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Generic Environmental Management Plan (GEMP) for MTC Sites across Namibia

Phase 3: Detailed Assessment

APP-002678

Ohangwena Region

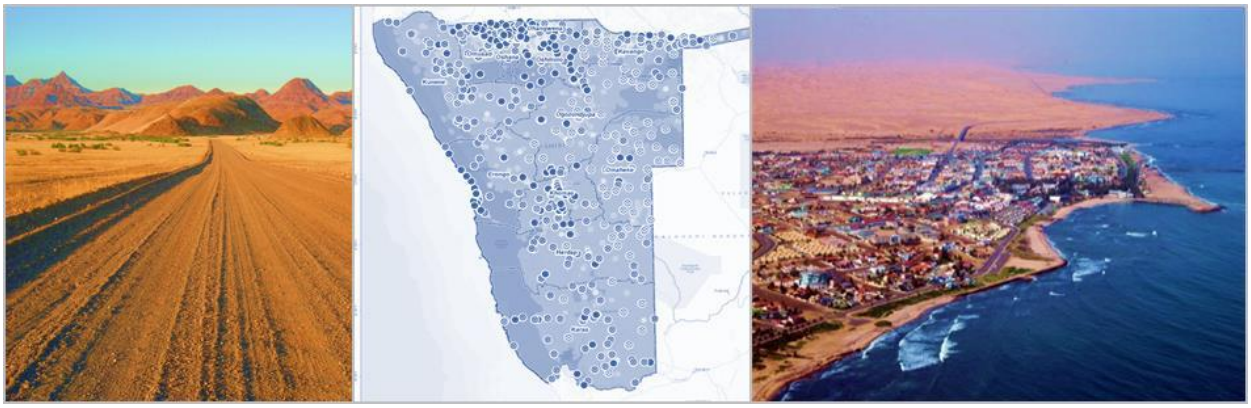
Version - Final

18 June 2021

Mobile Telecommunications Limited (MTC)

GCS Project Number: 21-0279

Client Reference: Generic EMP Ohangwena



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1 INTRODUCTION

Mobile Telecommunications Ltd (MTC) applied for an Environmental Clearance Certificate (ECC) for the proposed installation of MTC Telecommunication Antennae for the 100% Coverage Project in 2017. The Environmental Assessment (EA) for the proposed development was conducted by GCS Water and Environmental Engineering Namibia (Pty) Ltd (GCS) in 2017. Following the submission of the final Environmental Scoping Report, the ECCs for each region was granted as per letter dated 27 June 2018. In accordance with the Environmental Management Act No 7 of 2007 and the Environmental Impact Assessment Regulations of 2012 the ECC is only valid for three years and as such the ECC expires in June 2021. MTC has thus appointed GCS to apply on their behalf to the Ministry of Environment, Forestry and Tourism (MEFT) for the renewal of the ECC.

Construction has commenced and has been completed on some of the sites, whilst other sites are yet to be constructed. Below is a summary of the status of the sites:

- 133 sites have been completed under Phase 1
- 110 sites have commenced construction under Phase 2
- 70 sites have been commissioned and are on air under Phase 2

As part of their environmental obligation, and as stipulated in their ECC and requirements of the Environmental Management Plans (EMPs) for each region, MTC is required to conduct Environmental Compliance Audits at their tower sites. EMP Compliance Audits have been conducted for the MTC tower construction and operations and have been submitted to MEFT for review and auditing during 2019 and 2020. MTC submitted the Scoping Assessment forms as part of the audits conducted to date (See Addendum 1 for template) to MEFT.

The EA was conducted at a national level for all sites proposed to be erected (Error! Reference source not found.) however, in order to ensure the effective management of sites on a regional level, sites have been split regionally and the information associated with the sites in the Ohangwena Region is provided in Error! Reference source not found..

1.1 Environmental Management Plan

An 'Environmental Management Plan' or EMP is defined as:

"…a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored."

In accordance with the Namibian EIA Regulations, the Draft EMP includes the following:

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

An EMP is one of the most important outputs of the EA process as it synthesises all of the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA Process and the required environmental management on the ground during project implementation and operation.

The purpose of this document (Generic Environmental Management Plan (GEMP / EMP)) is therefore to guide the environmental management process by laying out management actions for the proposed MTC network structures at the site areas identified as "medium to high risk/sensitivity" during the Detailed Environmental Assessment phase (Phase 3 of the Project). While this phase covers all 14 Regions of Namibia (**Figure 1-1**), the Management of sites has been divided regionally to aid administration by the authorities at a regional level. This EMP's primary focus is on the medium to high risk sites in the Ohangwena Region only (

Figure 1-2).

During the initial phase of the project, the proposed number of sites to be constructed was 524. However, as the project progressed and from public consultations and specialists' assessments, the number of sites increased from 524 to 544 for the whole country. This initiative will result in the construction of 554 new Base Transceiver Stations (BTS) or transmission/network sites across all fourteen (14) regions of Namibia over a two-year period.

The information contained in this document is a revision of the Regional Detailed Assessment's EMP (Phase 3) based on specialists' input from their respective field (site visit) and knowledge experience of the areas. Based on the specialists' findings and their evaluation of the site areas, management / mitigation measures on how to avoid and/or minimize the risks associated with the proposed development were provided and presented in this EMP.

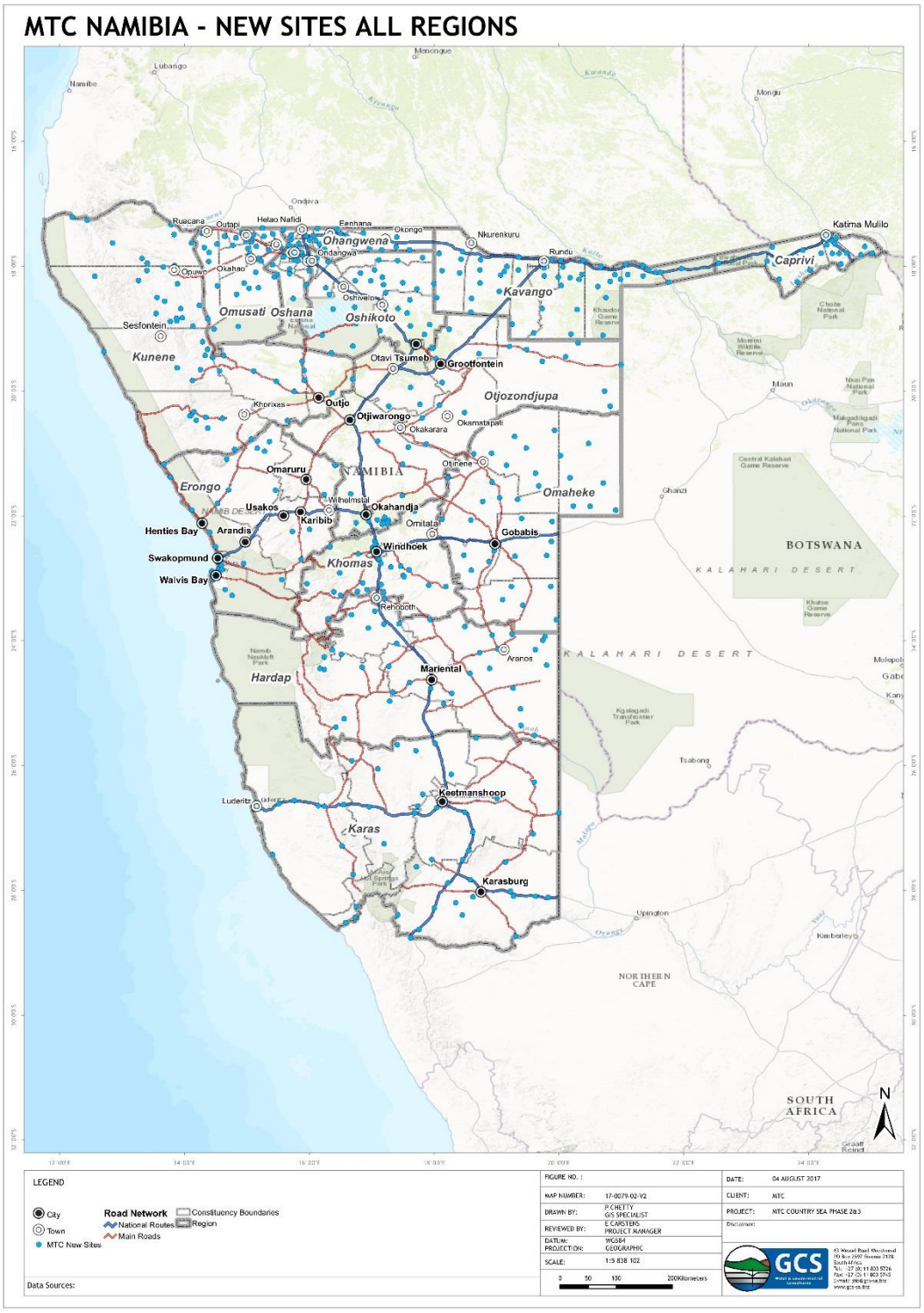

Figure 1-1: Location of all proposed (new) sites across all 14 regions of Namibia

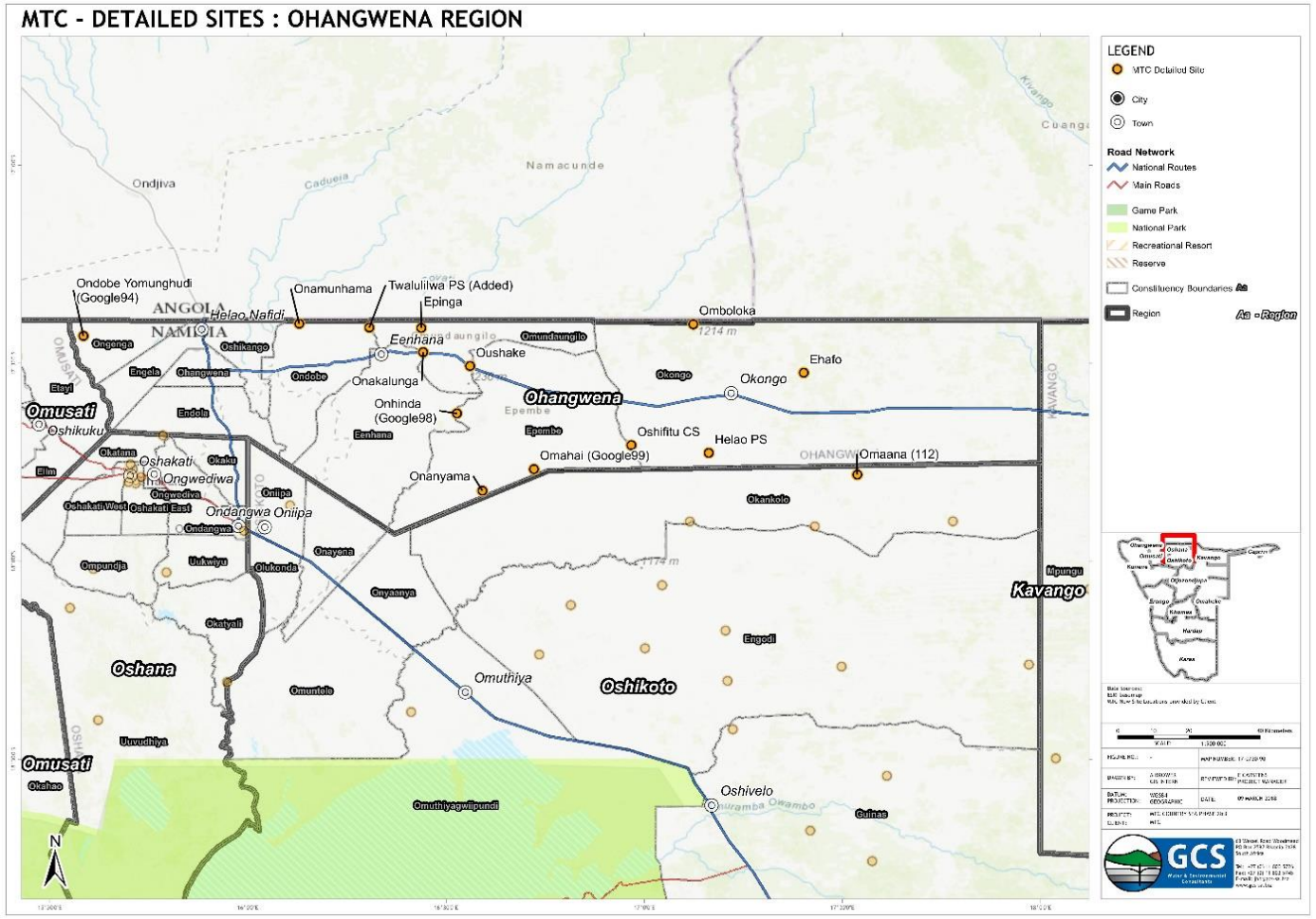

Figure 1-2: Proposed Detailed Assessment (medium to high risk) Sites in Ohangwena Region.

1.2 Detailed Assessment Sites in the Region and their Sensitivity Level

The identified sites that were categorized as "medium to high" sensitivity in Ohangwena Region with their sensitivity category and recommendations are presented in **Table 1-1** below. In the cases where specific site recommendations are not provided by specialists, reference will be made to the generic EMP recommendations. There are no site-specific recommendations in Ohangwena.

Table 1-1: Sensitive Description of the medium to high sites in Ohangwena Region

Note: information displayed in brackets under the line items in the column "Site name" represents the old site names

Site Name	Site Coordinates		Pre-mitigation Sensitivity	Recommendation	Post-mitigation Sensitivity
Onanyama (Added)	-17.82205	16.59134	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5..	Low
Omaana (112)	-17.78141	17.53728	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Omahai (Google 99)	-17.76735	16.72177	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Helao PS	-17.72631	17.16283	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	
Oshifitu CS	-17.70671	16.96728	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Onhinda (Google 98)	-17.62682	16.52716			
Ehafo	-17.52381	17.40231	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low

Site Name	Site Coordinates		Pre-mitigation Sensitivity	Recommendation	Post-mitigation Sensitivity
Oushake	-17.50679	16.55996	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Onakalunga (Ohakafiya)	-17.47176	16.44202	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Ondobe Yomunghudi (Google 94)	-17.43087	15.58523	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Epinga	-17.41088	16.4375	Medium	Apply Generic EMP: Section 4.2 & 4.3 and Monitoring under Chapter 5.	Low
Twalulilwa PS (Added)	-17.40949	16.30606			
Omboloka	-17.40133	17.12361			
Onamunhama (Added)	-17.39992	16.12952			

1.3 Recommendations for the Region Based on Specialist and MTC's Technical Optimization

The recommendations made for the site impact mitigation were divided into three categories, namely; excluded sites, relocated sites and sites with specific recommendations. The list of these sites are given in **Table 1-2** below.

Table 1-2: Types of site recommendation for the region

EA recommendation	Site Name
Exclusion (sites to be excluded)	None
Relocation (site to be relocated)	Site 112 changed to **Omaana**

EA recommendation	Site Name
	Google 99 changed to **Omahai**
	Ohakafiya changed to **Onakalunga**
	Google 94 changed to **Ondobe Yomunghudi**
	Google 98 changed to **Onhinda**
Site with specific recommendations	None

Certain sites had to remain close to the initial sites or new sites had to be added for technical optimization (from a coverage perspective) as indicated by MTC. These sites are presented in **Table 1-3** below.

Table 1-3: Recommended site locations or new site due to Technical optimization (by MTC)

Site Name	Technical recommendations and coordinates
Twalulilwa PS (Added)	-17.40949 16.30606
Onamunhama (Added)	-17.39992 16.12952
Onanyama (Added)	-17.82205 16.59134

1.4 Description of the Re-Assessed Detailed Sites

The specialists had to re-assess some sites that were relocated from the initial locations. From the first specialists' observations, these sites were either rated as of high sensitivity (with no realistic mitigation measures/recommendations) or they were regarded as NO-GO, but the sites need to be constructed in that area. The specialists recommended that the sites be relocated to avoid and or to minimize the anticipated environmental impacts, while maximizing the coverage in the area.

The site locations that have been changed as per specialist recommendation are presented in **Table 1-4** below.

Table 1-4: Sites that have been changed / relocated in Ohangwena Region as recommended by specialists

**** Newly added site***

Initial Site	Initial Site location		Recommended change	New Site name	New site location	
Site 112	-17.73906	17.60327	Technical optimization: coverage perspective	Omaana	-17.78141	17.53728
Google 99	-17.75147	16.71184	Technical optimization: coverage perspective	Omahai	-17.76735	16.72177
Google 98	-17.61352	16.53385	Technical optimization: coverage perspective	Onhinda	-17.62682	16.52716
Ohakafiya	-17.52384	16.60064	Technical optimization: coverage perspective	Onakalunga	-17.47176	16.44202
Google 94	-17.42193	15.58299	Technical optimization: coverage perspective	Ondobe Yomunghudi	-17.43087	15.58523
*Twalulilwa PS (Added)	-17.40949	16.30606	Technical optimization: coverage perspective	*Twalulilwa PS (Added)	-17.40949	16.30606
*Onamunhama (Added)	-17.39992	16.12952	Technical optimization: coverage perspective	*Onamunhama (Added)	-17.39992	16.12952
*Onanyama (Added)	-17.82205	16.59134	Technical optimization: coverage perspective	*Onanyama (Added)	-17.82205	16.59134

The EMP consist of three main parts, namely:

- **Part 1** that includes a descriptive part that characterizes the project and specifics in terms of the institutional and legislative aspects and the technical project content.
- **Part 2** includes an environmental and social screening checklist.
- **Part 3** includes the recommended action plans / environmental management recommendations that will need to be implemented during the project construction and implementation / operational stages.
- **Part 3** represents the monitoring plan for activities during project construction and implementation.

It is important to note that an EMP is a legally binding document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. The EMP is a living document and should be amended to adapt to address project changes and/or environmental conditions and feedback from compliance monitoring.

2 PART 1: GENERAL PROJECT INFORMATION

2.1 Project Background

Mobile Telecommunications Ltd Namibia (MTC Namibia) intends to expand their network coverage countrywide with the objective of providing 100% population coverage to all Namibians. This initiative will result in the construction of 554 new Base Transceiver Stations (BTS) or transmission/network sites across all fourteen (14) regions of Namibia over a two-year period.

2.2 Environmental Assessment Practitioner (EAP)

GCS Water Environmental Engineering Namibia (Pty) Ltd ("GCS" hereafter) has been appointed to apply for the Environmental Clearance Certificate (ECC) Renewal for the proposed sites in the Ohangwena Region. The process includes updating the EMP for the proposed development. The EMP will be used by MTC Namibia, their Engineers and Contractors in guiding them during the construction, operation and maintenance of the proposed network sites/towers to ensure that the impacts on the environment (physical and social) are limited or avoided altogether, and at the same time maximizing the positive impacts.

Stephanie Strauss, a qualified and experienced Environmental Assessment Practitioner (EAP) with the assistance of Gerda Bothma, (Senior Environmental Scientist) updated this EMP (see Addendum 2 for CV's).

2.3 Legal Requirements

A full description of the legal requirements associated with the proposed project is provided in the Detailed Assessment Report. The following below is a description of the international requirements of International Finance Corporation (IFC), and a summary of the main legislative requirements under Namibian law (**Table 2-1**).

2.3.1 International Finance Corporation (IFC) Performance Standards

Although the proposed MTC transmissions sites are not funded by the International Finance Corporation (IFC), the Corporation's policy and Performance Standards can be implemented in this proposed development to ensure environmental and social sustainability.

The Policy on Environmental and Social Sustainability describes IFC's commitments, roles, and responsibilities related to environmental and social sustainability. The Performance Standards are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. The Performance Standards may also be applied by other financial institutions (GCS Water & Environmental Consultants, 2015).

There are eight (8) Performance Standards (Performance Standards on Environmental and Social Sustainability: January 1, 2012) that MTC Namibia can apply throughout the life of the development. These Standards are briefly described below.

Performance Standard 1: Environmental and Social Assessment and Management System

MTC Namibia, in coordination with other responsible government agencies and third parties as appropriate, will conduct a process of environmental and social assessment, and establish and maintain an ESMS appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts. The ESMS will incorporate the following elements:

i. Policy;

ii. Identification of risks and impacts;

iii. Management programs;

iv. Organisational capacity and competency;

v. Emergency preparedness and response;

vi. Stakeholder engagement; and

vii. Monitoring and review.

Performance Standard 2: Labour and Working Conditions

Performance Standard 2 recognises that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers. The requirements set out in this Performance Standard have been in part guided by a number of international conventions and instruments, including those of the International Labour Organization (ILO) and the United Nations (UN). The core client requirements set out in this Standard involve:

i. Working conditions and management of worker relationship;

ii. Protecting the workforce;

iii. Occupational health and safety;

iv. Workers engaged by third parties; and

v. Supply chain.

Performance Standard 3: Resource Efficiency and Pollution Prevention

During the project life-cycle, MTC will consider ambient conditions and apply technically and financially feasible resource efficiency and pollution prevention principles and techniques that are best suited to avoid, or where avoidance is not possible, minimise adverse impacts on human health and the environment. The principles and techniques applied during the project life-cycle will be tailored to the hazards and risks associated with the nature of the project and consistent with good international industry practice (GIIP), as reflected in various internationally recognised sources, including the World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines).

Performance Standard 4: Resource Community Health, Safety, and Security

Various project activities, equipment, and infrastructure can increase community exposure to risks and impacts. In addition, communities that are already subjected to impacts from climate change may also experience an acceleration and/or intensification of impacts due to project activities. While acknowledging the public authorities' role in promoting the health, safety, and security of the public, this Performance Standard addresses the Proponent's responsibility to avoid or minimise the risks and impacts to community health, safety, and security that may arise from project related activities, with particular attention to vulnerable groups. The objectives of this Standard are:

i. To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances

ii. To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

Performance Standard 5: Land Acquisition and Involuntary Resettlement

Performance Standard 5 recognises that project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/or restrictions on land use. 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 physical or economic displacement. Unless properly managed, involuntary resettlement may result in long-term hardship and impoverishment for the Affected Communities and persons, as well as environmental damage and adverse socio-economic impacts in areas to which they have been displaced. In this regard, the following objectives are defined:

i. To avoid, and when avoidance is not possible, minimise displacement by exploring alternative project designs.

ii. To avoid forced eviction.

iii. To anticipate and avoid, or where avoidance is not possible, minimise adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.

iv. To improve, or restore, the livelihoods and standards of living of displaced persons.

v. To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure at resettlement sites.

Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Performance Standard 6 recognises that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development. The requirements set out in this Performance Standard have been guided by the Convention on Biological Diversity, which defines biodiversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other

aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems." Ecosystem services are the benefits that people, including businesses, derive from ecosystems. Ecosystem services are organised into four types: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services. This Performance Standard addresses how clients can sustainably manage and mitigate impacts on biodiversity and ecosystem services throughout the project's lifecycle in light of the following objectives:

i. To protect and conserve biodiversity.

ii. To maintain the benefits from ecosystem services.

iii. To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities.

Performance Standard 7: Indigenous Peoples

Performance Standard 7 recognises that Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalised and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development. Indigenous Peoples are particularly vulnerable if their lands and resources are transformed, encroached upon, or significantly degraded. Their languages, cultures, religions, spiritual beliefs, and institutions may also come under threat. As a consequence, Indigenous Peoples may be more vulnerable to the adverse impacts associated with project development than non-indigenous communities. This vulnerability may include loss of identity, culture, and natural resource-based livelihoods, as well as exposure to impoverishment and diseases. Private sector projects can create opportunities for Indigenous Peoples to participate in, and benefit from project-related activities that may help them fulfil their aspiration for economic and social development. Furthermore, Indigenous Peoples may play a role in sustainable development by promoting and managing activities and enterprises as partners in development. Government often plays a central role in the management of Indigenous Peoples' issues, and clients should collaborate with the responsible authorities in managing the risks and impacts of their activities. The key areas of client responsibility are as follows:

i. To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.

ii. To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts.

iii. To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.

iv. To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life-cycle.

v. To ensure Free, Prior, and Informed Consent when: (i) impacts are on lands and natural resources subject to traditional ownership or under customary use; (ii) relocation of Indigenous Peoples from lands and natural resources subject to traditional ownership or under customary use is required.

vi. To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.

Performance Standard 8: Cultural Heritage

Performance Standard 8 recognises the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this Performance Standard aims to ensure that clients protect cultural heritage in the course of their project activities. In addition, the requirements of this Performance Standard on a project's use of cultural heritage are based in part on standards set by the Convention on Biological Diversity. The key areas of MTC' responsibility are as follows:

i. Protection of cultural heritage in project design and execution through: (i) complying with applicable host country law and internationally recognised practices; (ii) establishing appropriate Chance Find Procedures, (iii) maintaining consultation with affected parties, and (iv) ensuring community access.

ii. Ensuring that the mitigation hierarchy associated with Performance Standard 8 is adhered to with regard to the Removal of Replicable Cultural Heritage, Removal of Non-Replicable Cultural Heritage and Critical Cultural Heritage.

iii. Ensuring communication of community rights, consultation and sharing of benefits with communities where the use of cultural heritage, including knowledge, innovations, or practices of local communities is proposed for commercial purposes.

2.3.2 National legislative requirements

Table 2-1 provides a summarized description of the key legislative requirements associated with this project and describes the responsibility of MTC and the consultant.

Table 2-1: Applicable and relevant Namibian legislations and guidelines for the EA process

Legislation/Policy/ Guideline	Permit/Approval Requirements	Contact Details
Environmental Management Act EMA (No 7 of 2007) Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	The amendment, transfer or renewal of the Environmental Clearance Certificate (ECC) (EMA S39-42; EIAR Regs19 & 20). Amendments (required every 3 years) to this EMP will require an amendment of the ECC for these developments.	Mr. Damian Nchindo Tel: 061 284 2701
Labour Act 11 of 2007 Health and Safety Regulations GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations.	Labour Law Advice: Tel: 061 309 957
The Atomic Energy and Radiation Protection Act, Act 5 of 2005	Provides for the adequate protection of the environment and of people against the harmful effects of radiation by controlling and regulating the production, processing, handling, use, holding, storage, transport and disposal of radiation sources and radioactive materials, and controlling and regulating prescribed non-ionising radiation sources according to the standards set out by the ICNIRP.	Mr. Joseph Eiman Tel: 061 203 2415 Joseph.Eiman@mhss.gov.na
The Aviation Act, Act 74 of 1962 Convention on International Civil Aviation, Annex 14	Gives effect to certain International Aviation Conventions and makes provision for the control, regulation and encouragement of flying within the Republic of Namibia and for other matters incidental thereto. Annex 14 to the Convention on International Civil Aviation. Chapter 4: Obstacle restrictions and removal Chapter 6: Visual aids and donating of obstacles	Mr. Dennis Gaingob Tel: 061 702 265 gaingobd@dca.com.na

Legislation/Policy/ Guideline	Permit/Approval Requirements	Contact Details
National Heritage Act (No. 27 of 2004)	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.	Ms. Alma Nankela Tel: 061 244 375 ahamulo@gmail.com
Forestry Act No 27 Of 2004 and its regulations of 2015	Provision for the protection of various plant species. The removal of more than 15 ha of wooded areas requires a permit.	Mr T. Uahengo in the permit office at the Ministry of Environment and Tourism, Windhoek.
Water Resources Management Act (No. 11 of 2013)	The Act provides for the management, development, protection, conservation and use of water resources.	Mr Witbooi Tel: (061) 208 7226
The Electricity Act (No. 4 of 2009)	The Act provides information on the requirements for electricity generation, trading, transmission, supply, distribution, importation and export. The Electricity Control Board (under the Ministry of Mines and Energy) exercises control over the provision, use and consumption of electricity in Namibia; ensures efficiency and security of electricity provision; ensures a competitive environment in the electricity industry in Namibia; and promotes private sector investment in the electricity industry.	Mr. Nico Snyders Tel: 061 284 8160

Legislation/Policy/ Guideline	Permit/Approval Requirements	Contact Details
Road Traffic and Transport Act (No. 22 of 1999)	The Act provides for the establishment of the Transportation Commission of Namibia; for the control of traffic on public roads, the licensing of drivers, the registration and licensing of vehicles, the control and regulation of road transport across Namibia's borders; and for matters incidental thereto.	Ms. Elina Lumbu Tel: 061 284 7027
Petroleum Products and Energy Act 13 of 1990 and the Petroleum Products Regulations (PPR)	"No person shall possess or store any fuel except under authority of a licence or a certificate" (PPR: S 3(2)). Par IV of Chapter 3 (Sections 47&48) deals with duties regarding fires and explosions, while (S 4) details measures to be taken in the event of product spills. Section 50 details provisions related to cost recovery in respect of incidents involving product spills.	Ms L. Hangero Tel: (061) 284 8111

2.4 Roles and Responsibilities

The Proponent (MTC Namibia) and its Contractors and Engineers are ultimately responsible for the implementation of the EMP. The Proponent may delegate the responsibilities at any time, as they deem necessary, from construction, operation and maintenance phase and decommissioning phase (if considered). The implementation of environmental and social commitments will be conducted by both the applicable phase site managers and the relevant contractor environmental, safety and health representatives or site supervisors, and if, required, specialists.

The delegated responsibilities for the effective implementation of this EMP will rest on the following key individuals:

- Site Manager;
- Proponent's Representative;
- Environmental, Health and Safety Control Officer (EHSCO);
- Contractors; and
- Specialists.

2.4.1 Site Manager (SM)

Overall responsibility for all activities that take place on the project sites will reside with the applicable phase site managers. In this regard the following roles and responsibilities are applicable:

- The implementation of and compliance with the environmental management measures proposed in this document;
- Ensuring compliance with relevant environmental and related authorisations and license conditions;
- Implementation and maintenance of an Environmental Management System (subchapter 5.2);
- Maintaining stakeholder engagement and grievance mechanisms;
- Ensuring that the monitoring, auditing and reporting programmes are scoped and included in the annual budgets; and
- Identifying and appointing of appropriately qualified specialists (were necessary) to undertake the programmes in a timeous manner and to acceptable standards.

2.4.2 Proponent's Representative (PR)

If the Proponent (MTC Namibia) does not personally manage all aspects of the planning and design, construction and operation and maintenance phase activities and decommissioning, referred to in this EMP, they should assign the responsibilities to a suitably qualified individual referred to in this plan as the Proponent's Representative (PR). The Proponent may decide to assign the role of a PR to one person for both phases. Alternatively, the Proponent may decide to assign a separate PR for each component i.e. planning and design, construction, operation and maintenance and decommissioning phase. The PR's responsibilities are as follows:

Responsibilities assigned to the Proponent's Representative for planning and design, construction, operation and maintenance and decommissioning phases

- Managing the implementation of this EMP and updating and maintaining it when necessary;
- Management and monitoring of individuals and/or equipment on-site in terms of compliance with this EMP; and
- Issuing fines for contravening EMP provisions.

2.4.3 Environmental, Health and Safety Control Officer (EHSCO)

The Proponent (MTC Namibia) should assign the responsibility of overseeing the implementation of the whole EMP from the planning and design phase to operation and maintenance and decommissioning phase to a designated member of staff, referred to in this EMP as the Environmental, Health and Safety Control Officer (EHSCO). The EHSCO will be competent persons determined by the respective site managers to fulfil the role as the Proponent's representative to monitor and review the on-site environmental management and implementation of both the generic EMP and the site-specific components by the Contractor. MTC Namibia may decide to assign this role to one person for both phases or may assign separate individual EHSCOs to oversee EMP implementation during each phase

The EHSCO's duties will include the following:

- Assisting the site managers in ensuring that the necessary environmental authorizations and permits have been obtained;
- Management and facilitation of communication between the site managers, Proponent, PR, Contractors and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting regular site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);

- Monitoring and verifying adherence to the EMP and verifying that environmental impacts are kept to a minimum;
- Advising the PR and site managers on the removal of person(s) and/or equipment not complying with the provisions of this EMP, i.e. taking appropriate action if the specifications are not followed;
- Assisting the Contractors in finding environmentally responsible solutions to problems;
- Monitoring the undertaking by the Contractors of environmental awareness training for all new personnel coming onto site;
- Advising on the removal of person(s) and/or equipment not complying with the specifications via the site managers;
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMPs;
- Auditing the implementation of the EMP and compliance with authorization on a monthly basis;
- Undertaking a continual review of the EMP and recommending additions and/or changes to the document;
- Making recommendations to the PR and/or site managers with respect to the issuing of fines for contraventions of the EMP; and
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

2.4.4 Contractors

All Contractors' Environmental, Health and Safety (EHS) representatives or site supervisors (as appropriate) will:

- Ensure the relevant commitments contained in the EMP Action Plans (subchapter 4.2 to 4.3) are adhered to;
- Compile relevant procedures and method statements for approval by the applicable phase site manager prior to initiation of activities;
- Ensure relevant staff are trained in procedures; and
- Maintain records of all relevant environmental documentation.

2.4.5 Specialists

Additional, specialised skills may be required on an ad-hoc basis or in terms of environmental support services and independent compliance monitoring and auditing **specifically when**

establishing the route of the powerlines. Suitable professionals will be sourced on a contract basis, as and when required.

2.5 Organizational Capacity and Competency

2.5.1 Environmental Management

As described in the previous section the key personnel to ensure compliance with this EMP report will be MTC's project phase site managers and the relevant Contractors' environmental, health and safety control (EHS) representatives or site supervisors. In this regard, candidates for such positions must have relevant demonstrable experience in EMP implementation.

MTC Namibia may elect to appoint dedicated Environmental, Health and Safety Control Officers (EHSCOs), in which case roles and responsibilities assigned to the site managers, could be shared between the site managers and the EHSCOs, as appropriate. If so, these must be documented as per the Environmental Management System described in subchapter 6.2 of this EMP.

2.5.2 Staff Training

The applicable management team will implement and maintain regular awareness and training programmes throughout the life of the project. In this regard, the following key issues will be included in staff awareness and training programmes, for project and contractor staff alike:

- Environmental procedures and protocols in line with the project's EMS;
- Environmental risks and the appropriate response actions;
- Hazardous materials and waste management;
- The value of biodiversity and the need to conserve the species and systems that occur within and surrounding the project areas;
- Zero tolerance of the killing or collecting of any biodiversity by anybody working for or on behalf of MTC Namibia at the sites;
- Strict speed control measures for all project related vehicles; and
- Relevant emergency response procedures.

2.6 Assumptions and Limitations

This EMP has been drafted with the acknowledgment of the following assumptions and limitations:

- This EMP is a revised version of the draft EMP compiled for the scoping-level Environmental Assessment (EA) conducted for the proposed construction of the new MTC sites across Namibia. The detailed specialist studies were conducted and included as part of this EMP. The recommendations / management plan actions provided in this document were obtained from specialists'' reports;
- Consultation at site level was only done at few areas during the study whereby these sites are located very close to or at the main Stakeholders' local points, such as schools, health centers. The reason for not visiting all sites was due to the fact that:
    - Some site information was not fixed yet, cautioning against creating expectations that cannot be met later on in the project.
    - Prolonged period over which the project is expected to run. Many of the authority representatives and local I&APs are likely to change throughout the course of the project lifetime. This would pose a risk that premature participation could result in information getting lost over time.
- The mitigation measures recommended in this EMP document are based on the risks/impacts in the Detailed Assessment report which were identified based on the provided project description and anticipated project impacts identified by individual specialists. Should the scope of the project change, the risks will have to be reassessed and mitigation measures provided accordingly.

2.6.1 Level of Accuracy

The identification and assessment of potential impacts associated with the proposed project, and the proposed management measures and commitments set forth in this document, are based on the information and project planning details provided by MTC Namibia from the Scoping to the detailed Assessment process. This information is assumed to be accurate and applicable to the final construction, operation and maintenance of the proposed MTC network structures in Namibia. Where project design information was only available at a conceptual level (pending the full planning and design phase outcome), commensurate high level risk identification and mitigation/control infrastructure design principles and guidelines are provided. In this regard, industry standards and international best practice guidelines were drawn upon.

2.6.2 Occupational Health and Safety

Occupational health and safety aspects of the proposed project were not considered in any detail in this assessment process. It is assumed that MTC Namibia and the relevant subcontractors will have the necessary occupational health and safety certifications and management plans in place for the construction of the proposed network structures.

3 PART 2: ENVIRONMENTAL AND SOCIAL SCREENING CHECKLIST

The following sources of impact/actions in **Table 3-1** below were identified during the project phases:

Table 3-1: Impact sources as identified in the project phases

Project Phase	Sources of Impact/Activity	Status	Triggered Actions
Construction Phase	Employment of labour	[] Yes [ ] No	See **Section A** (subchapter 4.2)
	Procurement of materials, equipment and services	[] Yes [ ] No	See **Section B** (subchapter 4.2)
	Transportation of manpower, equipment and material to/from the site	[] Yes [ ] No	See **Section C** (subchapter 4.2)
	Presence of workforce	[] Yes [ ] No	See **Section D** (subchapter 4.2)
	Site clearance, including site footprint, powerline and road	[] Yes [ ] No	See **Section E** (subchapter 4.2)
	Power Generation	[] Yes [ ] No	See **Section F** (subchapter 4.2)
	Material storage/handling/use on site	[] Yes [ ] No	See **Section G** (subchapter 4.2)
	Hazardous and non-hazardous waste disposal	[] Yes [ ] No	See **Section G** (subchapter 4.2)
Operation	Physical presence of structures and facilities (i.e. roads and powerlines)	[] Yes [ ] No	See **Section H** (subchapter 4.2)
	Maintenance of equipment	[] Yes [ ] No	See **Section I** (subchapter 4.2)
	Maintenance of roads and powerlines	[] Yes [ ] No	See **Section I** (subchapter 4.2)
	Vehicle movement	[] Yes [ ] No	See **Section I** (subchapter 4.2)
	Removal of Infrastructure	[] Yes [ ] No	See **Section I** (subchapter 4.2)
	Waste generation and disposal	[] Yes [ ] No	See **Section I** (subchapter 4.2)
Decommissioning	Decommissioning of site, powerline or road	[] Yes [ ] No	See **Section J** (subchapter 4.2)

4 PART 3: ENVIRONMENTAL MANAGEMENT PLAN ACTIONS

4.1 Project Environmental Aims, Objectives, Goals and Commitments

The aim of the management actions of the EMP is to avoid potential impacts where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts. The objective, goal and commitments of environmental management action plans are as follow:

4.1.1 Project objective:

To prevent unnecessary disturbance of the environmental components (health & safety, biodiversity, visual, noise, air quality and soil and water etc.).

4.1.2 Project goals:

- To operate in harmony with surrounding land users;
- To ensure ecosystem functionality and associated land capability are not lost; and
- To operate in a socially and culturally sustainable manner.

4.1.3 Project commitments:

- Adherence to Namibian environmental legislative requirements and applicable international standards and guidelines;
- Incorporating environmental duty of care into all business operations, from project design and planning, through execution, to operational review and improvement;
- Utilising the best available techniques, not entailing excessive costs, to comply with the requirements of existing and future legislation, and encouraging those working on site to meet the same standards;
- Keeping track of ancillary services in a cradle-to-grave approach, including the appointment of environmentally compliant service providers and the monitoring and correcting of service provider behaviour, as appropriate;
- Maintaining a state of preparedness for potential environmental incidents, and implementing mitigation to prevent recurrence;
- Efficient communication of environmental policies, objectives and targets, and the provision of the necessary training to all spheres of operation including service providers;
- Building lasting relationships with the neighbouring community, farmers, businesses and administrative organisations through honesty, disclosure and cooperation;

- Provision of information to Interested and Affected Parties on both planned and ad hoc project developments in a timeous and open manner; and
- Promotion of the Proponent's objectives and positive response to enquiries and suggestions from the Interested and Affected Parties (Stakeholders).

4.2 Mitigation measures

The following sections provide generic information for the management and mitigation of potential risks on the project sites for medium to high-risk sites (i.e. identified during the detailed assessment) as described in Part 2: Environmental and Social Screening Checklist. There are no specific management action plans / recommendations for the individual medium to high-risk sites identified in Ohangwena Region.

4.2.1 Section A: Employment of labor

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
SECTION A	Employment of labor	1. Construction tendering Process	• The EMP and site-specific requirements shall be included in the tender documents so that tenderers can make provision for the implementation of this document. • Construction tender documentation shall include provisions that require the use of local labor as much as possible.	Pre-Construction	Once off	Contractor	MTC: Project Phase Manager
SECTION A	Employment of labor	2. Labor Recruitment	• It is anticipated that MTC Namibia will utilize its own workforce (especially the technical and specialized personnel). However, should there be a need to employ additional person(s), recruitment shall not be done at the project sites, but at the	Pre-construction	As required	MTC Namibia Contractors' Human Resources	Project Phase Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			respective Regional or Constituency offices. • Recruit laborers for unskilled work (vegetation clearing, grubbing and flag bearers etc.) from the nearest village/settlement to the work site. • Small-scale contractors that are established in Namibia and that are capable of carrying out concrete works should be supported as far as possible, providing them with the appropriate back up of civil engineering contracts that have the appropriate plant. People from outside the immediate project areas will only be recruited if a skilled/specialized resource				

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			for a specific task is not available.				

4.2.2 Section B: Procurement of materials, equipment and services

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
SECTION B	Procurement of materials, equipment and services	1. Construction schedule	• A construction work/schedule will be prepared and shared with the Regional/local/traditional authorities, property owners and immediate adjoining neighbors of the details of construction, including how access will be ensured at all times and a contact person. Minutes of the meeting must be made available to the Engineer. The Councilors and traditional leaders of the area should be kept abreast of progress of the project through dissemination of updated programs. This will raise awareness of when to expect the movement of the construction team and vehicles in their area.	Pre-construction	Once off	Construction Engineers / Contractors MTC Namibia	Project Phase Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			• In populated areas construction activities shall be restricted to weekdays i.e. Mondays to Fridays and during working hours (8:00 - 17:00) only. • The construction team will adhere to the rules and regulations of the specific project areas (where applicable) (e.g. national park rules). • The normal site acquisition process shall include the following: • That the detail of the project was discussed with the owner and that the owner understands the extent of the project. • Conditions to the use of the land, especially with regard				

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			to private roads, opening and closing of gates, construction times and a liability clause. • Facilitation of future communications between the construction team contact person and the property owner (sharing of construction team contact details with the land/property owner). • The Proponent should plan for a temporary contractor's camp (housing) for workers that are not local residents. • Careful consideration shall be given to the siting locations of the construction campsite and ad hoc site establishments. These areas will not be located in sensitive areas in terms of				

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			grazing fields, croplands, areas with significant clusters of protected trees, etc. • The Proponent should look for degraded areas for material lay down areas				
SECTION B	Procurement of materials, equipment and services	2. Structure design	• The design standards to be applied for the BTS structure will comply with the nationally accepted public exposure guidelines of ICNIRP.	Pre-construction phase	As required	MTC Namibia and their responsible Engineers	Project Phase Managers
SECTION B	Procurement of materials, equipment and services	3. EMP training	• Employees appointed for construction work on respective infrastructures shall ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.	All phases	Ongoing As required	MTC Namibia Representative Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			• Records shall be kept of all induction meetings conducted during the construction and operational period. The training shall include the following: • Raising awareness of employees' individual impact on the environment. • Ensuring preventative measures and procedures are undertaken in order to reduce the risk of a potential impact.				
SECTION B	Procurement of materials, equipment and services	4. EMP Implementation	• MTC will appoint a Proponent's Representatives (PR) that will act as their on-site implementing agents. The PRs will be responsible to ensure that the Proponent and Contractors' responsibilities are executed	Pre-construction	Ongoing	MTC Namibia	Project Phase Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			in compliance with relevant legislation and this EMP. • MTC Namibia shall appoint an Environmental Health, Safety Control officer(s) for the project. The EHSCOs will ensure the implementation of the EMP. • The EHSCOs shall be put in contact with the respective property owners and applicable authorities so that they (property owners and authorities) can forward their comments and concerns directly to him or her during the project.				
SECTION B	Procurement of materials, equipment and services	5. Monitoring of EMP implementation	• The implementation of this EMP shall be monitored and transgressions and rectification thereof recorded.	All phases	Daily	MTC Namibia Representative Environmental, Health and	Construction Site Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			• The site should be inspected throughout the construction once a day during construction and after completion of the construction work.			Safety Control Officers	

4.2.3 Section C: Transportation of manpower, equipment and material to/from the site and use on site

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
SECTION C	Transportation of manpower, equipment and material to/from the site	1. Vehicle Traffic	• Construction vehicles transporting equipment and people to site, shall adhere to the required speed limits in urban and rural areas. • Implement and maintain off road track discipline with maximum speed limits (e.g. 30km/h) as this would result in fewer faunal mortalities and limit dust pollution. • Construction vehicle drivers should be in possession of valid and appropriate driver's licenses. • All vehicles that transport materials and equipment to and from the sites shall be roadworthy. • Equipment and materials loaded onto vehicles must be	All phases	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			properly secured to completely avoid items falling off the vehicle and hurt other roads users, especially pedestrians. • Vehicle drivers should adhere to the road safety rules and signs. • Construction vehicles should have a scheduled time for loading and offloading materials at the site so that they do not interfere with daily traffic in the area whenever. • The Contractors should have a strict transportation schedule of personnel from campsite to work sites and back. • Temporary construction warning signage should be put up close to the sites.				
SECTION C	Transportation of manpower,	2. Workers	• Workers should be transported, in a bus (or similar suitable	All phases	As required	MTC Namibia Environmental,	Construction Site Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
	equipment and material to/from the site		passenger vehicle) to and from site. • Workers should be provided with portable toilets (i.e. easily transportable) on site. • No workers should reside on-site for the entire duration of the construction period. • The Contractor must adhere to the regulations pertaining to Health and Safety, including the provision of protective clothing, failing which the Contract may be ended with immediate effect. • No workers should be allowed to drink alcohol or be under the influence of alcohol during working hours. • Dust protection masks shall be provided to staff members.			Health and Safety Control Officers	

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			• All flammable materials used for construction should be properly contained to limit the risks of fire. • Workers shall have access to potable water at all times when working to avoid dehydration. • Foam fire extinguishers must be in close proximity to fuel kept on site. There should be trained personnel to handle this equipment. • In the case that workers will be preparing quick meals on site, the contractor should supply their workers with food and cooking appliance (e.g. stoves) to minimize the use of firewood or fires; no live natural vegetation may be used for firewood.				

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			• Poaching or collecting of wild animals is prohibited without a permit				
		3. Noise	• Noise from construction vehicles and equipment should be reduced to an acceptable level (SA legislation). • In populated areas, construction activities should be carried out between 09:00 and 17:00 on working days to ensure that noise is strictly limited to normal working days only i.e. no work is done in the weekends or during the night. • The working time should be respected in order to preserve tranquility in the area especially, the property owners and the surrounding residents.	Construction phase	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			• Noisy equipment should be shut down when not in use to avoid unnecessary noise on site. • Workers should be equipped with noise personal protective equipment (PPE) such as earplugs to reduce noise exposure at all times on site, especially when operating noisy equipment. • During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible.				
SECTION C	Transportation of manpower, equipment and material	4. Public Health and Safety	• Work sites should be fenced off to limit unauthorized public access to the site.	Pre-construction	As required	MTC Namibia Environmental, Health and	Construction Site Managers

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
	to/from the site		• Clearly visible traffic and safety warning signs must be placed at the construction site that warns the public of all potential hazards. • Safe passages and crossings for pedestrians should be created where construction traffic interferes. • Adjust to local traffic patterns, e.g. avoid major transport activities during rush hours or times of livestock movement • Provide traffic management by trained staff at the site, if required for safe and convenient passage for the public. • Ensure that nearby owners and residents have safe and continuous access to office			Safety Control Officers	

Section	Sources of impact/ Activity	Parameter	Management Requirement	Project Phase	Frequency	Implementation	Responsibility
			facilities, shops and residences during construction activities.				

4.2.4 Section D: Presence of workforce

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION D	Presence of workforce	**1. Property owners and Contractors**	• In terms of Contractors' interaction with property owners (in case of sites located on private property): • The Contractors and their workforce may not stray from the road passing through the property. Any other route to be taken (from the site access road), the Contractors should ask for the property owner's permission. • Property owner's roads marked with no entry signs, should be respected and the Contractors should not in any way use these roads. • Fences or gates of the property owner shall not be damaged when gaining access to the site.	All phases	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• The Contractors should ensure that they leave property owner's entrances (gates) as they found them i.e. if the entrance is found opened, they must be left open, and if closed, they must be closed again upon entry, unless otherwise arranged with the property owner. • The contractor shall inform the property owner or regulatory authority before entering the property, and should arrange with the property owner or regulatory authority 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.				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Any changes that might occur to the construction and maintenance program, which could affect the landowners or regulatory authority, should be communicated to the appropriate persons.				

4.2.5 Section E: Site Clearance (including footprint area of site, powerlines and roads)

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION E	**Site clearance, including site footprint, powerline and road**	**1. Flora**	• No vegetation should be removed from site unnecessarily or disturbed in any way. • No equipment or waste material of any kind shall be left on any vegetation after construction works. • No off-road driving shall be allowed, except on the agreed upon access roads into the area. • No collection of site plants for own use or commercial purpose is allowed. • When constructing roads and powerlines, vegetation may only be cleared within the corridor. The reserves on either sides of this corridor may not be cleared of	All Phases	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			vegetation. Detours must be made around mature trees if necessary and where tracks already exist. • No trees may be felled or live wood in the project area removed by any member of the construction team. • A survey and inventory shall be made of large trees (i.e. trees of ≥ 150 cm diameter) in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided • No natural habitats, wetlands and protected areas in the immediate vicinity of the activity will be damaged or exploited, all staff will be				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			strictly prohibited from hunting, foraging, logging or other damaging activities. • There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.				
SECTION E	**Site clearance, including site footprint, powerline and road**	**2. Fauna**	• The construction team shall not snare, poach, kill, taunt, collect, smuggle or abuse wild or domestic animals at the sites • The breeding sites (nests) of wild birds shall not be disturbed. • Underground burrows shall not be flushed, closed up, or destroyed, on purpose, even within the site areas.	All Phases	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION E	**Site clearance, including site footprint, powerline and road**	**3. Avifauna (Birds)**	• Where possible, avoid the unnecessary destruction of habitat (e.g. large trees or bushes) and/or degradation of the environment, including the sensitive drainage lines and other vegetated areas. • Before construction starts, the proposed site and power line route should be inspected by a suitably qualified person for any signs of bird nesting activity; if possible, the timing of construction should avoid bird breeding seasons (usually summer). • Anti-poaching measures should be strictly enforced, and this should be emphasised during induction to contractors; accommodation quarters of construction	Pre-Construction	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			workers should be inspected regularly for signs of poaching (e.g. feathers, bones, and flesh); offenders should be prosecuted. • Traffic rules, especially speed limits, should be enforced strictly and offenders fined. • Ongoing awareness should be promoted about the value of biodiversity and the negative impacts of disturbance, reckless driving and poaching, especially to breeding birds. • Stay wires of both communication structures should be marked with standard "vibration dampers" in alternating black and white, to increase visibility. • The stay wires on powerline poles should be "gapped"				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			similarly, by means of an insulator. • Transformer/switchgear structures should be designed in such a way that they are not attractive as bird perches/nesting sites. Selected live components should be insulated (e.g. using PVC piping or low density polyethylene pipe (LDPE)). On strain structures where jumper wires are used in a horizontal configuration, the two outer jumpers should be suspended below the cross arm and the third/center jumper should be insulated, or all jumpers insulated. • The primary mitigation for a power line is the choice of route options and alternatives.				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			Where possible, the power line route should avoid any areas that are sensitive to birds, such as hill crests, or water courses/ephemeral drainage lines. • Wherever possible, solar power should be investigated as the optimum source of power, in order to reduce the impacts of power lines on avifauna. Where necessary, security precautions should be improved or developed that discourage the theft of solar equipment, e.g. mounting the solar panels at a higher level, installing electric fencing, camera traps etc. • Burying the power line could be considered as an option in some cases, should this be				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			technically, economically and ecologically feasible. • If sensitive areas cannot be avoided, it may be necessary to mark identified "hotspots" on the power line with an appropriate design of bird flight diverter (BFD), in order to increase the visibility of the line and thereby avoid collisions. • Regular monitoring is considered essential (see below) and, should the results indicate that collisions are still taking place, further mitigation should be investigated and applied. • Monitoring is essential (see Subchapter 5.3) and, should the results indicate that electrocutions are still taking				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			place on the structures, further mitigation should be investigated. • While subscribing to mandatory aviation requirements, attempts should be made to reduce the impact of necessary light as far as possible through: • reducing numbers and intensity of lights at night, as far as possible • using intermittent light (i.e. avoid steady light in favor of flashing/blinking lights) • Regular monitoring is considered essential and, should the results indicate that collisions are still taking place, further mitigation should be investigated and applied				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION E	**Site clearance, including site footprint, powerline and road**	**4. Archaeological Significant Sites**	• Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, a "chance find" procedure should be applied in the order they appear below: • If operating machinery or equipment stop work; • Demarcate the site with danger tape; • Determine GPS position if possible; • Report findings to the construction foreman; • Report findings, site location and actions taken to superintendent; • Cease any works in immediate vicinity;	Construction Phase	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Visit site and determine whether work can proceed without damage to findings; • Determine and demarcate exclusion boundary; • Site location and details to be added to the project's Geographic Information System (GIS) for field confirmation by archaeologist; • Inspect site and confirm addition to project GIS; • Advise the National Heritage Council (NHC) and request written permission to remove findings from work area; and • Recovery, packaging and labelling of findings for transfer to National Museum. • Should human remains be found, the following actions will be required:				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Apply the chance find procedure as described above; • Schedule a field inspection with an archaeologist to confirm that remains are human; • Advise and liaise with the NHC and Police; and • Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory. • The Contractors should ensure that no artefacts is removed or damaged under any circumstances. • All archaeological or cultural sites should be clearly marked and left undisturbed during removal of vegetation for construction and maintenance work.				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Cemeteries/graveyards should not be intruded nor disturbed during construction, operation and maintenance works. • No graves shall be moved or tampered with. • If the building is a designated historic structure, very close to such a structure, or located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation.				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION E	**Site clearance, including site footprint, powerline and road**	**5. Visual**	• At sites with a high visual prominence (e.g. located close to a road or on slightly elevated ground) the following should be investigated (subject to approval from the Director of Civil Aviation): • The equipment container and palisade fence should be painted brown or green (depending on the vegetation cover of the surrounding area) or covered with wooden poles to blend in with the surrounding area. • With the approval of the Directorate of Civil Aviation, masts should be left galvanized to minimize the visual impact.	Pre-Construction	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION E	**Site clearance, including site footprint, powerline and road**	**6. Air Quality**	• Dust generation should be kept at an acceptable level by using a reasonable amount of water. If feasible, municipal wastewater or grey water should be treated to an acceptable quality level, so that it can be used for construction purposes, which includes dust suppression on the roads and onsite. • Debris shall be kept in a controlled area and sprayed with water mist to reduce debris dust. • During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site.	Construction Phase	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust. • There will be no open burning of construction / waste material at the site • There will be no excessive idling of construction vehicles at sites.				

4.2.6 Section F: Power Generation and Road construction

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
Section F	**Power Generation and road construction**	**1. Powerlines**	• During the design and alignment of the powerline route, an ecologist and avifauna specialist should join the design team on site to make recommendations regarding the proposed alignment and design. • Approval should be obtained from Roads Authority for permission to cross over any proclaimed road. This permit should be obtained prior to the commencement of the construction works. • The proposed power line pole designs and locations need to be verified to ensure that it meets the approval of the Directorate of Civil Aviation regarding the height of the	Pre-construction	As required	Construction Engineers / Contractors MTC Namibia	Project Phase Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			transmission poles and the position in the area. • Enforce reduced speed limits adjacent to the power line route during construction hours.				
Section F	**Power Generation and road construction**	**2. Roads**	• Make use of existing tracks/roads as much as possible throughout the area; • Limit cut and fill activities during the construction of service roads. Natural contours should be followed as far as possible. • Roads should be constructed with a slope towards the sides to ensure the runoff of water from the road surface. • Sufficient culverts should be constructed where applicable to allow rain water / surface	Construction and rehabilitation	As required	Construction Engineers / Contractors MTC Namibia	Project Phase Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			water to pass through without constriction. • Sides of the road should be rehabilitated to reduce the risk for landslides and erosion. • Borrow pits used for the construction of roads shall be rehabilitated and all disturbed areas returned to as close as possible to their original state before construction works.				

4.2.7 Section G: Material storage/handling and use on site, Waste disposal

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION G	**Material storage/ handling/ use on site**	**1. Storage of materials and hazardous substances**	• Fuel, diesel and other hazardous substances must be stored properly according to the Hazardous Substance Ordinance (No. 14 of 1974). • Ensure that oil/ fuel spillages from construction vehicles and machinery are minimised and that where these occur, they are appropriately dealt with. • Drip trays must be placed underneath construction vehicles when not in use to contain all oil that might be leaking from these vehicles. • Contaminated runoff from the construction sites should be prevented from entering other surface water bodies. • All materials on the construction site should be	Construction Phase	Daily	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			properly stored and bunded to prevent contamination. • An impermeable liner should be laid down on the site areas where hydrocarbon products are kept or frequently used (and the possibility of spillage is high) in order to prevent contaminants from reaching to surrounding soils. • In order to avoid or reduced the easy transporting of contaminants (wastewater) into water systems, excavation works should not be executed under aggressive weather conditions such as (rainy season).				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION G	**Hazardous and non-hazardous waste disposal**	**2. Waste management**	• Contractors should not litter the environment at the road work side or at the camp. • All waste generated during construction should either be kept for recycling or disposed at the nearest designated landfill site. • Waste bins should be provided around the work site and at the Contractors camp. • Potential contaminants such as hydrocarbons and waste water should be contained on site by means of an oil-water separator and disposed of in accordance to wastewater discharge standards so that they do not contaminate surrounding soils. • A drip tray should be available for each heavy construction vehicle on-site.	All Project Phases	Daily	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Servicing of vehicles in the field is not permitted, except in case of emergencies, on condition that oils and lubricants are prevented from spilling through the use of drip trays or other suitable containers. • Accidental spills must be cleaned immediately. The contaminated soil must be suitably disposed of in a container for hazardous waste. • Oil, lubricants, and other hazardous materials must be stored in separate containers (concrete liner, container, or metal or plastic drip tray) and stored for transport and disposal at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage in Walvis Bay.				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION G	**Hazardous and non-hazardous waste disposal**	**3. Soil and Water Resources**	• An emergency plan should be available for major / minor spills at the site during construction activities.	All project phases	As required	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers

4.2.8 Section H: Health and Safety

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION H	**Health and safety**	**1. Construction workers**	• Construction workers should be properly educated about the impact of HIV / AIDS on their health and protection methods thereof. • Prostitution or sexual relationships between construction workers and locals should not be allowed at the construction sites.	All Project Phases	As part of induction and intermitted thereafter on a monthly bases.	MTC Namibia Environmental, Health and Safety Control Officers	Construction Site Managers
SECTION H	**Health and safety**	**2. Civil Aviation Safety**	• The proposed network structure designs and locations need to be verified to ensure that it meets the approval of the Directorate of Civil Aviation regarding the height of the transmission structures and the position in the area.	Pre-construction	Once-off	Construction Engineers	Project Phase Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• MTC Namibia should ensure that all telecommunication structures comply with the Annexure 14 requirements of the Aviation Authority, and seek clearance from, or submit notification to the Director of Civil Aviation (DCA) prior to construction: • Notify the DCA of locality of structure sites where airfields are less than 8 km from the sites. • Any structures to be erected within an 8 km radius from any aerodrome, airfield, airstrip or airport needs clearance from the DCA in compliance with the International Civil Aviation Organization (ICAO).				

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION H	Health and Safety	3. Electromagnetic Radiation (EMR)	• MTC should ensure that output levels are within the international standards of The Atomic Energy and Radiation Protection Act, Act 5 of 2005 and Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (April 1998 developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP)). • The design standards to be applied for the structures should comply with the nationally accepted public exposure guidelines of ICNIRP. • MTC should establish a platform for the sharing of information regarding cellphone technology, and EMR.	Operational phase	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• MTC should regularly measure the radiation output of network structures. Should the output levels show signs of progressive increase it might be necessary to reduce the output levels.				
SECTION H	Health and Safety	4. Electromagnetic Radiation (EMR)	• The National Radiation Protection Authority should be involved to assess output levels of BTS particularly, but not limited to, when a concern is raised by a stakeholder.	Operational Phase	As required	National Radiation Protection Authority of Namibia	MTC Namibia: Operation and maintenance Site Managers
			• In densely populated areas, output levels should be measured more frequently. • Any contravention should immediately be rectified.	Operational Phase	Once every 3 months.	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers

4.2.9 Section I: Maintenance

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION I	Maintenance of equipment Maintenance of roads and powerlines	Property owners, regional/local/ traditional authorities	• A convenient maintenance schedule should be prepared and be shared with the Regional/local/traditional authorities, property owners (for inside property sites) and neighbours closest to the sites. This will ensure that they are aware of when to expect the movement of the workforce team and vehicles in the area. • The maintenance workforce should adhere to the rules and regulations of the specific project areas (if any). • The communication with the neighbours and/or property owners should be continued. • Ensure that issues raised by the owners or authorities should immediately be addressed.	Operation and Maintenance Phase	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• When passing through someone's property (property owner), the maintenance team should ensure that gates or entrances are closed and locked (as found).				
SECTION I	Maintenance of equipment Maintenance of roads and powerlines	Waste management	• All waste produced from maintenance or brought to the sites must be removed and disposed of at the nearest municipal dumping site after maintenance. • No waste of any kind may be left or buried at the sites after maintenance.	Operation and Maintenance Phase	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers
SECTION I	Vehicular Traffic	Road Safety	• The same access roads that were used during construction work should be used during this phase to avoid damaging the undisturbed surrounding environment.	Operation and Maintenance Phase	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Equipment and materials loaded onto vehicles must be properly secured to completely avoid items falling off the vehicle and hurt other roads users, especially pedestrians.				

4.2.10 Section J: Decommissioning and rehabilitation of site, powerline or road

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
SECTION J	Decommissioning	1. Waste Management	• All materials and waste should be removed and waste should be disposed of at the nearest municipal dumping site. • No waste of any kind may be left or buried at the sites after decommissioning/closure.	Decommissioning and closure	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers
		2. Erosion Control	• Erosion control measures should be implemented to ensure that the topsoil is not washed away and erosion gullies do not develop.	Decommissioning and closure	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers
		3. Rehabilitation	• All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before construction commenced, including the road reserve, detours, construction camps, and temporary access routes	Decommissioning and closure	As required	Environmental, Health and Safety Control Officers	MTC Namibia: Operation and maintenance Site Managers

Section	Sources of Impact/ Activity	Aspect	Management Actions	Project Phase	Frequency	Implementation	Responsibility
			• Alien vegetation particularly the Downy thorn apple (*Datura innoxia*) and Wild tobacco (*Nicotiana glauca*) that has appeared in the project corridor during construction must be eradicated.				

4.3 Specific Management Actions

4.3.1 Incident and Emergency Response Preparedness

In line with requirements of best practice environmental management planning and the relevant standards / guidelines, the impact assessment should identify potential emergency situation and the EMP should include an incident and emergency response plan. In this regard, and emergency situation or incident is defined as any situation where upset conditions pose an immediate risk to health, life, property or the environment. In the context of the project EMP, upset conditions are defined as conditions which fall outside the scope of normal operations and associated management measures. Most emergencies require urgent intervention to prevent a worsening of the situation, although in some situations, mitigation may not be possible and only palliative care can be offered in the aftermath.

With reference to the flow diagram presented in **Figure 4-1** below, a closed loop system of emergency planning, response, recovery and mitigation – the Emergency Management Cycle – is proposed. It is using this approach that the proposed emergency situation response action plans included in the EMP have been drafted. It is recommended that these draft action plans be updated during the EPCC phase of the project and be regularly reviewed and updated during the life of the project and as part of change management.

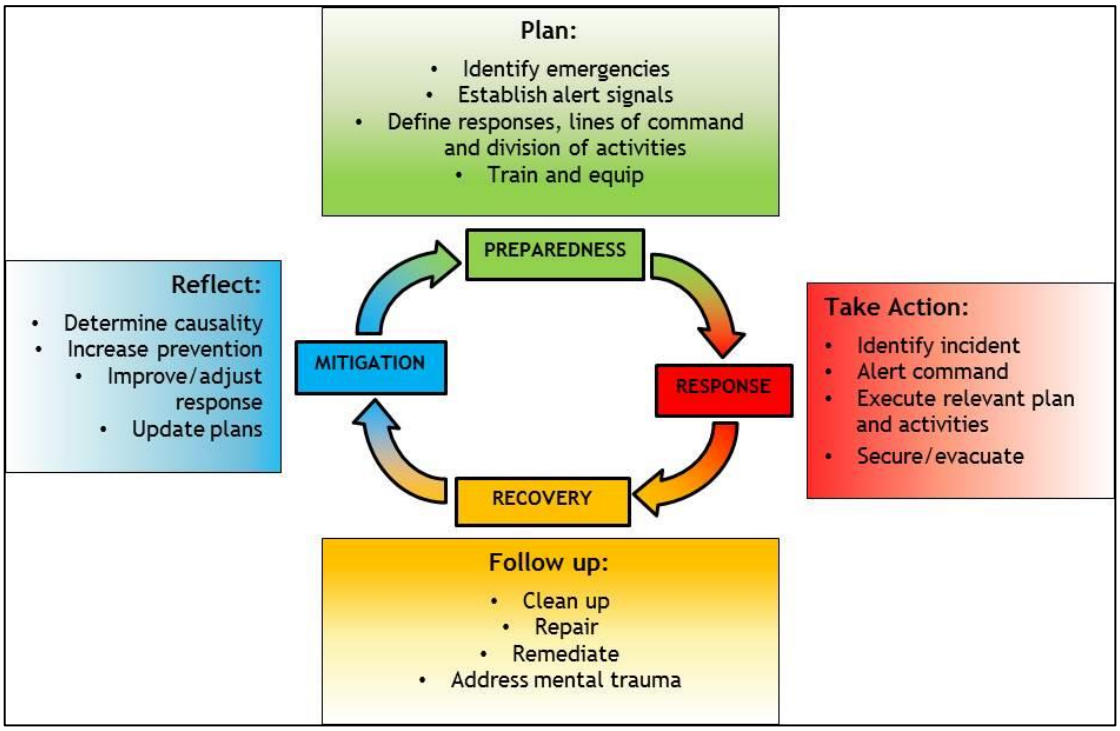

Figure 4-1: The Emergency Management Cycle (Source: GCS Water & Environmental, 2015)

4.3.2 Stakeholder Management and Grievance Mechanism

Public involvement is essential not only in the planning phases of a project but throughout the life of a project. Proponents are required to hold regular meetings with land users and local authorities in the project area to assess the development of the project, the environmental and socio-economic impacts and compliance with environmental management instruments. In addition, a grievance mechanism will be established through appropriate channels that are accessible to all parties, without prejudice or fear of repercussions and anonymity can be maintained, if requested.

In order to ensure on-going stakeholder engagement and two-way channels of communication, the following mechanisms will be implemented:

- The database of registered IAPs from this environmental assessment process is to be maintained and updated as necessary;
- Contact details of the applicable phase site manager to be provided to authorities and registered IAPs;
- Project progress updates, and notifications of any ad hoc deviations from planned project activities are to be sent to all stakeholders as required;
- An open door policy is to be maintained (parties to report to security at the site access); and
- The comments and responses register compiled for this environmental process is to be maintained and updated as necessary by the applicable phase site manager for the life of the project.

Prior to construction, the following engagement procedures should be done:

- Local authorities (municipalities, town and village councils), traditional authorities, regional council offices (including Constituencies) and all affected property owners, should be consulted after the determination of optimal sites. This will be done in order to gather the authorities and property owners' inputs and make adjustments to the location of the sites, where necessary.
- Public meetings (if applicable) should be scheduled to ensure that the local community is aware of the proposed development and to get their inputs/comments on the proposed site locations.

In addition to the above pre-construction requirements, specific communication measures that applies to all phases of the project are given in Error! Reference source not found. b elow.

Table 4-1: Some communication measures that should be applied to all project phases

Project Phase	Communication with	Responsibility	Mode of communication	Frequency	Aspect
Planning and Design	Property owners, Local and traditional Authorities and Regional Councillors	Environmental Assessment Practitioner MTC Namibia/Proponent	In writing and Face-to-Face Engagement (meetings)	Prior to construction	Information on the final site locations. Obtaining certain portion of land to put up the structure.
	Local community	MTC Namibia/Proponent	Engagement meetings		
Construction	Property owners, Local and traditional Authorities and Regional Councillors	Contractors	In writing		Obtaining permission to access local/regional council land and/or private properties.
Operational and Maintenance	Property owners, Local and traditional Authorities and Regional Councillors	MTC Namibia	In writing	Prior to maintenance	Notification on when maintenance team is expected to be on the properties/in the area.
Decommissioning	Property owners, Local and traditional Authorities and Regional Councillors	MTC Namibia	In writing and if necessary Face-to-Face engagement meetings	Prior to decommissioning	Notification of closure/decommissioning of some if not all network structures in the areas.

4.3.3 Social Responsibility

MTC should ensure the sharing of project related information with the authorities and communities at all times and as necessary. This will include:

- It is recommended that MTC set a program in place to educate and assist community members of the communities to responsibly use the technology available and avoid falling into debt or other financial issues.
- Consultation with Horse farms, tourism office and other stakeholders must take place to avoid visual impacts. This is specifically for sites; Google R18, Google R19, Google R15, Google R9 and Google R16.
- Most informants requested to bring more sites or higher sites that will provide more coverage to the entire park. It is recommended to MTC to consider providing a solution for road coverage that all visitors can benefit from.

5 PART 4: MONITORING, AUDITING AND REPORTING

5.1 Inspections and Audits

During the life of the project, performance against the EMP commitments will need to be monitored, and corrective action taken where necessary, in order to ensure compliance with the EMP and relevant enviro-legal requirements.

5.1.1 Internal Inspections/Audits

The following internal compliance monitoring programme will be implemented:

- Project kick-off and close-out audits will be conducted on all Contractors. This applies to all phases, including maintenance and repair contract work during operations:
  - Prior to a contractor beginning work, an audit will be conducted by the applicable phase site manager to ensure that the EMP commitments are included in Contractors' standard operating procedures (SOPs) and method statements.
  - Following completion of a Contractors work, a final close-out audit of the contractor's performance against the EMP commitments will be conducted by the applicable phase site manager.
- Monthly internal EMP performance audits will be conducted during the construction and decommissioning phases.
- Ad hoc internal inspections can be implemented by the applicable phase site manager at his/her discretion, or in follow-up to recommendations from previous inspection/audit findings.

5.1.2 External Audits

At the close of each project phase, and annually during the operational phase, an independently conducted audit of EMP performance will be conducted.

Specialist monitoring/auditing may be required where specialist expertise are required or in order to respond to grievances or authorities directives.

Officials from the DEA may at any time conduct a compliance and/or performance inspection of MTC's operations. MTC will be provided with a written report of the findings of the inspection. These audits assist with the continual improvement of the national project and MTC will use such feedback to help improve its overall operations.

5.1.3 Documentation

Records of all inspections/audits and monitoring reports will be kept in line with the EMS (Section 5.2). Actions will be issued on inspection/audit findings. These will be tracked and closed out via the EMS.

5.1.4 Reporting

Environmental compliance reports will be submitted to the Ministry of Environment and Tourism on a bi-annual basis.

5.2 Environmental Management System Framework

In order implement Environmental Management Practices, an Environmental Management System (EMS) will be established and implemented by MTC Namibia and their Contractors (depending on the management actions as assigned in Section 4). This subchapter establishes the framework for the compilation of a project EMS. The applicable phase site managers will maintain a paper based and/or electronic system of all environmental management documentation. These will be divided into the following main categories:

5.2.1 Policy and Performance Standards

A draft environmental policy and associated objective, goals and commitments has been included in subchapter 4.1 of this EMP. MTC Namibia may adapt these as necessary.

5.2.2 Enviro-Legal Documentation

A copy of the approved environmental assessment and EMP documentation will be available on site at all times. Copies of the Environment Clearance Certificate and all other associated authorisations and permits will also be kept on site. In addition, a register of the legislation and regulations applicable to the project will be maintained and updated as necessary.

5.2.3 Impact Aspect Register

A register of all project aspects that could impact the environment, including an assessment of these impacts and relevant management measures, is to be maintained. This Generic EMP identifies the foreseeable project aspects and related potential impacts of the proposed project, and as such forms the basis for the Aspect-Impact Register; with the Project Activity – Impact Relationship summarised in provided in Detailed Assessment report serving as a draft Aspect-Impact Register. It is however noted that during the life of the project additional project aspects and related impacts may arise which would need to be captured in the Aspect-Impact Register. In this regard, the impact identification principles set forth in the Detailed Assessment report (public participation chapter) can be used to update the Register. This method can be modified as required by the applicable phase site managers as necessary during the life of the project.

5.2.4 Procedures and Method Statements

In order to effect the commitments contained in this EMP, procedures and method statements will be drafted by the relevant responsible project staff and Contractors. These include, but may not be limited:

- Standard operating procedures for environmental action plan and management programme execution;
- Incident and emergency response procedures;
- Auditing, monitoring and reporting procedures; and
- Method statements for EMP compliance for ad hoc activities not directly addressed in the EMP action plans.

All procedures are to be version controlled and signed off by the applicable phase site manager. In addition, knowledge of procedures by relevant staff responsible for the execution thereof must be demonstrable and training records maintained.

5.2.5 Register of Roles and Responsibilities

During project planning and risk assessments, relevant roles and responsibilities will be determined. These must be documented in a register of all environmental commitment roles and responsibilities. The register is to include relevant contact details and must be updated as required.

5.2.6 Site Map

An up to date map of the site indicating all project activities is to be maintained. In addition to the project layout, the following detail must be depicted:

- Materials handling and storage;
- Waste management areas (collection, storage, transfer, etc.);
- Sensitive areas;
- Incident and emergency equipment locations; and
- Location of responsible parties.

5.2.7 Environmental Management Schedule

A schedule of environmental management actions is to be maintained by the applicable phase site managers and/or relevant Contractors. A master schedule of all such activities is to be kept up to date by the site managers. Scheduled environmental actions can include, but are not limited to:

- Environmental risk assessment;
- Environmental management meetings;

- Soil handling, management and rehabilitation;
- Transmission right-of-way activities;
- Waste collection and associated facility maintenance/servicing;
- Environmental management infrastructure maintenance;
- Incident and emergency response equipment evaluations and maintenance
- Environmental training;
- Stakeholder engagement;
- Environmental inspections; and
- Auditing, monitoring and reporting.

5.2.8 Change Management

The EMS must have a procedure in place for change management. In this regard, updating and revision of environmental documentation, of procedures and method statements, actions plants etc. will be conducted as necessary in order to account for the following scenarios:

- Changes to standard operating procedures (SOPs);
- Changes in scope;
- Ad hoc actions;
- Changes in project phase; and
- Changes in responsibilities or roles

All documentation will be version controlled and require sign off by the applicable phase site managers.

5.3 Recommendations for monitoring of bird impacts

The following monitoring actions should be conducted by MTC Namibia. An Avifaunal specialist can be contacted to advise on methodology and provide training to the designated personnel, if required. The following monitoring initiatives should be initiated by MTC Namibia, in collaboration with and with the support of other partners:

- Ensure that the mast site and the entire associated power line route are monitored in an acceptable way for any signs of bird mortalities resulting from construction and operational activities; ideally, conduct regular dedicated monitoring patrols once a month for at least the first year after construction, and thereafter at least once per quarter. Promote awareness about the need for reporting collision incidents and clarify the reporting procedures.
- Record all bird mortalities on a standardized form, with the GPS coordinates and structure and other details, and photographs of the carcass (especially the head of the bird) and relevant structure and general habitat; forward a copy of each report to the avifauna specialists for further investigation.
- Should monitoring indicate that collisions and/or electrocutions are taking place on mast or power line structures, further suitable mitigation measures must be applied.
- Monitor the effectiveness of mitigation measures; retrofit further mitigation in identified problem areas and replace devices as and when necessary.
- Monitor perching activities of live birds on mast and associated power line structures.
- Monitor nesting activity on network structures and, if it becomes a problem, address by means of mitigation measures (e.g. consult the Ministry of Environment and Tourism (MET) regarding the removal of nesting material during the non-breeding season).

6 CONCLUSIONS

Based on the management actions and recommendation given in this EMP, GCS is confident that the proposed construction of medium to high risk BTS sites in the Ohangwena Region, as described in Chapter 1 and 2 of this EMP may be granted an Environmental Clearance Certificate, provided that the Generic EMP is implemented and that all the legal requirements pertaining to this activity are complied with.

ADDENDUM 1

DETAILED ASSESSMENT FORM-TEMPLATE

SITE DESCRIPTION		
Name of site		
Describe site location		Attachment 1: Site Map [ ]Y [ ] N
Who owns the land?		
Final Location Coordinates		
Description of geographic, physical, biological, geological, hydrographic and socio-economic context		
DESIGN DETAILS		
Antenna		
Structure		
Power Output		
Source of Power		
Source of Water		
PUBLIC CONSULTATION		
Identify when / where the public consultation process took place with: a) neighbours b) authority c) avifauna specialist Attach proof or description of outcome.		

ADDENDUM 2

CURRICULA VITAE (CV's) FOR EAP

ADDENDUM 3

ENVIRONMENTAL CLEARANCE CERTIFICATE PREVIOUSLY ISSUED

ADDENDUM 4

PROOF OF AUDIT REPORTS SUBMITTED TO MEFT