmation by archaeologist.

Action by archaeologist:

- a) Inspect site and confirm addition to project GIS.
- b) Advise NHC and request written permission to remove findings from work area.
- c) Recovery, packaging and labelling of findings for transfer to National Museum.

In the event of discovering human remains:

- a) Actions as above.
- b) Field inspection by archaeologist to confirm that remains are human.
- c) Advise and liaise with NHC and Police.
- d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.

APPENDIX E:
NamPower Safety, Health, Environment and Quality Policy

Appendix F: Preliminary Implementation Budget

The estimate of implementing the ESMP must be read considering the following principles:

- This estimate summarises the cost to implement the Biodiversity Management Plan.
- Costs of avifauna collision marker implementation and Procedure for removal of protected trees Procedure to be determined by NamPower.

Item	Stage	Cost (N\$)
Avifauna Monitoring	Pre Construction	200,000
	Post Construction	550,000
Avifauna collision markers	Construction	To be determined
Procedure for removal of protected tree	Construction	To be determined
Environmental Control Officer – NamPower (salary @ 20,000 / month)	Construction (36 months)	720,000
ECO-NP accommodation (@ N\$10000 /month)	Construction (36 months)	360,000
ECO-NP Transport (@ N\$25000/month)	Construction (36 months)	900,000
ECO-NP Office and admin. (@ N\$10000/month)	Construction (36 months)	360,000
Environmental Control Officer – Contractor (salary @ 20,000 / month)	Construction (36 months)	720,000
ECO-C accommodation (@ N\$10000 /month)	Construction (36 months)	360,000
ECO-C Transport (@ N\$25000/month)	Construction (36 months)	900,000
TOTAL Budget		5,070,000

Appendix G: Labour Management Procedures

Nov
2023

Environmental and Social
Management Plan for the Proposed
400 kV Transmission Line from Auas to
Kokerboom Substation

**PRELIMINARY BIODIVERSITY
MANAGEMENT PLAN**



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PROJECT NAME	Proposed 400kV Transmission line from Kokerboom to Auas Substations ESIA and ESMP
REPORT	ESMP Preliminary Biodiversity Management Plan
STAGE OF REPORT	August 2023
CLIENT	NamPower Attention: Martin van der Merwe
LEAD CONSULTANT	Enviro Dynamics Enquiries: Stephanie van Zyl Tel: 264 81 1287002 E-Mail: stephanie@envirod.com
DATE OF RELEASE	November 2023
CONTRIBUTORS TO THE REPORT	Authors: Stephanie van Zyl, Coleen Mannheimer, Ann & Mike Scott (African Conservation Services cc) Reviewed: Norman van Zyl



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GLOSSARY

BMP	Biodiversity Management Plan
CHA	Critical Habitat Assessment
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
kV	Kilo Volt

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1 INTRODUCTION

NamPower intends constructing a 400kV power line from the Kokerboom Substation near Keetmanshoop to the Auas Substation near Dordabis, Namibia. The line will assist in securing the supply of electricity to Namibia in future and open up opportunities for selling power to the Southern African Power Pool.

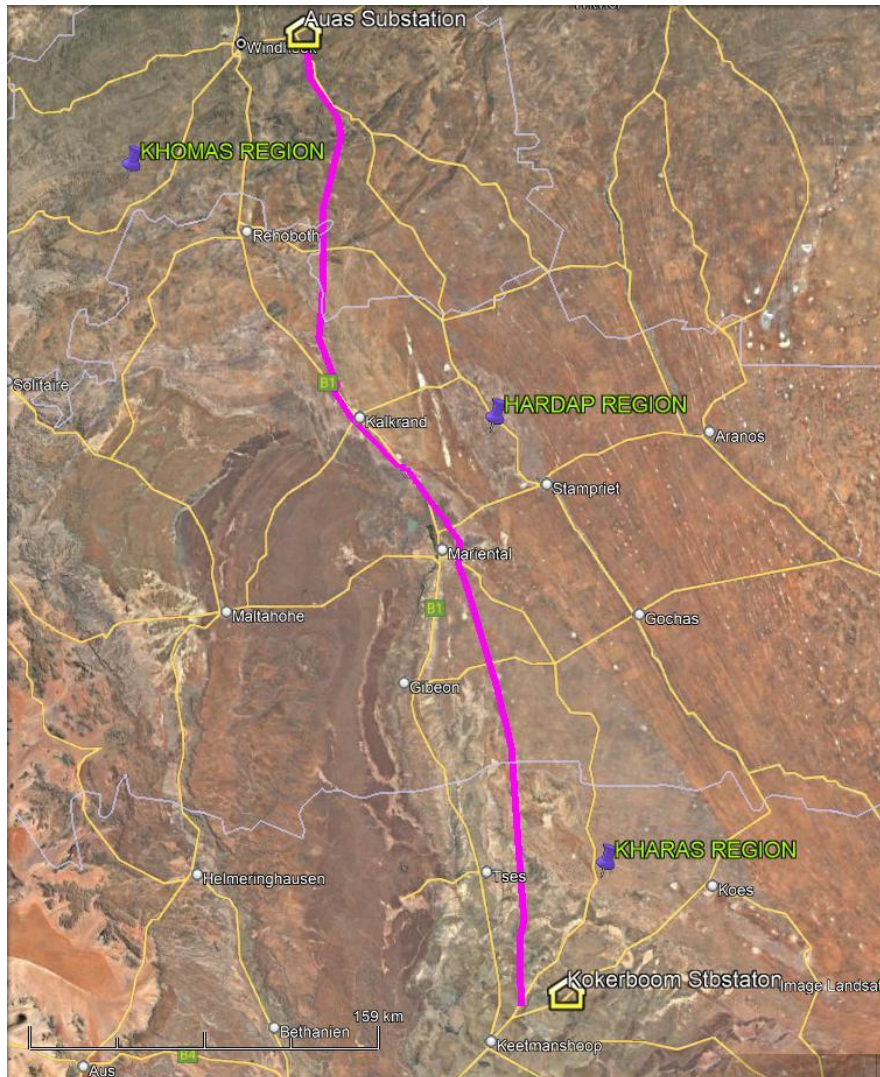


Figure 1: Locality of the proposed Auas-Kokerboom 400kV Transmission line

NamPower is seeking funding from the World Bank for the construction of the transmission line with all its components. The World Bank requires of its Borrowers to fulfil the requirements of the Environmental and Social Framework (ESF). The

Framework sets out the Environmental and Social Standards (ESS) to be complied with on all projects funded by the World Bank.¹

This document is the Preliminary Biodiversity Management Plan (BMP), which aims to provide the mitigation details to be incorporated into the project lifetime of the planned transmission line. The document will be updated according to the Plan of Study set out in the Biodiversity and critical habitat assessment report, to ensure it meets the requirements of the Environmental and Social Safeguard 6 of the World Bank (Biodiversity Conservation and Sustainable Management of Living Natural Resources) and includes the following:

- 1) Background and key biodiversity objectives
- 2) Activities to achieve the objectives
- 3) Implementation schedule
- 4) Institutional responsibilities and
- 5) Cost estimates

2 BACKGROUND AND KEY MANAGEMENT OBJECTIVES

2.1 CRITICAL HABITAT ASSESSMENT BACKGROUND

A Critical Habitat Assessment was conducted considering the habitat types and avifauna occurring in the Project area.

2.1.1 Vegetation

The vegetation in the project area is categorised as natural habitat (mostly unaffected by development), with some measure of modified habitat (changed habitat due to human intervention). There is no part of the study area that meets the criteria of critical habitat, although protected species occurs occur along the route, and generally vegetation cover, because of its crucial role in protecting the surface from desertification and contributing to ecosystem functioning should be highly valued and preserved where possible. For this reason, mitigation measures for vegetation are included in this Management Plan.

¹<https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards>

2.1.2 Avifauna

The current Critical Habitat Assessment (CHA) for avifauna has shown that the study area may contain areas of Critical Habitat relevant to bird species of potential concern (World Bank 2016, 2018); however, there are uncertainties due to the lack of population estimates for some species, or such estimates are dated; and to the lack of local population estimates for the study area. A precautionary approach is therefore required, together with an adaptive management strategy.

The following Red Data species meet the CHA criteria and are likely to be impacted by the construction of the planned 400kV transmission line:

- Ludwig's Bustard (Globally Endangered, Namibian Endangered)

In terms of Threshold (b) for habitats (i.e. priority for conservation in Namibia), and areas important for congregatory species (criteria c), the following apply to the study area:

- Karas Dwarf Shrubland and Dwarf Shrub Savanna (especially): open, grassy habitats that are favoured by bustards
- Dwarf shrub savanna: the Hardap Game Park (nationally protected area) is also within the Karas Dwarf Shrubland, which is an Important Bird Area [IBA]), and an area important for congregatory species.

An alternative route was considered to the selected route, as a potential avoidance measure, but there is little difference between the two power line routes in terms of impacts on avifauna, the chief impacted group being bustards. However, the alternative route (448 km) is 18 km shorter than the planned route (461 km), and therefore of a slightly lower potential avifauna impact. However, this alternative route is technically problematic for NamPower and is therefore not suitable.

In areas of critical habitat, the World Bank requirement is that the Borrower will not implement any project activities that have potential adverse impacts unless all of the seven prescribed conditions are met (refer ESS6 paragraph 24 (a) to (g)). According to the findings of the current CHA report, the above requirements have been or will be met, in the ESIA and ESMP, and subsequent mitigation recommended in this BMP.

NamPower, the Borrower, will manage the identified risks and impacts in accordance with the mitigation hierarchy and Good International Industry Practice (GIIP). It will adopt a precautionary approach and apply adaptive management practices in which the implementation of mitigation and management measures are responsive to changing conditions and the results of ongoing project monitoring. Additionally, in accordance with the requirements of ESS6, the present preliminary Biodiversity Management Plan (BMP) .

This BMP will be updated in accordance with the Plan of Study set out in the biodiversity and critical habitat assessment report, to obtain more data on the population size of the Ludwig bustard species in the project area and to ratify the

mitigation measures proposed in addition to identifying the exact hotspots earmarked for bird markings, during pre-construction monitoring and confirmation of the staggering design. The updated BMP will further set out a robust monitoring plan to monitor and evaluate the effectiveness of the mitigation measures during operational phase.

It is critically important that the ESMP and this BMP is audited to ensure compliance and that mitigation and monitoring take place as outlined therein, otherwise the impacts identified will remain unacceptable. It is considered that the Borrower's requirements will thus be addressed, based on the conditions above.

2.2 KEY OBJECTIVES

The key biodiversity values of significance on this project are a) power line collision prone avifauna that have protected status in the project area and b) protected plant species occurring in the project area. The objectives are specifically designed to achieve no net loss, and net gain of these specific values.

As strategic direction, NamPower focusses on avifauna as the priority targeted biodiversity value, due to the risk of significant losses of avifauna species on transmission lines in general, and on this project, specifically.

The following biodiversity objectives have been set for the construction and operation of the 400kV transmission line:

- 1) Effective mitigation of habitat loss and ecosystem services loss outside the required footprint,
- 2) Effective mitigation of species loss during all phases of the project
- 3) Net biodiversity gain in the long term, in Namibia, specifically for avifauna
- 4) Strengthening research to better understand a) the positive and negative impacts of the project on avifauna and b) the effectiveness of mitigation, particularly the "staggered pylons" concept.

3 IMPLEMENTATION STRATEGY

A management plan to protect and improve biodiversity on a project requires the implementation of the mitigation hierarchy (Error! Reference source not found.). The steps taken and planned according to this concept are systematically outlined in this section.

MITIGATION HIERARCHY

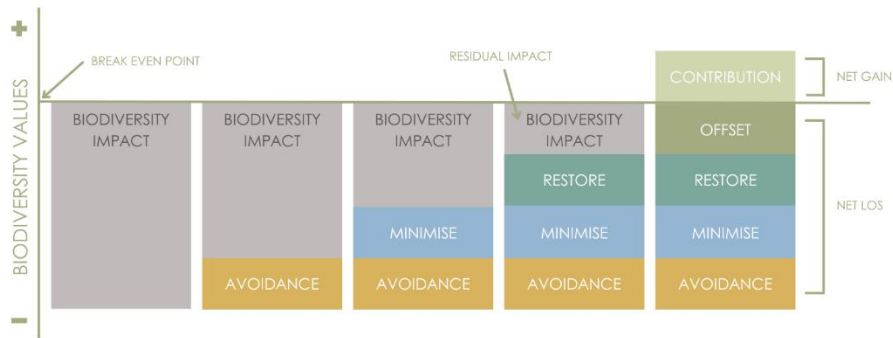


Figure 2: The mitigation hierarchy for sustainable biodiversity management

3.1 PRE-CONSTRUCTION/DESIGN PHASE

3.1.1 Route selection

- Two major alternative routes were selected and considered during the ESIA. The impact assessment of the selected route rated marginally higher on vegetation and avifauna but comparative analysis indicated that mitigation is similarly possible with the same expected results on both routes. The eastern route that was selected is favoured from a technical point of view, to avoid major technical risks.

3.1.2 Avoiding specific hotspots

- Southern Kalahari: a sensitive bird "hotspot" lies 15 km east of the power line route, with White-backed Vulture breeding area/congregatory area (50-100 birds with nests) and bustard habitat; this sensitivity has already been avoided/ mitigated by re-routing the power line in terms of the ESIA, with recommendations for marking the relevant section of power line in the ESMP.
- Pan edges, banks of rivers and other drainage lines and areas marked with large Camel thorn trees, as described in the ESMP, are to be avoided.

- The Engineering Team and Contractor will pay special attention to avoid clumps of trees, and other hotspots as described above, by further adjusting the route where possible.

3.1.3 **Avoiding unnecessary habitat destruction**

- Directives are provided in the ESMP for management strategies needed during the design stage to avoid habitat destruction including the placement of the construction camps, and the final survey of the transmission line to limit the destruction of trees, especially *Acacia erioloba*, to a minimum.
- Planning for training of workforce and staff on the project to understand the importance of biodiversity management and how to go about it on the project.
- Planning to off-set biodiversity loss, by implementing a monitoring strategy in conjunction with biodiversity minded partners in Namibia.

3.1.4 **Monitoring to establish baseline conditions prior to construction**

- More specific monitoring avi-fauna monitoring is required prior to construction, to achieve the objectives mentioned in (Section 2.2.). Survey work is needed along sample areas of both the existing 220 kV line and the existing 400 kV line (as a control for the "staggered pylon" design, once in place), in all four main habitats, both before and after construction. This monitoring work is motivated in the avifauna reports for the ESIA (Simmons & Martins 2017; Simmons 2018) and the ESMP for the project.

The **pre-construction monitoring** should be undertaken as follows:

- By a competent ornithologist familiar with power line work and able to identify species found dead under power lines from their remains (feathers and wing bones);
- Known-distance surveys to be undertaken 3-months and 9-months before construction of the two lines; the first should be undertaken in the dry season (to clear the line of any carcasses), with a follow-up survey just after the rain season (February-March);
- The surveys should include (i) the existing 220 kV line in all four habitat types and (ii) the existing 400 KV line south to Kokerboom, and include samples from all three habitats;

- Specific (additional) surveys must be undertaken of the 14 km of planned 400 kV line that occurs within the high-risk vulture area near Kalkrand (see Simmons 2020). This must be included in pre-construction surveys and post-construction surveys to assess the efficacy of the recommended fitting of bird spiral flight diverters along the earth wires.
- The same sample areas as those used for the initial study (Simmons & Martins 2017) should be used for direct comparisons.
- Apart from power line mortalities, pre-construction monitoring should also include the recording of live priority species as far as possible (e.g. bustards, raptors), to provide a baseline of numbers at the start of the programme.
- The resultant monitoring data should be compared and analysed after the 3- and 9-month assessment periods, to determine the rate of fatalities occurring per km, the species involved. Should any high-risk areas be identified (numbers of bustards killed by the new 400 kV line exceeding 1 per km of line, or for vultures numbers killed exceeding 1 per 7km of line), such areas should be incorporated, as far as possible, in the final mitigation design aimed at species loss.
- The pre-construction monitoring surveys should be undertaken with the support of NamPower officials to share and discuss all results and any challenges arising from the surveys. NamPower officials will also be required to accompany the survey team, to provide access to all the lines.

3.1.5 **To confirm measures in the design aimed at mitigation of species loss**

- The proposed mitigation to be included in the designs for implementation during construction are to be confirmed during the planning stage. This will be done through additional consultations with specialist with experience in wildlife powerline interactions, in particular the Bustard species. These are particularly the staggering approach and bird markers specified in the ESMP. NamPower staff responsible for this project need to ensure that the bird diverters are included in the tender documentation, quoted for by the Contractor, and as per specifications.

3.1.6 **Design long term off-set programmes**

- The rigorous long-term testing of the effectiveness of the proposed mitigation measures, particularly the “staggered pylons” concept, will enable confidence in its application in the future.

- It is not considered practical to recommend the planting of trees for species loss – Namibia's climate does not allow for trees planted that are not specifically nursed.

3.2 CONSTRUCTION PHASE

3.2.1 The minimal disturbance of habitat/vegetation during construction

Measures to achieve this goal are included in the ESMP for this project and include the following:

- Creation of additional tracks, including those made by bulldozers and other large construction vehicles, outside of the service track should not be permitted unless absolutely necessary.
- Staff camps should be pre-determined and marked.
- Penalties should be in place for all contractors and sub-contractors that cause unnecessary collateral damage.
- Random collection of wood for fuel and/or heating should be forbidden. No harvesting of wood by operational/maintenance staff should be permitted. Any wood used by staff for any purpose whatsoever must be permitted wood supplied by the farmers along the route themselves, or be invader species wood sourced from elsewhere.
- Plant collection of any plants or parts thereof, including seeds and pods, should be forbidden.
- Penalties, including dismissal for repeat offenders, should be in place for all transgressors.

3.2.2 Minimum loss of identified species of concern

- Species loss during construction is particularly the protected *Vachellia erioloba* and other protected tree species in particular the *Aloe dichotoma*.
- Appendix 1 provides a visual guide to these species along the project route. This guide is also appended to the ESMP, for the Contractor and all involved in the construction phase, to be aware of.
- Measures have been included in the ESMP to minimise the loss of protected trees during bush clearing. Trees are to be marked and trimmed, rather than removed where possible.

- Measures have been included in the ESMP to address this species loss, including the avoidance of and addressing tree harvesting and wood collecting.

3.2.3 Identification, permitting and record keeping of species to be removed.

- Where protected trees cannot be avoided, they are to be marked and permits obtained for their removal from the Ministry of Environment, Forestry and Tourism. This is specified in the ESMP.
- Records are to be kept of these identified trees.

3.2.4 Monitoring of construction activities to ensure compliance

NamPower needs to commit to the arrangement for monitoring the management actions required during construction to ensure compliance according to the ESMP. The requirements for this monitoring is specified in the ESMP.

Records shall be kept of protected tree species removed during construction as well as their permits and coordinates. This will form a useful database in future of protected tree species lost on power lines in Namibia. NamPower is encouraged to partner with conservation organisations and with the National Botanical Research Institute for the keeping of these records.

3.3 OPERATIONAL PHASE

3.3.1 Biodiversity management strategies

- NamPower has a general Environmental Management Plan, including general biodiversity management strategies for the maintenance work on all their projects, which will be considered in addition to the mitigation measures that will be contained in the BMP to be prepared for this project in line with the World Bank requirements.
- NamPower's overall biodiversity management strategies and those that are specific to this project are contained in the ESMP for this project.

3.3.2 Monitoring required to track effectiveness of mitigation

3.3.2.1 Avifauna

The post-construction monitoring (monitoring during operation of the transmission line) should take place during operation, as follows:

- Surveys to be undertaken again 3-months and 9-months *after construction* of the line, one survey to include the wet season; this must

be repeated in a second year, post-construction (i.e. total of four post-construction surveys, as a minimum)

- A minimum of 20% of the new 400 kV line (20% of 461 km is 92 km) should be surveyed, within all four habitats identified, for bird carcasses along the same sections as surveyed along the adjacent 220 kV line in the previous (pre-construction) surveys; this must also be compared with 20% of the sampled existing 400 kV line, west of the B1, in similar habitats;
- The number of carcasses found per km (with each carcass photographed next to a GPS with the point logged) should be compared with fatalities found along similar lengths of the other, existing 400 kV line in similar habitats;
- Specific (additional) surveys must be undertaken of the 14 km of planned 400 kV line that occurs within the high-risk vulture area near Kalkrand (see Simmons 2020). This must be included in pre-construction surveys and post-construction surveys to assess the efficacy of the recommended fitting of bird spiral flight diverters along the earth wires.
- Ideally, the same sample areas as those detailed in the initial report (Simmons & Martins 2017) should be used for direct comparisons.
- Apart from power line mortalities, post-construction monitoring should also include the recording of live priority species as far as possible (e.g. bustards, raptors), to provide an indication of population trends.
- These monitoring data should be compared and analysed after the 3- and 9-month assessment periods, to determine the rate of fatalities occurring per km, the species involved, and if the mitigation measures (either staggered pylons or the use of bird diverters) are effective.
- Should any high-risk areas be identified (numbers of bustards killed by the new 400 kV line exceeding 1 per km of line, or for vultures numbers killed exceeding 1 per 7km of line), then additional mitigation measures must be enacted within 3 months of the survey results.
- The pre-construction monitoring surveys should be undertaken with the support of NamPower officials to share and discuss all results and any challenges arising from the surveys. NamPower officials will also be required to accompany the survey team, to provide access to all the lines.
- The monitoring results should be published in local journals (e.g. *Namibian Journal of the Environment*) to publicise the results. They should also be added to the electronic bird-power line data base (www.the-eis.com).

3.3.2.2 Vegetation

No monitoring required.

3.3.3 Design holistic and long-term biodiversity management and off-set programmes

The rigorous testing of the effectiveness of the proposed mitigation measures, particularly the “staggered pylons” concept, will enable confidence in its application in the future.

NamPower is encouraged to set up an overall biodiversity management policy to form the basis of biodiversity management including offsetting for its entire operation, including electricity generation projects.

3.3.4 Monitoring required to track species recovery

In the longer term, the above avifauna monitoring will serve to indicate species recovery, based on records and population trends of live priority species (e.g. bustards, raptors) from the inception of the programme.

If disturbance to vegetation habitats have been limited to the minimum required, then no further monitoring is needed.

4 BIODIVERSITY INDICATORS

Indicators are needed to determine changes in strategy should the current proposals prove ineffective.

4.1 AVIFAUNA

- High-risk areas are identified, based on numbers of bustards killed by the power line exceeding 1 per km of line, or for vultures numbers killed exceeding 1 per 7 km of line.
- Should these thresholds be exceeded, then additional mitigation measures must be enacted within 3 months of the survey results. Such measures would include the fitting of bird flight diverters in high-risk areas where diverters will initially not be fitted (in addition to the staggering mitigation applied during construction); and follow-up monitoring.

5 RESPONSIBLE PARTIES TO ENSURE IMPLEMENTATION

- NamPower assumes the overall responsibility for implementing this BMP.
- NamPower needs to ensure that the Contractor implements the content of the Construction ESMP. The Contractor needs to appoint an Environmental Control Office for this purpose.
- This will involve monitoring to ensure compliance and if done in-house by NamPower, needs to be audited.
- It is proposed that NamPower involves suitable NGO's to partner with the implementation of the Plan, particularly Avifauna. The Namibian Chamber of Commerce has indicated preliminary interest to become involved (Dr Chris Brown, pers. Comm., 8/2023)

6 COST ESTIMATES

The cost estimates provided are for the avifauna pre- and post-construction monitoring. The costs of management actions to be taken during construction are items costed by the Contractor and there are no separate costing items in this regard.

- A conservative overall estimate for the pre-construction (one year, two surveys) and post-construction monitoring (two years, four surveys) is provided.
- It is assumed that only actual expenses will be invoiced.
- The costing details will need to be fine-tuned before the work commences.

- The monitoring work will span four years (allowing for one year pre-construction; monitoring one year of construction, during which no monitoring will take place; and two years of post-construction monitoring). Inflation may therefore need to be considered, in the final budget.
- It is understood that the costs are to be shared between the Namibian Chamber of Commerce (NCE) and NamPower; the individual contributions still need to be decided.
- The costs of mitigation marking (i.e. purchase and fitting of bird flight diverters [BFDs]) will need to be confirmed by NamPower/Contractor. The fitting of BFDs during construction may possibly be absorbed into the costs of constructing the power line; however, the retro-fitting of BFDs, based on post-construction monitoring results that may indicate high-risk areas requiring further mitigation, would probably need to be added as an additional budgetary item. Similarly, the retro-fitting of BFDs on the existing 220 kV and 400 kV lines in any high-risk areas identified by the monitoring would also be an additional budgetary item.

6.1 COST ESTIMATE: AVIFAUNA

- Summary: total 6 surveys (2 pre-construction and 2 post-construction; see details of costing on following page)

A) Pre- & Post-construction monitoring

Line	Component	Unit	Unit Cost (N\$)	Units	Pre-construction (N\$)		Units	Post-construction (N\$)			
					Session 1	Session 2		Session 3	Session 4	Session 5	Session 6
1	Travel	Km	8,00	2 970	23 760,00	23 760,00	3 320	26 560,00	26 560,00	26 560,00	26 560,00
2	Time (ornithologist)	Days	5 000,00	9	45 000,00	45 000,00	13	65 000,00	65 000,00	65 000,00	65 000,00
	Time (assistant)	Days	2 500,00	6	15 000,00	15 000,00	10	25 000,00	25 000,00	25 000,00	25 000,00
3	Accommodation	Nights	1 800,00	6	10 800,00	10 800,00	9	16 200,00	16 200,00	16 200,00	16 200,00
					94 560,00	94 560,00		\$132 760,00	132 760,00	132 760,00	132 760,00
					Total cost	N\$189 120,00				Total cost	N\$531 040,00
										Combined total	N\$720 160,00

B) Marking of power lines as mitigation for collisions

Marking area	Distance (km)	Marking design	Costs (to be confirmed by NamPower)
Mitigation of sensitive vulture area	20	Double loop spirals (large SWAN-FLIGHT Diverters); both OPGWs to be marked; distance 10 m apart	
Mitigation of Verreaux's Eagle nesting area	10	As above; possible testing of further marking devices	
Retro-mitigation of new 400 kV line, based on post-construction monitoring results	unidentified		

Avifauna: detailed breakdown of costs for power line monitoring

1. Power line monitoring**a) Pre-construction (Session 1)**

Line	Component	Unit	Unit Cost (N\$)	Units	Total cost (N\$)	Comments
1	Travel					
1.1	Surveys	Km	8,00	220	1 760,00	Actual survey distances
1.2	Additional	Km	8,00	750	6 000,00	Km between sections
1.3	From Windhoek	Km	8,00	1 000	8 000,00	Km from and to Windhoek
1.4	Contingency	Km	8,00	1 000	8 000,00	
Sub Total 1					23 760,00	
2	Time					
2.1	Ornithologist	Days	5 000,00	6	30 000,00	Survey
2.2	Ornithologist	Days	5 000,00	3	15 000,00	Preparation and data processing
2.3	Assistant	Days	2 500,00	6	15 000,00	Survey
Sub Total 2					60 000,00	
3	Accommodation					
3.1	Surveys	Nights	1 800,00	6	10 800,00	2 persons
Sub Total 3					10 800,00	
Total Session 1					94 560,00	

b) Pre-construction (Session 2)

Line	Component	Unit	Unit Cost	Units	Total cost	Comments
1	Travel					
1.1	Surveys	Km	8,00	220	1 760,00	Actual survey distances
1.2	Additional	Km	8,00	750	6 000,00	Km between sections
1.3	From Windhoek	Km	8,00	1 000	8 000,00	Km from and to Windhoek
1.4	Contingency	Km	8,00	1 000	8 000,00	
Sub Total 1					23 760,00	
2	Time					
2.1	Ornithologist	Days	5 000,00	6	30 000,00	Survey
2.2	Ornithologist	Days	5 000,00	3	15 000,00	Preparation and data processing
2.3	Assistant	Days	2 500,00	6	15 000,00	Survey
Sub Total 2					60 000,00	
3	Accommodation					
3.1	Surveys	Nights	1 800,00	6	10 800,00	2 persons
Sub Total 3					10 800,00	
Total Session 2					94 560,00	
Total Pre-construction (Sessions 1 + 2)					189 120,00	

2. Post-construction

a) Post-construction (Session 3)

Line	Component	Unit	Unit Cost	Units	Total cost	Comments
1	Travel					
1.1	Surveys	Km	N\$8,00	320	N\$2 560,00	Actual survey distances
1.2	Additional	Km	N\$8,00	1 000	N\$8 000,00	Km between sections
1.3	From Windhoek	Km	N\$8,00	1 000	N\$8 000,00	Km from and to Windhoek
1.4	Contingency	Km	N\$8,00	1 000	N\$8 000,00	
Sub Total 1					N\$26 560,00	
2	Time					
2.1	Ornithologist	Days	N\$5 000,00	10	N\$50 000,00	Survey
2.2	Ornithologist	Days	N\$5 000,00	3	N\$15 000,00	Preparation and data processing
2.3	Assistant	Days	N\$2 500,00	10	N\$25 000,00	Survey
Sub Total 2					N\$90 000,00	
3	Accommodation					
3.1	Surveys	Nights	N\$1 800,00	9	N\$16 200,00	2 persons
Sub Total 3					N\$16 200,00	
Total Session 3					<u>N\$132 760,00</u>	

b) Post-construction (Session 4)

Line	Component	Unit	Unit Cost	Units	Total cost	Comments
1	Travel					
1.1	Surveys	Km	N\$8,00	320	N\$2 560,00	Actual survey distances
1.2	Additional	Km	N\$8,00	1 000	N\$8 000,00	Km between sections
1.3	From Windhoek	Km	N\$8,00	1 000	N\$8 000,00	Km from and to Windhoek
1.4	Contingency	Km	N\$8,00	1 000	N\$8 000,00	
Sub Total 1					N\$26 560,00	
2	Time					
2.1	Ornithologist	Days	N\$5 000,00	10	N\$50 000,00	Survey
2.2	Ornithologist	Days	N\$5 000,00	3	N\$15 000,00	Preparation and data processing
2.3	Assistant	Days	N\$2 500,00	10	N\$25 000,00	Survey
Sub Total 2					N\$90 000,00	
3	Accommodation					
3.1	Surveys	Nights	N\$1 800,00	9	N\$16 200,00	2 persons
Sub Total 3					N\$16 200,00	
Total Session 4					<u>N\$132 760,00</u>	

c) Post-construction (Session 5)

Line	Component	Unit	Unit Cost (N\$)	Units	Total cost (N\$)	Comments
1	Travel					
1.1	Surveys	Km	8,00	320	2 560,00	Actual survey distances
1.2	Additional	Km	8,00	1 000	8 000,00	Km between sections
1.3	From Windhoek	Km	8,00	1 000	8 000,00	Km from and to Windhoek

1.4	Contingency	Km	8,00	1 000	8 000,00	
Sub Total 1					26 560,00	
2	Time					
2.1	Ornithologist	Days	5 000,00	10	50 000,00	Survey
2.2	Ornithologist	Days	5 000,00	3	15 000,00	Preparation and data processing
2.3	Assistant	Days	2 500,00	10	25 000,00	Survey
Sub Total 2					90 000,00	
3	Accommodation					
3.1	Surveys	Nights	1 800,00	9	16 200,00	2 persons
Sub Total 3					16 200,00	
Total Session 5					<u>N\$132 760,00</u>	

d) Post-construction (Session 6)

Line	Component	Unit	Unit Cost (N\$)	Units	Total cost (N\$)	Comments
1	Travel					
1.1	Surveys	Km	8,00	320	2 560,00	Actual survey distances
1.2	Additional	Km	8,00	1 000	8 000,00	Km between sections
1.3	From Windhoek	Km	8,00	1 000	8 000,00	Km from and to Windhoek
1.4	Contingency	Km	8,00	1 000	8 000,00	
Sub Total 1					26 560,00	
2	Time					
2.1	Ornithologist	Days	5 000,00	10	50 000,00	Survey
2.2	Ornithologist	Days	5 000,00	3	15 000,00	Preparation and data processing
2.3	Assistant	Days	2 500,00	10	25 000,00	Survey
Sub Total 2					90 000,00	
3	Accommodation					
3.1	Surveys	Nights	1 800,00	9	16 200,00	2 persons
Sub Total 3					16 200,00	
Total Session 6					<u>132 760,00</u>	

Total Post-construction (Sessions 3 + 4 + 5 + 6)**531 040,00****Total Pre + Post-construction (Sessions 1-6)****720 160,00**

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8 APPENDIX 1: IDENTIFICATION GUIDE TO PROTECTED TREES THAT MAY BE FOUND ALONG THE POWER LINE ROUTE.

Acacia erioloba

camel-thorn, omuthiya, omumbonde, omuonde, Kameldornbaum, kameeldoring, Ilganab

Semi-deciduous or deciduous tree with spreading crown, up to 20 m high; common and widely distributed, preferring sandy soils, depressions and dry riverbeds. BARK dark grey to blackish, rough with vertical fissures; young branchlets red-brown to plum-coloured, shiny, smooth, with characteristic zig-zagging between nodes. THORNS straight, paired, grey-white with black flecks, rigid, sharp, often with a pale brown tip. LEAVES twice-compound; 1–3 leaves per thorn axil; each pinna bearing 6–15 leaflet pairs; leaflets narrowly linear. FLOWERS golden-yellow. FRUIT a woody, velvety pod; young pods with rust to red-brown covering; older pods ear-shaped to sickle-shaped, grey.



Albizia anthelmintica

worm-cure albizia, aru, Wurmrindenbaum, oumaboom

Deciduous tree, 2–10 m high; occasionally a shrub. BARK pale to **dark grey to reddish-brown**, young branchlets pale brown with white dots. LEAVES twice compound, with 2–5 leaflet pairs on each pinna; **leaflets narrowly elliptic to obliquely obovate to almost circular**, pale to blue-green or dark green with prominent veins. FLOWERS a semi-circular head up to 40 mm in diameter; stalk up to 25 mm long, pale yellow, pom-pom-like. FRUIT a papery, flattened pod, swollen above each seed; tip mucronate; splitting open when mature.



Aloe dichotoma

quiver tree, kokerboom, Kokerbaum

Single-stemmed, often stout tree. STEM branches in two repeatedly to form a dense crown. Bark initially smooth and grey; on older stems pale yellow to yellow, rough, peeling in segments. LEAVES simple, in clusters at branch tips, oblong, boat-shaped; grey-green to brown-green; margin brownish-yellow with dark brown teeth; tip gradually pointed; base clasping the stem. FLOWERS yellow to golden-yellow, tubular, in branched sprays, carried above the leaf rosette. FRUIT a papery capsule.



Aloe littoralis

Windhoek aloe, mountain aloe, otjindombo

Single-stemmed, tall succulent. STEM largely covered with old leaves and/or leaf remains. LEAVES simple, clustered at top of plant, succulent, boat-shaped; leaves of young plants often with white speckles; margin with long, red-brown to dark-brown teeth. FLOWERS pale red to deep red with yellow tips, tubular, carried in a branched, erect spray. FRUIT a papery capsule.



Boscia albitrunca

shepherd's tree, witgat, omutendereti, omunkunzi

Evergreen shrub or tree, up to 10 m high; widespread in Namibia, occurring in many different habitats and exhibiting a range of different growth forms. BARK **pale in colour, almost white**, although may be partially grey or occasionally yellow; rough, especially where flaking has occurred. LEAVES simple, spirally arranged, solitary or in clusters of 2–4 on dwarf shoots; **blade oblong or oblong-elliptic, 10–55 x 3–10 mm**; thick, leathery, brittle, slightly rough; **both surfaces grey-green to dark green**, practically hairless; midrib prominent, yellowish; margin smooth, finely fringed with hairs; tip blunt to shallowly notched, often with tiny hair-like tip. FLOWERS small, green-yellow; August to February. FRUIT spherical, c. 10 mm in diameter; yellow when ripe. SEEDS round to kidney-shaped, with brittle cream-coloured warty shell; one to several embedded in bright orange flesh.

The shepherd's tree grows in conditions ranging from arid to subtropical. This species has many uses, making it an important component of the vegetation wherever it occurs. It is also an important shade tree.



Euclea pseudebenus

wild ebony, Cape ebony, abikwa, ebbehout, Ebenholzbaum, omuthema, tsàbi.s

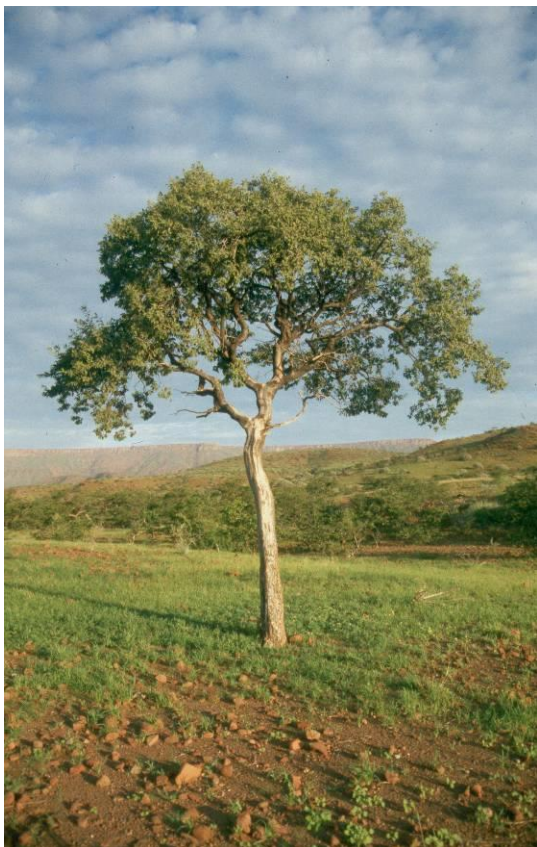
Evergreen tree, occasionally a shrub, 3–9 m high with characteristic thin, drooping branches. BARK grey to black-grey, very rough. LEAVES simple, narrow, drooping, leathery, light green. FLOWERS small, whitish, waxy-looking. FRUIT a ball-shaped berry, dark brown to black when ripe.



Maerua schinzii

ringwood tree, lammerdrol, Ringholzbaum, omutengu, goradab, omuhasuviwa

Evergreen shrub or tree, 3–7 m high; reasonably common, and distributed almost throughout Namibia, with the exception of the central- and south-eastern parts. Found on plains, hill slopes and rocky outcrops, as well as along dry watercourses.



Ziziphus mucronata

buffalo-thorn, blinkblaar-wag-'n-bietjie, omukekete, omukaru

Semi-evergreen tree with a spreading crown, up to 7 m high; most common along rivers, as well as dam and pan edges, but also found on plains. BARK rough, grey to dark grey, cracked; branchlets mostly zig-zag, often drooping. THORNS in pairs with one straight and one curved thorn. LEAVES simple, ovate to broadly ovate; shiny green, with two veins originating together with midrib at base; margin scalloped; tip pointed, often with a hair-like tip; base asymmetric. FLOWERS small, green to yellow-green, carried in small clusters. FRUIT ball-like, hard, with thin, dry flesh; red-brown when ripe.



Nov
2023

Environmental and Social
Management Plan for the Proposed
400 kV Transmission Line from Auas to
Kokerboom Substation

LAND IMPACTS (EASEMENT)

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PROJECT NAME	Proposed 400kV Transmission line from Kokerboom to Auas Substations ESIA and ESMP
REPORT	ESMP Resettlement Policy Framework
STAGE OF REPORT	Final
CLIENT	NamPower Attention: Martin van der Merwe
LEAD CONSULTANT	Enviro Dynamics Enquiries: Stephanie van Zyl Tel: 264 81 1287002 E-Mail: stephanie@envirod.com
DATE OF RELEASE	November 2023
CONTRIBUTORS TO THE REPORT	Authors: Stephanie van Zyl Reviewed: Norman van Zyl



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Appendix A: Way leave example

GLOSSARY

BESS	Battery Energy Storage System
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
kV	Kilo Volt

TABLES AND FIGURES

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1 INTRODUCTION

NamPower intends constructing a 400kV power line from the Kokerboom Substation near Keetmanshoop to the Auas Substation near Dordabis, Namibia. The line will assist in securing the supply of electricity to Namibia in future and open up opportunities for selling power to the Southern African Power Pool.

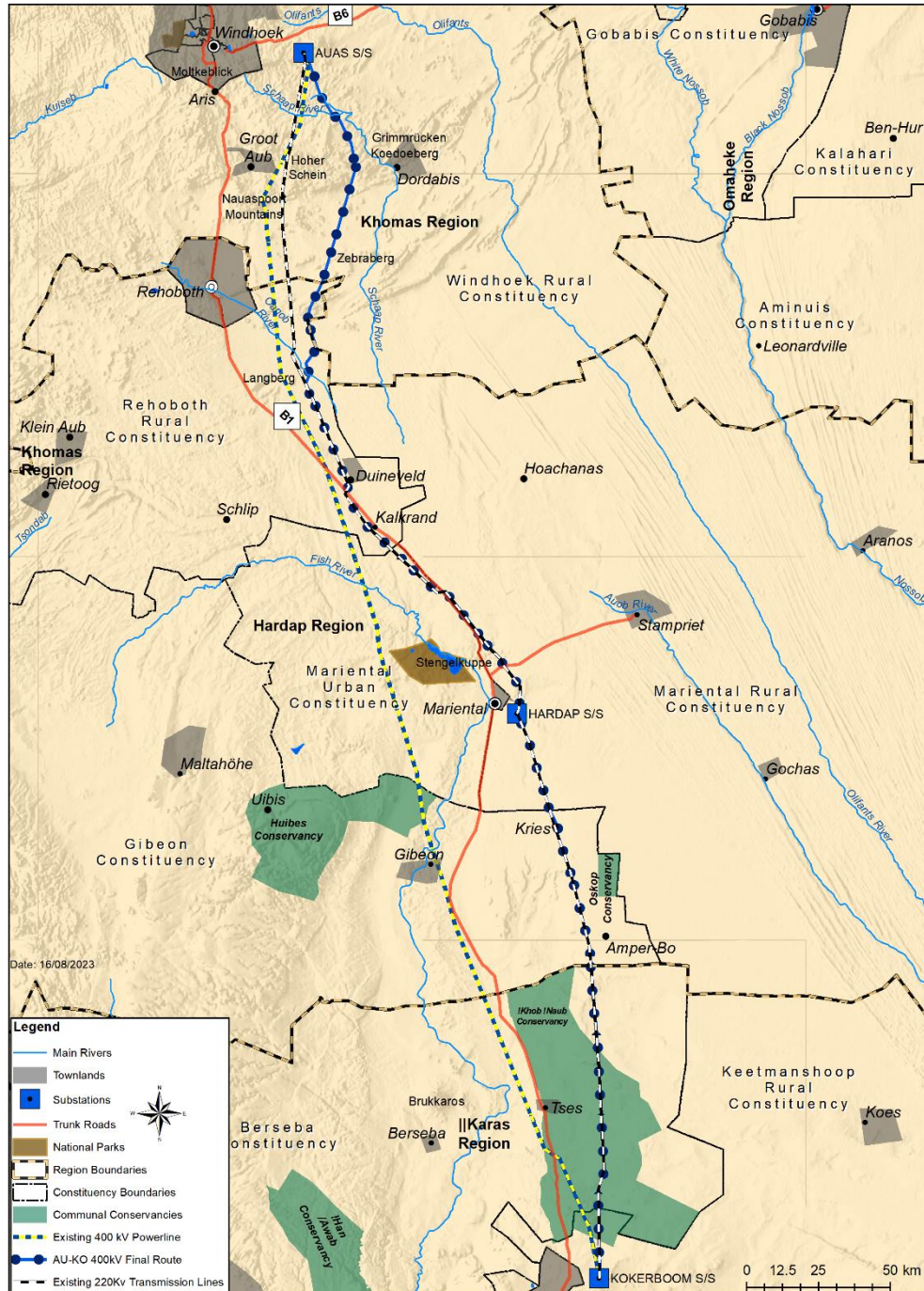


Figure 1: Locality map of the proposed Auas-Kokerboom 400kV transmission line

NamPower is seeking funding from the World Bank for the construction of the transmission line, which will have the following components:

- The new Awas-Kokerboom 400kV Transmission Line, with associated infrastructure at both substations such as switchgear and reactors.
- A Battery Energy Storage System (BESS) to be installed at Lithops Substation, that will enable NamPower to store energy generated by, amongst other, renewable sources such as solar or wind energy to allow utilisation of such energy when these resources are not available, such as after sunset.

The World Bank requires of its Borrowers to fulfil the requirements of the Environmental and Social Framework (ESF). The Framework sets out the Environmental and Social Standards (ESS) to be complied with on all projects funded by the World Bank.¹

Environmental and Social Standard 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement of the World Bank's ESS, is being applied to the transmission line project in this report, and information is provided of the outcome and recommendations to comply with this Standard.

ESS 5 "recognizes that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons. Project-related land acquisition or restrictions on land use may cause physical displacement (relocation, loss of residential land or loss of shelter), economic displacement (loss of land, assets or access to assets, leading to loss of income sources or other means of livelihood), or both. The term "involuntary resettlement" refers to these impacts. Resettlement is considered involuntary when affected persons or communities do not have the right to refuse land acquisition or restrictions on land use that result in displacement. "

2 DESCRIPTION OF THE PROJECT

2.1 PROJECT SERVITUDE

The proposed route of the project follows an existing 220kV transmission line for most of the route. The need for land acquisition and impacts on land use, livelihoods and assets has been avoided by:

- 1) Aligning the route parallel to an existing line
- 2) Adjusting the servitude to avoid any homesteads or other structures, as well as vistas that are important to farm owners where this was possible.

¹<https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards>

The servitude dimensions will be as follows:

The entire length of the proposed transmission lines is estimated to be 461 km. The servitude will be 80 m wide for the entire line an estimated 12 m width needs to be totally cleared of vegetation and obstacles to create a service road **(Figure 2)**, to provide access (during construction and maintenance) to the line throughout its lifespan of 30 years.

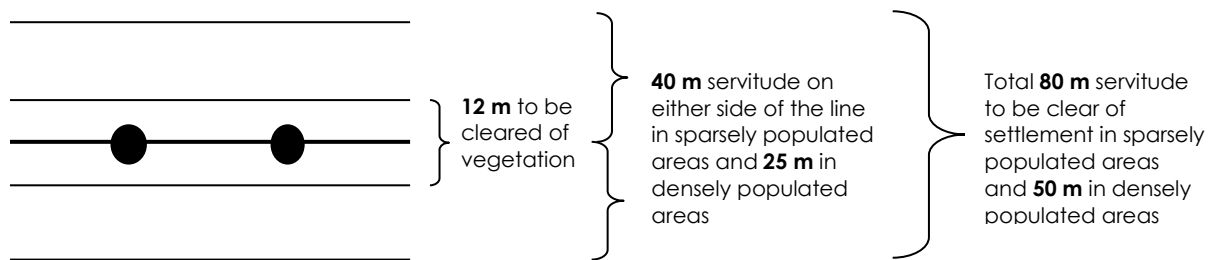


Figure 2: Servitude details for the proposed transmission line

Since the line will run parallel to an existing power line to the south, the servitude width there including the existing line will be 111 m in total, consisting of a minimum distance of 46 m between the two lines. There will be a 40 m servitude outside the centre line of the 400 kV line, and 25 m outside the centre line of the existing 220 kV line. NamPower has historically compensated the farm owners for the land restrictions imposed as a result of the existing 200 kV transmission line.

For safety and technical reasons, no permanent structures other than the towers are allowed within the servitude. Grazing and cultivation of fields with associated farming activities may be accommodated within this area, except for the 12 m strip, which is needed during construction.

2.2 ALTERNATIVE PROJECT SERVITUDE CONSIDERED

It is best practice to align the servitude along an existing one, in order to avoid land sterilisation, habitat impact, etc. An alternative route (western route) was considered along an existing 440 kV transmission line running to the west of this current servitude **(Figure 1)**. This alternative route affects some 5% more land than the current eastern one. However, NamPower wishes to avoid crossings of high voltage lines. Such anticipated crossings, as well as two 400 kV lines adjoining each other, constitute significant technical risks of power failure. Since the social impact, as explained below, is considered low, the technical reasons for preferring the current route is supported.

3 PROJECT IMPACTS

3.1 AFFECTED PROJECT AREA

The proposed transmission line traverses three (3) regions (namely Khomas, Hardap and //Karas). Khomas Region is centrally located and landlocked; it has a population density of 9.3 people per km². Hardap has a low population density of 0.7 people per km². The //Karas Region is the most southern and largest region in Namibia, with an area of 161,215km²; it is the least densely populated of Namibia's 14 regions with only 0.5 people per km². The line passes through 6 constituencies, the majority of which are rural (see **Table 1**).

Table 1 Proposed Project affected areas (north to south)

Indirectly Affected Area					Directly Affected Area
Country	Region	Constituency	Closest Settlement	Town/	Farms
Namibia	Khomas	Windhoek Rural	Dordabis		101 Farms
	Hardap	Mariental Rural	Mariental (Mariental Urban)		
		Mariental Urban	Mariental		
		Rehoboth Rural	Duineveld, Kalkrand		
		Gibeon	Kries, Gibeon, Amper-Bo		
	//Karas	Berseba	Tses		
		Keetmanshoop Rural	Keetmanshoop		

There are two types of farms affected, namely commercial and communal. The commercial farms are privately owned, by one owner, sometimes a legal entity owned by more than one person. The commercial farms are used mostly for livestock farming and the areas affected by the servitude used for grazing. There are isolated cases with tourism/hunting facilities.

There are also commercial farms owned by the Government of Namibia. They are mostly leased on a 99-year agreement basis to the occupants. These farms are mostly used for subsistence purposes, which is livestock farming with cattle, goats and sheep. There are often multiple lessees on one farm, and sub-letting is also occurring. Data is often deficient and it is difficult or impossible to contact these lessees, because they change often and are not always formally registered.

The communal farms in the study area are also used for livestock farming, but owned by the Government. There is also a large conservancy in the south of the study area (!Khob !Naub Conservancy Figure 1), which is registered in terms of the Parks and Wildlife Management Act. This area has livestock farming, as well as limited hunting activities managed by a committee consisting of community members elected for this purpose.

The formal registered farms in the study area are relatively large and vary from approximately 4000-6700Ha, on average. One Government farm in the South of the area is much larger, with some small settlements on it, all unaffected by the project.

4 IMPACTS ON PROJECT AFFECTED FARMS

As for land restriction, the 80m wide strip of land will be required for the servitude, of which 12m will be completely stripped of vegetation. The grass, however, will grow back and can be used for grazing. The servitude will remain the property of the land owners, but no structures may be constructed within the servitude. Considering the relatively large size of the farms, compared to the narrow servitude required for the transmission line, the impact in terms of land use restrictions is considered low. Since most of the farms are being used for grazing, land use may continue mostly undisturbed.

The impacts with respect to land use may be summarised as follows:

- ***There is no involuntary or voluntary resettlement in the form of peopeling being displaced on the project. There are no permanent structures of any of the land owners or occupants affected.***
- **Land use restriction** as a result of easement for the project: negligible, with some disturbance and reduced grazing during construction.
- **Loss of livelihoods** as a result of the project: negligible, subsistence and commercial farming can continue undisturbed.
- **Visual impact** affecting livelihood of tourism: low impact overall, but moderate impact on limited number of farms. There is already one or more transmission lines on some of the farms and if the farms are used for tourism, farm owners sometimes feel that the transmission lines have a visual impact, affecting their visual resource used for tourism.
- **Cumulative impact** due to more than one transmission line traversing their land: Due to the large area on most of the farms, this impact is still considered low, although there are isolated cases when the farm owners have submitted their concern in this regard.

5 LEGAL FRAMEWORK FOR ADDRESSING COMPENSATION

5.1 ELECTRICITY ACT (4 OF 2007)

Section 35 of the Electricity Act makes provision for the expropriation of land for the purposes of providing electricity, on condition that there was a process of consultation and a reasonable attempt to acquire the rights for the project. Such a reasonable attempt involves the process of fair compensation for the right to use the land for the transmission line.

NamPower does not currently have an approved, formal policy for dealing with easement and compensation cases, but it does have a standard compensation protocol, which is also used for this current project and is as described below.

A compensation policy is currently being considered by the NamPower Board in this regard. The consultant did not have access to the draft policy, since it is under consideration.

5.2 CURRENT EASEMENT PROCESS

When NamPower intends to develop a new transmission line, the most suitable route is contemplated from available cartography. In the development of such a route, the design team attempts to find an optimal route regarding the needs of all parties. The most direct route is often preferable, but topography such as mountains and rivers may necessitate bend points. Once such an optimal route is selected, landowners are approached in order to negotiate wayleaves over the route.

In these negotiations, NamPower aims to find a mutually beneficial agreement with the landowner. The current as well as future land use on the property is considered, and often the line route is deviated to incorporate the comments received from landowners. On commercial farms, land uses such as livestock farming and game farming as well as tourism is often considered. Especially in the latter, NamPower takes cognizance of the fact that transmission lines have a visual impact. The line route is often deviated in order to minimize the impact on the landowner, and if an agreement is then reached, a wayleave is signed. The landowner is then paid a compensation based on the fair value of land. The wayleave does not expropriate the property from the landowner, but provides NamPower with the right to build, operate and maintain a transmission line within the area described in the wayleave (see Appendix A). The landowner's rights in terms of the wayleave is limited only to the extent that no permanent structures may be placed in the wayleave area.

In the event that no agreement is reached, an alternative route is considered to avoid the property of the landowner, and route changes are negotiated with neighbouring landowners. In the event where no agreement can be reached, and NamPower has no alternatives for route deviation, the Electricity Act allows for the land to be expropriated, against a fair compensation. In this event, the land portion would become the property of NamPower (Section 5.1 above). To date, this measure has not yet been used.

The wayleave form used for the compensation process is attached as Appendix A. This wayleave is to be confirmed once the line is built and the exact portion of land has been determined. A formal servitude is not registered over the farm, there is only an agreement of this nature between NamPower and the landowner. In case of Government farms, the applicable ministry is paid the easement compensation.

The easement compensation is calculated according to the valuation of the Ministry of Lands, Water and Land Reform. Nampower provides an additional incentive of N\$ 500.00 per Ha over and above the Government valuation. In the case of the current valuation example in Appendix A, it would be N\$ 200.00 (Government valuation) + N\$ 500.00 (Nampower incentive) = N\$ 700.00/Ha as a once-off payment.

5.3 PROGRESS ON THIS PROJECT REGARDING WAYLEAVES

There are 101 farms affected in total (based on the current route however subject to change depending on diversions), of which:

- a) Thirty owners have signed the wayleave agreement. Of these, 5 owners have been paid compensation, 3 owners' payment is in process, and 1 servitude has been registered.
- b) Thirty six owners are in the engagement process, in preparation of the wayleave agreement. Of these, 26 are Government farms, and 10 servitude agreements are with the land occupants waiting for confirmation.
- c) One owner is not willing to sign.
- d) The information of eight farms are in the process of being gathered/researched.
- e) Twenty-six farm owners are yet to be approached.

Appendix A is an example of a wayleave form that has been signed on this project.

5.4 STAKEHOLDER ENGAGEMENT

The full stakeholder engagement process of this project is documented in the Stakeholder Engagement Report for this ESIA. Each individual farm owner is approached directly and personally as part of the waybill process, by Nampower. Besides this, the environmental and social consultants who have been involved on the project have, since 2016, provided several opportunities for farm owners to voice their concerns. In 2016 there were 7 regional meetings as well as local consultations with farm owners. During 2020, farm owners with concerns were personally consulted and public meetings were held in Windhoek and Rehoboth. Overall, land owners have been in agreement with the proposed transmission line. There are individual cases where farm owners had concerns and these have mostly been addressed by rerouting the line to avoid sensitivities, including homesteads,

vistas, a grave yard and a vulture breeding area. There remain isolated cases of farm owners (at the time of the report and to the knowledge of the consultant, two cases) who are dissatisfied with the cumulative effect of more than one line traversing their land.

6 GAPS IDENTIFIED IN COMPENSATION PROCESS AND RECOMMENDATIONS

6.1 POLICY

It is important that NamPower has a policy for dealing with land compensation on their transmission line projects and it is therefore supported that such a policy has been drafted and is currently being circulated for approval. Compensation and negotiation strategies need to be fair and consistent. A policy also needs to be disclosed to the land owners involved and used as backing by those doing the actual negotiations. This current evaluation cannot include a scrutiny of this policy, since it has been not disclosed and is therefore acknowledged as a limitation. However, it is assumed that the policy is a formalisation of the current procedure used, as explained in Section 5.2.

6.2 EVALUATION OF THE CURRENT PROCEDURE

The impact assessment outcome is that the effects of the land restrictions for the transmission line is generally low, since the land to be utilised is mostly grazing land, with the exception of limited impact on tourism and hunting activities due to vistas being affected. The hunting activities of the !Khob !Naub conservancy are not affected to any measurable extent. Grazing access on the servitude will continue and livelihoods therefore unaffected. Even though the land is restricted for the erection of physical structures, the farms are large, with ample space remaining and this impact is therefore negligible.

It is confirmed that NamPower has done their best to avoid impacts and to accommodate farm owners. Avoidance of impacts has been carried out successfully.

As far as the compensation for the mentioned land restriction (i.e. no structures to be erected) goes, the use of the Government evaluation of farmlands is considered fair and consistent. The adding by Nampower of a further incentive is considered generous and this is applied consistently. The *replacement cost principle* is therefore generously met.

The only matter which remains unresolved is the isolated cases where NamPower could not avoid impacts mentioned. It is recommended that the policy includes a hierarchy of criteria for compensating such cases, which provides for the land owner's loss in a consistent way, and facilitates smooth implementation for Nampower, avoiding the red tape of expropriation, as follows:

1. An additional rate per Ha added when there are cumulative high voltage lines crossing a farm

2. A rate per Ha added when the land owner's income is affected directly or indirectly by the transmission line, for instance the existence or proven planned lodge which could not be avoided.
3. A mandate provided to the negotiator for cases where the land owner requests an alternative form of assistance instead of the cash compensation, for instance the moving of an existing power line, or the grading of a road by the Contractor, which is reasonably equal in value to the cash compensation.

These are provided as a basis for further discussion and refinement.

It is also proposed that NamPower determines a cut-off date for those persons which cannot be reached beyond best efforts and that the funds for this compensation be kept in a fund for another grace period.

6.3 EVALUATION OF THE WAYLEAVE FORM

It is proposed that the current standard wayleave form be updated to include a more detailed diagram of the power line servitude, with coordinates, and entered into the Nampower system on GIS. The standard wording should also be updated to reflect the outcome of the policy that is to be approved.

6.4 CAPACITY AVALUATION

NamPower has proven capacity to implement the compensation process to the satisfaction of the World Bank. One qualified position is available for the compensation process and this position is currently filled. Nampower should evaluate the capacity to include the diagrams on their GIS system.

6.5 SUMMARY OF RECOMMENDATIONS

- 6.5.1 That the NamPower Policy for Land Compensation for Transmission Line Servitudes be finalised as a matter of urgency.
- 6.5.2 That additional criteria be considered for compensation as discussed in Section 6.2
- 6.5.3 That a cut-off date be formalised for the payment of compensation which will apply beyond best efforts to reach eligible land owners.
- 6.5.4 That NamPower update the current standard wayleave form to reflect the contents of the Land Acquisition Policy when approved.
- 6.5.5 That NamPower improve the current content of the Diagrams attached to the wayleave forms, to include coordinates and that the data be entered into the current GIS system.

7 EASEMENT BUDGET

The total land required for the project, that will be restricted in terms of land use, is 3728 Ha. At N\$ 700,00/Ha, this constitutes a total budget of N\$ 2,609,600. This does not include an amount as additional compensation for cumulative impact, should this be approved.

APPENDIX A: WAYLEAVE EXAMPLE

1406-Kokerboom 1406/II



email: hooftstraatmotors @1way-nam.Simon
64 0218 00069

63

I/WE, the undersigned ERNST ARTHUR SIMON
(full names of owner or representative, when CC or Company)

herein representing MYSELF
(full names of CC or Company)

of P.O. Box 619 MARIENTAL

Telephone 0811270816 063-240391

(hereinafter called the "registered Owner/s"),
being the registered Owner/s of PORTION 4 (ENCLOSING) 1406/II REG. A. R.
(farm name, number & district)

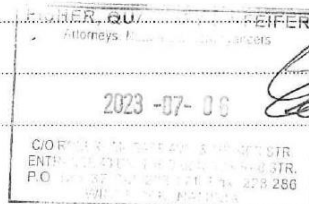
and I/WE, the undersigned

being the Usufructuary/ies of the said property of

P.O. Box

Telephone No.

do hereby give and grant to



NAMIBIA POWER CORPORATION (PTY) LTD
Coy No. 2051

(hereinafter referred to as "NamPower") or its assigns the option to acquire from me/us the right in perpetuity or itself, its successors, assigns, licensees or agents and any wholly owned subsidiary of NamPower, to convey electricity and to relay for commercial purposes a communications and/or telecommunications network via fibre optic lines or any other communication lines, across the property aforesaid by means of wires mounted on poles or structures along line/s of route as hereinafter provided and/or by means of cables or other appliances laid underground along the said line/s of route, together with the right to enter upon the said property and to carry out thereon all works as may be necessary or convenient for the purpose of conveying electricity and telecommunications with the right to erect, use maintain, repair, relay, alter, inspect and remove all poles, towers, standards, wires, cables, pipes, stays, struts, and all other appliances necessary or incidental to the conveyance of electricity, communications and/or telecommunications. If NamPower desires to do so NamPower shall have the right to protect any overhead line by means of guard netting or other protective devices.

If the said option be exercised, a Notarial Agreement shall be entered into between NamPower and me/us granting the rights above referred to and embodying the following conditions:-

1. That NamPower shall pay compensation for all damage caused by it, its contractors and agents, and its or their servants on the said property done while erecting, laying, altering, repairing or removing any poles, towers, standards, wires, cables, pipes and other appliances used for telecommunication purposes and the conveyance of electricity and also for injury to persons or damage to property caused directly or indirectly by the presence or the use of the said equipment and/or appliances and not due to the wrongful act or neglect of such persons or the Owner or other person responsible for such property.

2. NamPower by means of its agents, servants, contractors or workmen with all necessary animals and vehicles shall have such right of ingress to and egress from the said Property as may be necessary or convenient to enable NamPower to exercise all or any of the rights conferred on NamPower and NamPower shall be entitled to erect such gates as may be necessary to enable it to obtain reasonable right of access. Access, where feasible, depending on the terrain, shall be on the servitude route. The said gates shall be maintained and locked by NamPower.
3. No buildings or other erections shall be constructed or allowed to be constructed by anybody on any portion of the land over or under which any line or cable for the conveyance of electricity has been erected or laid nor within a distance of 4.0 metre/s calculated from the centre line of any overhead line or 2 (two) metres from the route of any underground cable and no materials shall be placed in such close proximity to any line or cable as might in the opinion of NamPower endanger the safety of any line or cable, but this restriction shall not apply beyond the distance of 4.0 metre/s aforesaid. Trees in proximity to any overhead wires shall be limited in height to their horizontal distance from the said wires or otherwise be dealt with in such manner as to prevent interference with the said wires in the event of the trees falling or being cut down. Should the registered Owner or the lessee or occupier of the said property fail to observe the provisions of this Clause then NamPower shall have the right to trim and cut the said trees after giving prior notification to the registered Owner and shall be entitled to enter upon the said property for the said purpose.
4. All poles, towers and standards to be erected by NamPower shall as far as possible be placed where the registered Owner/s may desire on the agreed route provided that hereby the cost of the line shall not be increased thereby, and NamPower shall have regard to the wishes of the registered Owner/s in regard to carrying out of the works so that as little damage as possible shall be caused. Should an underground cable be laid by NamPower the said cable shall be laid at such depth beneath the surface of the ground as will not prevent the surface of the ground being used for agricultural purposes, but except for such purposes nobody but NamPower shall disturb the ground above or around such underground cable.

The option to acquire the said rights may be exercised by NamPower at any time within 1 (one) year from the date hereof by notice in writing to me/us delivered to me/us or left at the said property or sent by registered letter addressed to me/us at such property or at the aforementioned postal address/es.

The line/s of route hereinbefore referred to shall be the line/s of route indicated on page 2 hereof and may be more particularly described and set out in the said Notarial Agreement.

Permission is granted for the removal of natural bush.

The Notarial Agreement aforesaid shall be registered against the Title Deeds of the said property, and I/we undertake when called upon by NamPower or its representative to do so to hand over the Title Deeds and Diagrams relating to the said property and to assist NamPower in obtaining such other documents and/or consents as may be necessary to enable NamPower to register the said Notarial Agreement.

If the said option is exercised the consideration for the rights granted to NamPower and to be set out in the said Notarial Agreement shall be the sum of N\$ 31 360.00 (.....).

The option hereby granted shall be binding on me/us my/our heirs, assigns and successors in title to the said property.

The cost of the said Notarial Agreement and the registration thereof against the Title Deeds including the cost of obtaining approved Servitudinal Diagrams (if any) shall be borne by NamPower.

SIGNED at Morueba on 27 JUNE 2023

AS WITNESSES:

1. [Signature] [Signature]
Registered owner

2. _____
Registered owner (husband/wife)

SIGNED at _____ on _____ 20 _____

AS WITNESSES:

1. _____

2. _____
Usufructuary

Goodwill = N\$ 500.00.

STOWN = 44,80 HA @ N\$ 700.00 / ha

= N\$ 31 360.00
500
660

Total = N\$ 31 860.00

prime press 032018

POLICY STATEMENT



SAFETY, HEALTH, ENVIRONMENT & QUALITY (SHEQ) MANAGEMENT SYSTEM

NamPower's Mandate is to generate, transmit and trade in electricity and, to a limited extent, distribute electricity as expressed in the licences it holds under the Electricity Act 4 of 2007.

In line with its mandate, NamPower regards its stakeholders as important and pledges to provide a safe and healthy work environment in order to ensure the well-being of stakeholders, protect the environment and reduce pollution while ensuring customer satisfaction in fulfilling our Vision, Mission and Objectives.

To demonstrate conformance to the Safety, Health, Environment & Quality (SHEQ) Management System, in line with ISO 9001:2015, ISO 14001:2015, ISO 55001:2014 and ISO 45001:2018, NamPower commits to:

- Ensure compliance in all operations in accordance with applicable legal and other requirements;
- Develop, implement, maintain and continually improve Safety, Occupational Health, Environmental, Wellness and Quality Management Systems;
- Ensure reliable assets by implementing the Asset Management System;
- Proactively identify, evaluate and mitigate environmental aspects and impacts, as well as hazards and risks associated with operations and activities;

- Continuously monitor, measure, analyse and evaluate the effectiveness of the SHEQ Management System; and
- Use the SHEQ Policy Statement as a framework to set business and operational objectives and targets.

NamPower Stakeholder's Accountability:

Stakeholders, including all employees, shall commit and adhere to this policy statement by:

- Attending SHEQ Management System programmes as and when required.
- Taking responsibility and accountability for their own health and safety, as well as that of others in the workplace.
- Identifying and reporting potential hazards, environmental aspects, impacts and risks to the relevant NamPower representatives.
- Protecting the environment in which NamPower operates.
- Adhering to SHEQ Management System requirements, policies, standards and applicable legal and other requirements.

This policy statement is communicated, understood and made available to all relevant stakeholders.

This policy statement shall be reviewed every five years or as and when required.

MANAGING DIRECTOR



DATE

Nov
2023

Environmental and Social Management Plan for the Proposed 400 kV Transmission Line from Auas to Kokerboom Substation

LABOUR MANAGEMENT PROCEDURES



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PROJECT NAME	Proposed 400kV Transmission line from Kokerboom to Auas Substations ESIA and ESMP
REPORT	ESMP LABOUR MANAGEMENT PRPCEDURES
STAGE OF REPORT	Final
CLIENT	NamPower Attention: Martin van der Merwe
LEAD CONSULTANT	Enviro Dynamics Enquiries: Stephanie van Zyl Tel: 264 81 1287002 E-Mail: stephanie@envirod.com
DATE OF RELEASE	17 November 2023
CONTRIBUTORS TO THE REPORT	Authors: Norman van Zyl Reviewed: Stephanie van Zyl



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GLOSSARY

BESS	Battery Energy Storage System
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ILO	International Labour Organisation
kV	Kilo Volt
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment

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1 INTRODUCTION

NamPower intends constructing a 400kV power line from the Kokerboom Substation near Keetmanshoop to the Auas Substation near Dordabis, Namibia. The line will assist in securing the supply of electricity to Namibia in future and open up opportunities for selling power to the Southern African Power Pool.

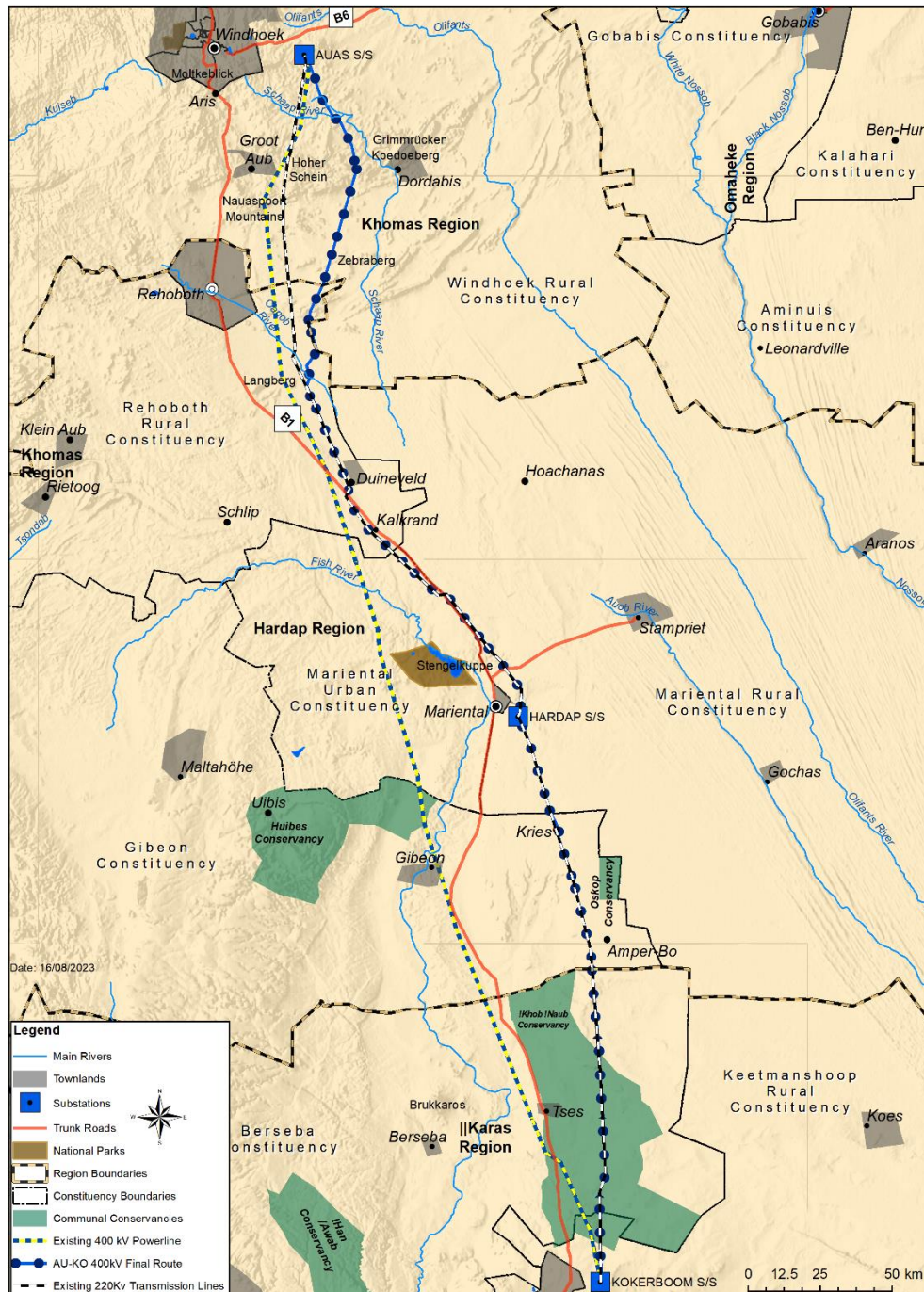


Figure 1: Locality map - proposed Awas-Kokerboom 400kV transmission line

NamPower is seeking funding from the World Bank for the construction of the transmission line, which will have the following components:

- The new Awas-Kokerboom 400kV Transmission Line, with associated infrastructure at both substations such as switchgear and reactors.
- A Battery Energy Storage System (BESS) to be installed at Awas Substation, that will enable NamPower to store energy generated by, amongst other, renewable sources such as solar or wind energy to allow utilisation of such energy when these resources are not available, such as after sunset.

The World Bank requires of its Borrowers to fulfil the requirements of the Environmental and Social Framework (ESF). The Framework sets out the Environmental and Social Standards (ESS) to be complied with on all projects funded by the World Bank.¹

Environmental and Social Standard 2: Labour and Working Conditions of the World Bank's ESF, is being applied to the transmission line project in this report, and information is provided of the outcome and recommendations to comply with this Standard.

"ESS2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions."

2 OVERVIEW OF LABOUR USE ON THE PROJECT

Employment opportunities on this project are limited. The construction of transmission lines is a specialised operation, which will be managed by a local or foreign contractor who will bring specialist foreign and Namibian staff from areas outside the project area.

Number of project workers: About 150 people will be employed during construction of a section of line, of which approximately 10 people will be of management and supervisory capacity. The remainder will be artisan and skilled labour, with a smaller component of unskilled labour in support of the skilled labour.

Characteristics of Project Workers: The management / supervisory team will be degree level qualified personnel with high levels of project construction management and technical specialist skills required to successfully manage and complete the project. If the contractor is an international company most of this

¹<https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-standards>

team may comprise of international migrant professionals. If the contractor is Namibian, the team will likely consist of Namibian professionals.

They are supported by a team of electrical and civil engineering technicians, foremen and artisans required for the execution of the project activities. If the contractor is an international company at least some of this team may comprise of international migrant professionals. If the contractor is Namibian, the team will likely consist of Namibian professionals.

The only activities for which the contractors most likely use local unskilled labour is for the de-bushing process of the transmission line route (de-bushing will be done mostly with machines, but may be supplemented with manual labour), for assisting with the digging of the foundations, and unskilled administrative tasks such as assisting with the arrangement, storing, assembling, placement and relocation of the project materials, small equipment and camp maintenance. Unskilled labour will only be from Namibia and a locals first policy enforced on the contractor will ensure that local applicants receive preference to avoid internal migration in Namibia or any of its regions.

The maintenance of the new transmission line is likely to be done by existing NamPower staff, therefore, no employment creation is expected during operation. If an agreement can be reached between NamPower and the local authorities, the vegetation maintenance of the cleared portion of the servitude could serve as an employment opportunity.

Timing of Labour Requirements: The project schedule will demand that all the work packages are implemented in parallel. This means multiple specialist teams will function along the route as they are assigned to each work package. The full complement of the project labour will therefore be utilised within the first quarter of the project until the last quarter of the project.

Local unskilled labour of likely up to 50 people will rotate through the project activity locality to comply with the locals first employment policy.

Contracted workers: The project is not complex enough to require multiple specialist sub-contractors under the main contractor.

The bush clearing may be sub-contracted to local sub-contractors with the necessary skills and equipment, for economic reasons. This kind of sub-contract is most likely to make use of unskilled labour (of up to 25 people at a time) and needs to be aware of and implement the locals first policy effectively.

Highly specialised electrical sub-contractors may be employed at the sub-station work packages. Such employees will be small teams of (five or less) highly skilled professionals that are permanently employed or secured via long-term preferential contracts by the specialist sub-contractor.

The main body of employees of the main contractor (approx. 100 people) will be permanent employees.

Migrant workers: It is not likely that international migrant work will take place on the project. International workers on the project can only be highly skilled and not in demand on a permanent basis in Namibia.

The risk of national migration due to unskilled work opportunities is always prevalent, unless it is managed by a locals first employment policy on the contract, which will eliminate work opportunities attracting migrants from other Namibian regions.

Construction camps and work force accommodation: There will be two base camps and approximately eight satellite camps distributed over the area. The based camps will store most of the materials and will be the administrative centres for the construction project. It is anticipated that there will be approximately 30 workers per satellite camp, however it is not anticipated that these camps will be all occupied at one given time. Guidelines for camp establishment and workforce accommodation is included in the ESMP.

3 ASSESSMENT OF KEY POTENTIAL LABOUR RISKS

PROJECT ACTIVITIES

The construction of a 400kV transmission line consist of:

- Vegetation clearance of 12m wide under the line and 70m by 50m at each tower
- Concrete pylon foundations, with concrete mixing on or near the pylon sites.
- V type Cross rope suspension steel pylon (guyed V-Structure) with a height 40m and span of up to 500m between pylons.
- Self-supporting suspension steel pylons for bends up to 30° and strain pylons for bends up to 60°.
- Pylons materials are transported to site and then assembled on site.
- Stringing of the line and
- Infrastructure to connect to the existing Avas and Kokerboom substations.
- Base and satellite camp operations and support activities.

DESCRIPTION

A general potential risk on construction projects is the exploitation of the workforce lacking the protection of their rights. Not giving attention to these matters on a project may lead to compromised relations, worker dissatisfaction, and unresolved grievances. By applying the Namibian Labour Act (11/2007), Regulations relating to the Health and Safety of employees at work (1992), combined with specific provisions of the World Bank ESS 2 and its Guidance Notes and World Bank as well as World Bank EHS Guidelines, in the construction contracts, and managing the contracts to ensure compliance, these risks are reduced to a low significance.

RISKS

The following specific risks with regard to labour can be distinguished:

- Health and safety risks, particularly exposure to heat and cold conditions, working near construction equipment, working at heights, and working near live wires. The requirements of the ESMP, which comply with ESS 2 and its Guidance Notes and World Bank as well as World Bank EHS Guidelines will limit these risks to low significance.
- Potential incidents of child labour or forced labour. Worst forms of child labour in Namibia occur in the agricultural, fishing and services (domestic work and street work, including begging as well as food service, including selling fruits, phone vouchers, and small goods) sectors. Child labor on this project, where most project activity is remote from general population centres and where a formal contractor is expected to comply with Government Regulations, is not expected to be a significant risk. Regular monitoring should be done on the project to check that all workers are 18 years of age or above. Legal requirements in this regard are provided in this Labour Management Procedures (LMP).
- Likely presence of migrants or seasonal workers. The project has a duration of 36 months, therefore a seasonal workforce is a low risk. However, a limited amount of migrant workers (workers employed for a limited period) could be employed by the contractor if not managed. Therefore, a locals first employment policy, involving the regional councils, for unskilled labour on contractor and sub-contractor level should be enforced through the contract.
- Risks of labour influx. Labour influx is expected to be limited, since people in search of job opportunities will normally move to large cities or to projects where the prospect of a job is considered good, unlike this project, which employs a low number of people and has a short duration. The proposed locals first employment policy, involving the regional councils, for unskilled labour on contractor and sub-contractor level will further limit the risk to low.
- Risks of gender-based violence. Gender based violence is a risk in any situation in Namibia where both males and females will be working together for a period, especially when male and female labourers are accommodated for prolonged periods of time. Since expected employment figures are low, this risk is similarly low. Mitigation recommended include employing labourers from the local area where the work is conducted, divulging workers' rights to them and ensuring an accessible a grievance mechanism on the project. These are including in the LMP.

MITIGATION

The Namibian Labor, and Health and Safety Regulations (1997) should be applied, combined with the World Bank Standards (ESS 2: Labour and Working Conditions), and World Bank EHS Guidelines which aim:

- To promote safety and health at work.
- To promote the fair treatment, non-discrimination and equal opportunity of project workers.
- To protect project workers, including vulnerable workers such as women, persons with disabilities, children of working age, including those directly employed and contracted workers.
- To prevent the use of all forms of forced labor and child labor.
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.
- To provide project workers with accessible means to raise workplace concerns. This is achieved through the requirement of an appropriate grievance mechanism put in place for the workforce, which is operational and accessible.

4 LEGAL FRAMEWORK ADDRESSING LABOUR TERMS AND CONDITIONS

Table 1: Labour related terms and conditions

Legal Instrument	Purpose and functions	Actions on project
Labour Act 11 of 2007	<p>Details requirements regarding minimum wage and working conditions (S39-47). <i>Fundamental Rights and Protections; Prohibition and restrictions of child labour; Prohibition of forced labour; Prohibition of discrimination and sexual harassment in employment; Freedom of Association</i></p> <p>Chapter 3: Basic Conditions of employment <i>Remuneration; Hours of Work; Leave; Accommodation; Termination of employment</i></p> <p>Chapter 4: Health, safety, and welfare of employees <i>Rights and duties of employers and employees; Health and Safety Representatives and Committees</i></p> <p>Chapter 5: Unfair labour practices <i>Unfair disciplinary action; Employee and Trade Union unfair labour practices; Employer and Employers organization unfair labour practices</i></p>	NamPower should ensure that all contractors involved in the construction of the services infrastructure for this project comply with the provisions of these legal instruments or reported for relevant contraventions if it persists.
Convention on the Rights of the Child, African Charter on the Rights and Welfare of the Child, International Labour Organisation (ILO), Protocol to the Convention against Transnational Organised Crime to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children.	The ILO Conventions cover a wide area of social and labour issues including basic human rights, minimum wages, industrial relations, employment policy, social dialogue, social security and other issues. ILO Conventions concerning gender-specific issues have a long history. The other conventions listed deal with protection against child labour, trafficking, protection of rights of the vulnerable.	Project specifications need to reflect these principles concerning labour, child and womens' rights in the workplace.

World Bank Environmental and Social Framework	<p>Specifically ESS 2 (2016) and the relevant Guidance Notes (2018)</p> <p>To protect and conserve biodiversity and habitats.</p> <p>To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.</p> <p>To promote the sustainable management of living natural resources.</p> <p>To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.</p>	
Word Bank Group - Good Practice Notes	<p>Managing the risks of adverse impacts on communities temporary induced labour influx. The impact is expected to be low and can be managed through ESMP requirements.</p> <p>Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works. The risk of SEA/SH is limited, but the impact if realised is high. The ESMP provides for deliberate avoidance measures during construction and include guards against gender violence.</p>	

5 LEGAL FRAMEWORK ADDRESSING OCCUPATIONAL HEALTH AND SAFETY

Table 2: Occupational Health and safety terms and conditions

Legal Instrument	Purpose and functions	Actions on project
Health and Safety Regulations GN 156/1997 (GG 1617) as part of the Labour Act 11 of 2007	Rights and Duties of Employers with regard to employees' health & safety; Welfare and facilities at workplaces; Safety of Machinery; Hazardous Substances; Physical Hazards and general provisions; Medical Examinations and Emergency Arrangements; Construction Safety; Electrical Safety	NamPower should ensure that all contractors involved in the construction of the services infrastructure for this project comply with the provisions of these legal instruments or reported for relevant contraventions if it persists.
Convention on the Rights of the Child, African Charter on the Rights and Welfare of the Child, International Labour Organisation (ILO), Protocol to the Convention against Transnational Organised Crime to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children.	The ILO Conventions cover a wide area of social and labour issues including basic human rights, minimum wages, industrial relations, employment policy, social dialogue, social security and other issues. ILO Conventions concerning gender-specific issues have a long history. The other conventions listed deal with protection against child labour, trafficking, protection of rights of the vulnerable.	Project specifications need to reflect these principles concerning labour, child and womens' rights in the workplace.
World Bank Group - Environmental, Health and Safety Guidelines. - General / for Electric Power Transmission and Distribution.	General Health and Safety Guidelines that is to be read in conjunction with Namibian legislation and policies. Practical best practice should lead the decision making as to the standard followed. Also relevant to <ul style="list-style-type: none"> • Electric and magnetic fields once operational. • Hazardous materials. • Working at height on poles and structures. • Live power lines once operational. 	Best practice should guide all project activities to assure safety of workers and public. The World Bank Group guidelines are to be integrated where it exceeds the minimum Namibian regulations required.

Word Bank Group - Good Practice Notes	<p>Managing the risks of adverse impacts on communities temporary induced labour influx. The impact is expected to be low and can be managed through ESMP requirements.</p> <p>Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing involving Major Civil Works. The risk of SEA/SH is limited, but the impact if realised is high. The ESMP provides for deliberate avoidance measures during construction and include guards against gender violence.</p>	<p>Project specifications need to reflect these principles concerning labour influx prevention as well as sexual exploitation, abuse, or harassment of both employees as well as the general public.</p>
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6 RESPONSIBLE STAFF

NamPower will take ultimate accountability for the labour processes and compliance on the project through the position of the Project Manager. Staff positions for the project are indicated in Figure 2 below.

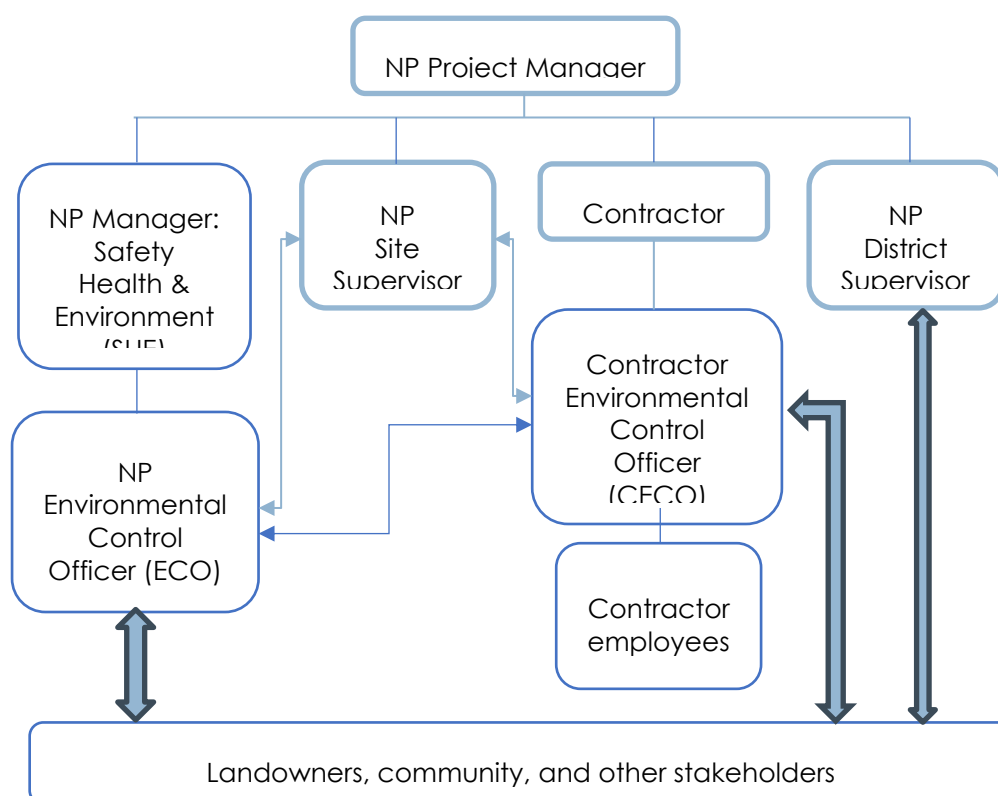


Figure 2: Project reporting structure affecting Labour Management

The NamPower Manager: Health and Safety will provide the necessary support to the Project Manager, through the ECO, to enforce compliance of the Contractor, who will be responsible for all labour requirements according to National and World Bank standards (Figure 2).

The Contractor shall comply with the environmental and social specifications and requirements as described in the Labour Management Procedures on an ongoing basis. The Contractor shall include the necessary training and awareness raising as a constant process on site, including to new staff.

All personnel or sub-contractors required to implement the project will be appointed, managed and supervised by the Main Contractor. The Main Contractor will be responsible for implementing all required labour as well as health and safety practices of the Labour Management Procedures and ESMP.

The Main Contractor will appoint a CECO and Labour Manager or team satisfactory implement the requirements of the Labour Management Procedures and ESMP.

7 POLICIES AND PROCEDURES

The Namibian Labor, and Health and Safety Regulations (1997) should be applied, combined with the World Bank Standards (ESS 2: Labour and Working Conditions), and World Bank EHS Guidelines which aim:

- To promote safety and health at work .
- To promote the fair treatment, non-discrimination and equal opportunity of project workers .
- To protect project workers, including vulnerable workers such as women, persons with disabilities, children of working age, including those directly employed and contracted workers.
- To prevent the use of all forms of forced labour and child labour .
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.
- To provide project workers with accessible means to raise workplace concerns. This is achieved through the requirement of an appropriate grievance mechanism put in place for the workforce, which is operational and accessible.

The project risk assessment (Section 3) identified the risk of migrants or seasonal workers and labour influx (albeit limited) and the risk of gender-based violence as requiring specific action through policies and procedures.

Migrants, seasonal workers and labour influx policy.

Implement a locals first employment policy as per the ESMP as follows:

- Require that the Contractor and it's sub-contractors work through the regional and local councils to request potential workers to be identified.
- The contractor / sub-contractors to list a set of positions and number of people required to be filled with locals.
- The Local and Regional Councils use the list to identify specific locals to be offered the positions. The contractor / sub-contractors may set specific skills required by which each candidate will be considered. Unskilled labour positions will only have physical ability to complete the tasks as a criteria.
- The contractor / sub-contractors will keep records of personnel solicited from local communities.
- The contractor / sub-contractors will keep records proving that personnel not from the local communities are permanent employees of the company before the project start, or require skills that cannot be solicited from the local communities.

Gender-based violence and exploitation prevention policy.

- Contractor / sub-contractors apply the locals first employment policy.
- Contractor / sub-contractors to provide sufficiently separated sleeping and ablution facilities for each gender group employed.
- Contractor / sub-contractors to assure all workers agree in writing to and adhere to the Workers Code of Conduct prescribed in Section 8. Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) should be specifically addressed and the criminal consequences of the contravention emphasised.
- Access to the Labour Grievance Mechanism should be possible privately and in person, or confidentially via relevant shop stewards with each project team, either electronically or by means of a physical copy.

8 AGE OF EMPLOYMENT

The minimum age of a labourer according to the Namibian Labour Act No 11 section 42 is 15 years, for any form of industrial work including transmission of electricity.

In the case of the project, ESS 2 sections 18 and 19 require that children under the age of 18 may not work on a World Bank funded project unless:

- The work is not likely to be dangerous or harmful to the child's health or development,

- Interfere with the child's education
- And a risk assessment is done prior to construction.

Given these conditions it is justified to set the minimum age of any project employee at 18 years or older.

9 TERMS AND CONDITIONS

The Contractor is required to fulfil the conditions of the Labour Act, its Health and Safety Regulations, as well as all relevant requirements and best practices of the ESMP and World Bank Guidelines mentioned in Sections 3 and 4 including:

- If the contractor deems to continue work after the usual working hours, in the evenings and at night or over weekends, they must obtain the NamPower's (Project Manager) and landowner's permission before proceeding with such work.
- The official locals first employment policy, involving the regional councils, for unskilled labour on contractor and sub-contractor level.
- The locations of the worker camps and laydown areas should be identified in consultation with the relevant local authorities and land owners. Agreement should be given by the landowner and all neighbouring landowners in writing.
- Workers Code of Conduct to comprehensively cover, but not be limited to the areas of
 - respecting local residents, their livelihood activities and privacy, right to property,
 - Gender Based Violence, SEA and Sexually Transmitted Disease, including relevant disciplinary measures, penalties and provisions for prosecution, (Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) should be specifically addressed and the criminal consequences of the contravention emphasised.)
 - prohibition of poaching, hunting and any other damage to biodiversity, flora and fauna, specifically in the designated "no go" areas.

10 GRIEVANCE MECHANISM

The project requires an accessible and separate Labour Grievance Mechanism. The instrument is attached in Appendix A.

Access to the Labour Grievance Mechanism should be possible privately and in person, or confidentially via relevant shop stewards with each project team, either electronically or by means of a physical copy.

11 CONTRACTOR MANAGEMENT

For the Contractor, any sub-contractor or service provider to qualify to be appointed for the contract or any sub-section of the contract, the following documentation or proofs must be provided:

- Records of registration according to the Labour Act No 11 and records of previous official contraventions.
- Relevant business registration and licences required in Namibia.
- In-company labour management policies, systems, and procedures documentation.
- Records of qualified or certified labour, health, and safety personnel.
- Records of relevant safety training and certification.
- Accident / fatality and safety violation / response records including official notifications.
- Legally required worker benefits records and payroll records including hours worked and proof of payment received
- Required Labour Act safety committees, members and minutes of meetings.
- Indication of previous work reflecting ESS 2 conditions.

NamPower will include these requirements in its tender documents as a pre-qualifying condition.

NamPower will enforce the continued implementation and compliance to the requirements as a pre-requisite for fulfilment of contractual duty for both the main contractor and sub-contractors. Control methods can include proof of:

- Sample proofs of employment contracts or arrangements.
- Records relating to
 - grievances received and their resolution,
 - safety inspections and incident records,

- Safety, Health and Environmental training and certification records,
- Any government or third-party reviews of non-compliance with the labour laws and regulations.

Worker grievance should follow the procedure in place under Section 9 of the Labour Management Procedures.

12 COMMUNITY WORKERS

No community worker will be used on the project if not formally employed by the contractor.

Any member of the local community to be employed must be solicited through the official locals first employment policy, involving the regional councils.

13 PRIMARY SUPPLY WORKERS

Given conditions set in Section 7 it is justified to set the minimum age of any project employee at 18 years or older. The contractor / sub-contractor will provide proof of the age of all employees by means of a record of a valid Identity document.

Forced labour is a criminal offence in Namibia. Any incident or complaint will be treated confidentially through the Worker Grievance Mechanism and reported to the Namibian police for investigation.

APPENDIX A



PROJECT WORKER GRIEVANCE MECHANISM

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Transmission Line

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Introduction and Background

Grievances Resolution Procedures

NamPower undertakes to foster a constructive working environment for projects and commits to ensuring that the views and rights of both NamPower and its internal and external project stakeholders are collectively respected. The Grievance Resolution Procedures have therefore been instituted to:

afford all project workers the opportunity to submit your grievance to the Project Director/Manager in writing (email or letter); without prejudice to contracts/interests/roles, and ensure a fair, consistent, and diligent worker grievance resolution system.

However in instances of fraud or any impropriety conduct by a NamPower staff member relating to project(s), please be advised that NamPower has a confidential fraud hotline toll free number: 0800 66 999 or E-mail address: nampower@tip-offs.com or Website address: www.tip-offs.com.

Aggrieved project workers may submit written grievances to the Project Director/Manager by email or letter for registration, evaluation, investigation, and resolution. The project team will adopt procedures as illustrated in Figure 3 to amicably resolve logged grievances.

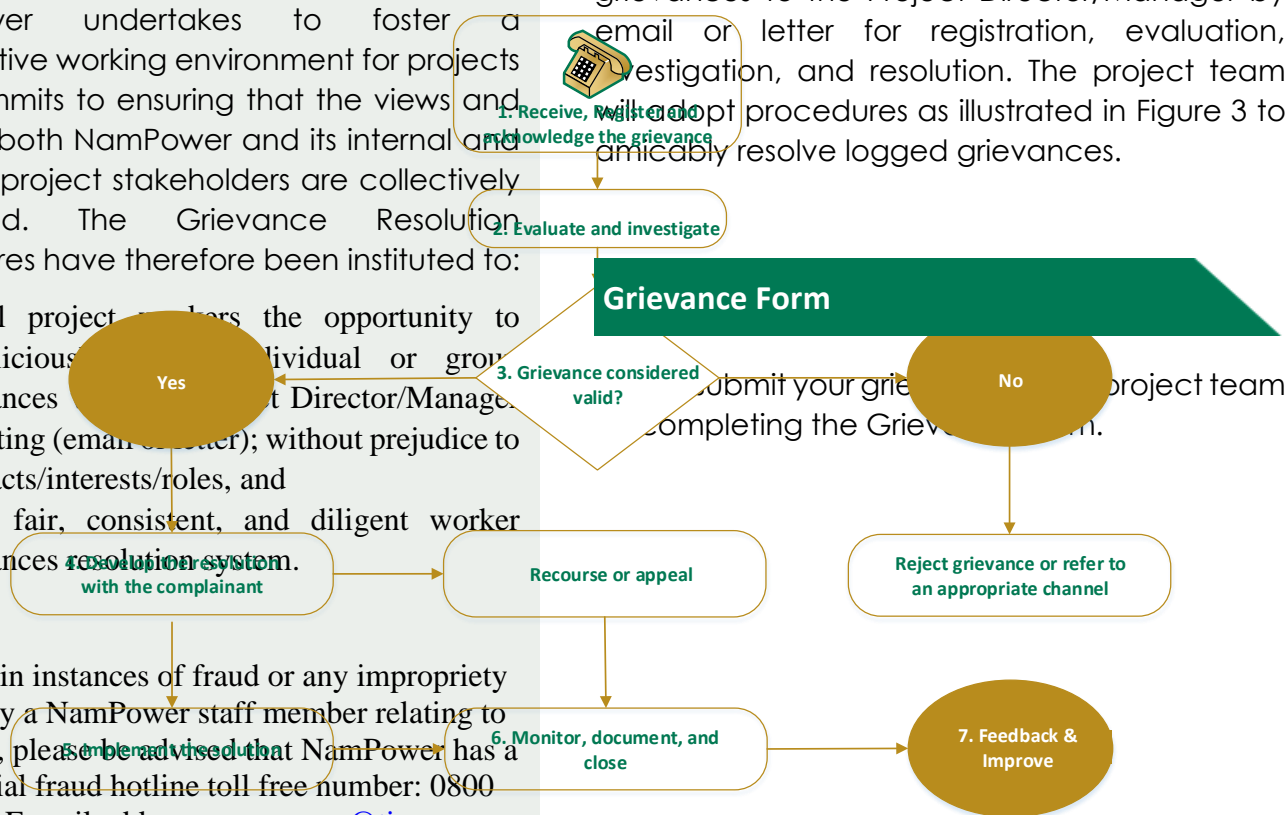


Figure 3: Stakeholder Grievance Resolution Procedure Flowchart

GRIEVANCE FORM	
(Please forward your completed form to the Project Manager)	
1. Case No.:	_____
2. First Name and Surname:	_____
	<input type="checkbox"/> I request that my personal / company details not be disclosed. <input type="checkbox"/> I consent that my personal / company details may be disclosed.
3. Contact details:	<input type="checkbox"/> By Post (Please enter the correspondence address): _____ _____ <input type="checkbox"/> By phone: _____ <input type="checkbox"/> By E-mail: _____
(Please indicate the preferred method of communication: by post, email, or phone)	
Subject: _____	

4. Grievance Description: (Please indicate the subject of the grievance; date of occurrence, location relating to the grievance, persons involved in the grievance and effects of the ensuing situation)		_____ Date: _____ Location: _____ Persons involved: _____ _____ _____ Effects of the ensuing situation: _____ _____
5. Date of incident / occurrence of the subject of the grievance / emergence of the case:	<input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> One-time incident/grievance (Date): _____ <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> Happened often (Indicate how many times): _____ <input style="width: 40px; height: 25px; border: 1px solid black;" type="checkbox"/> Ongoing (A currently existing problem).	
Recommendations (Please propose measures that would provide solutions to the problem): _____ _____		
Signature: _____ Date: _____ Please forward this form to (Name & Surname): _____ Postal Address: _____ Email: _____ Phone Number: _____		

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