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Environmental Management Plan (EMP) for the Proposed Construction and Operation of a Telecommunication Tower in Aus, //Karas Region

Report

Final

February 2025

PowerCom (Pty) Ltd

GCS Project Number: 24-0597

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1 OVERVIEW

1.1 Project Background

PowerCom (Pty) Ltd ("PowerCom") proposes to erect a telecommunication tower in Aus, //Karas Region, which aims to strengthen the coverage for mobile and wireless services (inclusive of voice and data services) within the subject area. The location of the proposed site is shown in **Figure 1-1** below.

In line with the Environmental Management Act (Act 7 of 2007) an Environmental Assessment (EA) has been conducted for the proposed development.

1.2 Purpose of the EMP

Regulation 8 of the Environmental Management Act's (EMA) (7 of 2007) Environmental Impact Assessment Regulations (2012) requires that a draft Environmental Management Plan (EMP) be included as part of the Environmental Assessment (EA) process. A 'management plan' is defined as:

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

An EMP is one of the most important outputs of the EA process as it synthesises all 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 EIA process and the responsive environmental management actions to be taken on the ground during project implementation and operation.

This EMP is a living document and should be amended to address project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of this document is therefore to guide environmental management throughout the phases of the proposed development, namely planning and design, construction, operation and maintenance and, if considered, decommissioning.

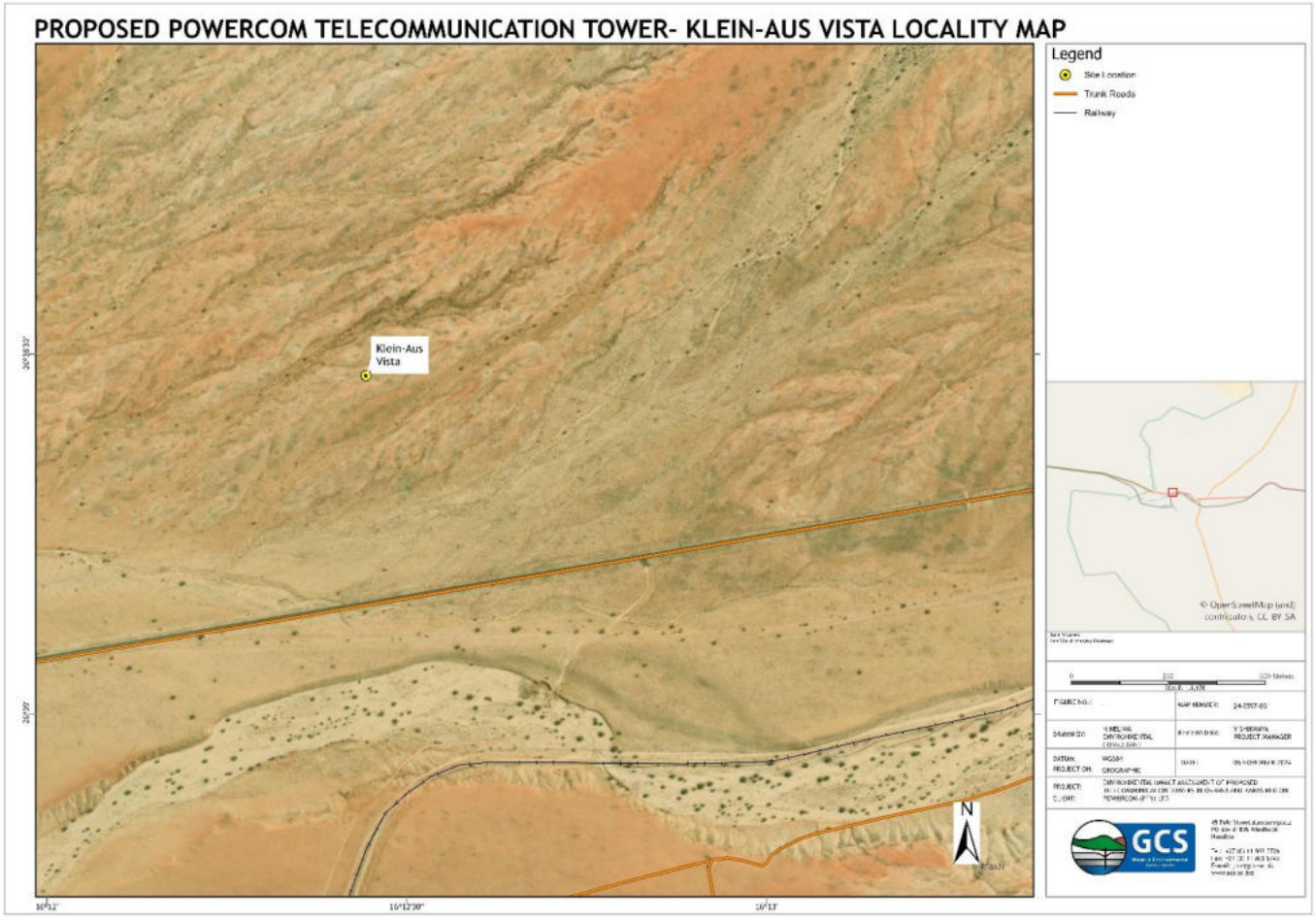

Figure 1-1: Location of proposed Telecommunication Tower in Aus

The following phases are addressed in this EMP:

- **Planning and design** - the period prior to the construction phase, during which preliminary legislative and administrative arrangements are carried out in preparation of construction activities;
- **Construction phase** – during this phase, the tower and its related infrastructure will be constructed;
- **Operation and maintenance** - the period during which the tower and its related infrastructure will be operational and maintained as necessary.
- **Decommissioning** – Should the tower be decommissioned; this phase will be implemented. There will always be a need for improved mobile services, hence the decommissioning of the infrastructure is not anticipated. Mitigation measures will be provided in the unlikely event of decommissioning.

1.3 Environmental Assessment Practitioner (EAP)

GCS Water Environmental Engineering Namibia (Pty) Ltd ("GCS") have been appointed by PowerCom (Pty) Ltd ("PowerCom or Proponent") as independent Environmental Assessment Practitioner (EAP) to conduct the required EA. This includes the compilation of an EMP for the proposed development. The EMP is to be submitted together with the Scoping EA Report as part of the application for an Environmental Clearance Certificate (ECC). The application will be submitted to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), Ministry of Environment Forestry and Tourism (MEFT). The EMP will also be used by Contractors, Engineers and the Proponent, to guide practices during the construction and operation of the tower to ensure that impacts on the environment are avoided or minimized.

1.4 Legal Requirements

Under the 2012 Environmental Impact Assessment (EIA) Regulations of the Environmental Management Act (7 of 2007), the proposed development is a listed activity that may not be undertaken without an ECC. This activity is listed under the following section:

"*10.1 (g) The construction of masts of any material or type and of any height, including those used for telecommunication, broadcasting, and radio transmission.*"

The content of the EMP must meet the requirements as laid out in Section 8(j) of the EIA Regulations. The EMP must address the potential environmental impacts of the proposed activity on the environment throughout the project life cycle. It must also include a system for assessment of the effectiveness of management and monitoring arrangements after implementation. PowerCom therefore has the responsibility to ensure that the proposed activity, as well as the EIA process, conforms to the principles of the EMA. Any contractors appointed by PowerCom must also comply with such principles.

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.

Table 1-1 below lists the applicable and relevant Namibian legislations and other international guidelines for this specific EA process

Table 1-1: Applicable and relevant Namibian legislations and other international guidelines for this specific EA process

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles which are to guide all EAs.	The EMA and its regulations should inform and guide the EA process.
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21). Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
The Constitution of Namibia Act No. 1 of 1990	According to Legal Assistance Centre (LAC), there is no clear right to health in the Namibian Constitution. But under the Article 95 of the Namibian Constitution that deals with Principles of State Policy, the Namibian Constitution states "the state shall enact legislation to ensure consistent planning to raise and maintain an acceptable standard of living for the country's people" and to improve public health.	The Proponent should ensure compliance with the conditions set in the Act.
Namibian Communications Act 8 of 2009	Provides for the regulation of telecommunications services and networks, broadcasting, postal services and the use and allocation of radio spectrum; for that purpose the establishment of an independent Communications Regulatory Authority of Namibia; to make provision for its powers and functions; the granting of special rights to telecommunications licensees; the creation of an Association to manage the .na internet domain name space and for matters connected therewith.	Provides the standards for setting up cellular, wireless and satellite services.
Local Authorities Act (No. 23 of 1992)	Provides for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.	The !Nami-#Nus Constituency is the responsible Local Authority of the area in which the proposed development will be located, and they are consulted for this EA.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
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.	To determine the "safe distance" around the site.
"Guidelines for Limiting Exposure to Electromagnetic Fields (100kHz to 300GHz)" (March 2020, developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP))	Provides international standards and guidelines for limiting the adverse effects of non-ionising radiation on human health and well-being, and, where appropriate, provides scientifically based advice on non- ionising radiation protection including the provision of guidelines on limiting exposure.	Justifies the need for assessing the impact of electromagnetic radiation from the antennae, on the nearby residents.
The Aviation Act, Act 74 of 1962	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	Provides the regulations for setting up cellular structures in Namibia.
Namibian Civil Aviation Regulations, 2001	Section 139.01.34 outlines the obstacle limitations and marking outside aerodromes	The proposed project should adhere to the limitations outlined in the act.
Convention on International Civil Aviation, Annex 14	• Annex 14 to the Convention on International Civil Aviation. • Chapter 4: Obstacle restrictions and removal • Chapter 6: Visual aids and donating of obstacles	The proposed new structures may be obstacles to some aerodromes in Namibia. Those that are close to existing aerodromes need to be assessed in accordance with the document. Visual aids to the new structures to make them visible to aircraft need to be applied in accordance with this Convention.

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Labour Act (No. 6 of 1992)	Ministry of Labour (MOL) is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992.	PowerCom should ensure that construction, operation and maintenance of the towers, the safety and welfare of workers are not compromised.

1.5 Assumptions and Limitations

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

- This EMP has been drafted based on the scoping-level Environmental Assessment (EA) conducted for the proposed construction and operation of the telecommunication tower in Aus, //Karas Region. No specialist studies were included as part of the assessment; and
- The mitigation measures recommended in this EMP document are based on the risks/impacts identified in the Scoping Report. These impacts were identified based on the provided project description and projected project impacts. Should the scope of the project change, the risks will have to be reassessed and mitigation measures adjusted accordingly.

1.6 Report Structure

This EMP lays out the management actions to be undertaken at the proposed site. The EMP addresses the following phases:

- **Planning and design**;
- **Construction phase**;
- **Operation and maintenance phase**; and
- **Decommissioning phase**

2 ROLES AND RESPONSIBILITIES

PowerCom is ultimately responsible for the implementation of the EMP. PowerCom may delegate this responsibility at any time as they deem necessary. The delegated responsibility for the effective implementation of this EMP will rest on the following key individuals who may be the same person:

- Proponent's Representative; and/or
- Environmental Control Officer.

2.1 Proponent's Representative

If the Proponent does not directly manage all aspects of the phases and activities referred to in this EMP, they should assign this responsibility 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 the all the project phases. Alternatively, the Proponent may decide to assign a separate PR for each project phase. The PR's responsibilities, included in **Table 2-1**, are as follows:

Table 2-1: Responsibilities assigned to the Proponent's Representative for planning and design, construction, operation and maintenance and decommissioning phases

Responsibility	Project Phase
Managing the implementation of this EMP, updating and maintaining it when necessary.	Throughout the lifetime of the project.
Management and monitoring of individuals and/or equipment on-site in terms of compliance with this EMP.	Throughout the lifetime of the project.
Issuing fines for contravening EMP provisions.	Throughout the lifetime of the project.

2.2 Environmental Control Officer

The responsibility for overseeing the implementation of the EMP on the ground is conferred in this EMP to the Environmental Control Officer (ECO). The Proponent may decide to assign this role to one person for all project phases or may assign separate individual ECOs to oversee EMP implementation during each project phase. The ECO will have the following responsibilities:

- Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&APs) with regard to this EMP;
- Conducting site inspections (recommended minimum frequency is weekly during construction phase and bi-annually during the operation and maintenance and decommissioning phases) of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP);
- Advising the PR on the removal of person(s) and/or equipment where there is non-compliance with the provisions of this EMP;
- Making recommendations to the PR 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.

3 ENVIRONMENTAL MANAGEMENT PLAN ACTIONS

3.1 Key Potential environmental impacts to be managed

From the EA, the following key potential negative impacts have been identified per project phase and are summarised in **Table 3-1** below.

Table 3-1: Summary of key potential environmental impacts per project phase

	Project Phase	Potential negative impacts identified in the EA
1	Construction	• Disturbance to surrounding property owners, • Health and safety, • Waste generation, • Dust, • Noise.
2	Operation and maintenance	• Health and safety (radiation emissions), • Visual impacts.
3	Decommissioning	• Loss of improved cellular network coverage, • Removal of infrastructure, • Health and safety, • Waste handling and disposal.

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.

Actions recommended to manage the potential impacts rated in the EA carried out for the proposed tower construction are presented in the following tables, as follows:

- Planning and Design phase (Table 3-2);
- Construction phase (**Table 3-3**);
- Operation and maintenance phase management actions (**Table 3-4)**; and
- Decommissioning phase (**Table 3-5**).

The responsible persons at PowerCom should assess these commitments in detail and acknowledge their responsibility to the specific management actions detailed in the tables.

3.2 Phase 1: Planning and Design Management Actions

Since the proponent is responsible for the construction of the sites, the management requirements detailed in **Table 3-2** need to be carried out before any construction work commences. Necessary preliminary legislative and administrative arrangements should be made in preparation for the operation of the proposed development. These management requirements are also applicable for the period during which engineering designs/drawings are carried out.

Table 3-2: Planning and design management actions

Aspect	Management Requirement	Responsibility	Timeframes
Tower and associated Equipment Design	• The design standards to be applied to the associated equipment which produces the telecommunication signals should comply with the internationally accepted public electro-magnetic exposure guidelines.	Proponent	Pre-construction phase
Labour Recruitment	• It is anticipated that PowerCom will utilize its own workforce. • However, should there be a need to employ additional labourers, local labour will be prioritized for unskilled or semi-skilled labour. • Recruitment will not be done at the project site.	Proponent	Ongoing
Construction schedule	• A convenient construction work/schedule should be prepared and be shared with the surrounding property owners. This will ensure that the surrounding property owners are aware of when to expect the construction team at the site.	Proponent	Pre-construction
EMP Implementation	• PowerCom needs to appoint a Proponent's Representative (PR) who will act as their on-site agent. This person should be responsible to ensure that the Proponent and Contractor's responsibilities are executed in compliance with relevant legislation and this EMP.	Proponent	Ongoing

Aspect	Management Requirement	Responsibility	Timeframes
Agreement with affected landowners	• PowerCom to ensure that permission is granted in writing by the landowners to erect the structures on the site prior to commencing construction.	Proponent	Pre-construction

3.3 Phase 2: Construction Phase Management Actions

The management actions for the construction phase are listed in **Table 3-2**.

Table 3-3: Construction phase management actions

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
EMP training	Lack of EMP awareness and the implications thereof	• Employees appointed for construction work on respective infrastructure must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work. • Comprehensive induction forms a critical component during the construction and operational periods. This includes the following: o Ensuring that all employees are aware of their individual impact on the environment. o Ensuring that preventative measures and procedures are undertaken in order to reduce the risk of a potential impact.	ECO and Contractor	Continuous
Monitoring	EMP non-compliance	• The PR should periodically (monthly) audit the implementation of this EMP. • The ECO should inspect the site weekly throughout the construction period.	PR and ECO	Duration of construction phase

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Health and Safety	Health and Safety	• Construction workers should be trained on how to handle materials and equipment on site (if they do not already know how to) in order to avoid injuries. • The contractor(s) should ensure that all personnel are provided with personal protective equipment (PPE), such as gloves, safety boots, safety glasses and hard hats at all times during construction hours on site. • No workers should be allowed to drink alcohol during working hours. • No workers should be allowed on site if under the influence of alcohol. • Dust and noise levels generated on the site will be monitored (qualitatively) to ensure worker health is not compromised, nor are community complaints are received. • Dust suppression with water bowzers will be employed in the event of high dust levels	PR and Contractor ECO/ PR	Ongoing
Waste Management		• The construction site should be kept tidy at all times. • All domestic and general construction waste produced on a daily basis should be cleaned and contained daily. • No waste may be buried or burned on site or anywhere else.	PR and Contractor	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		• Waste containers (bins) should be emptied after the construction and removed from site to the municipal waste disposal site. • Separate waste containers (bins) for hazardous and domestic / general waste must be provided on site. • Construction labourers should be sensitised to dispose of waste in a responsible manner and not to litter. • No waste may remain on site after the completion of the project. • The proponent should investigate and utilise possible methods for recycling waste generated on site.		
Construction labourers		• Construction workers will be transported, in a bus (or similar suitable passenger vehicle) to and from site. • Portable toilets should be available on site at a ratio of at least 1 toilet per 10 workers. • No workers may reside on-site for the entire duration of the construction period. • No cooking on site to prevent the risk of fires.	PR and Contractor	Duration of construction

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Archaeology	Loss of heritage resources	• 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: o If operating machinery or equipment, stop work; o Demarcate the site with danger tape; o Determine GPS position if possible; o Report findings to the construction foreman; o Report findings, site location and actions taken to superintendent; o Cease any works in immediate vicinity; o Visit site and determine whether work can proceed without damage to findings; o Determine and demarcate exclusion boundary; o Site location and details to be added to the project’s Geographic Information System (GIS) for field confirmation by archaeologist; o Inspect site and confirm addition to project GIS;	ECO	Prior to site setup activities

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		○ Advise the National Heritage Council of Namibia (NHCN) 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: ○ 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 NHCN and Police; and • Remains will be recovered and removed either to the National Museum or the National Forensic Laboratory.		

3.4 Phase 3: Operation and Maintenance Management Actions

The table below (**Table 3-4**) presents the management action for the operation and maintenance phase.

Table 3-4: Operation and maintenance phase management actions

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
EMP training	Lack of EMP awareness and the implications thereof	• Employees appointed for operation and maintenance on respective site infrastructure and services must ensure that all personnel are aware of necessary health, safety and environmental considerations applicable to their respective work.	Operations Manager/ ECO	Ongoing
Monitoring	EMP non-compliance	• The Operations Manager/ ECO should inspect the site operations on a biannual basis and report any non-conformances to the Proponent.	Proponents Representative, Proponent and Environmental Control Officer	Ongoing
Health and Safety	Electromagnetic Radiation (EMR) emission	• PowerCom should adopt the Precautionary Principle to optimize the benefits derived from the technology while also providing protection to allay the fears of those for whom the State has responsibility to protect.	Proponent	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		• PowerCom should monitor to ensure that antennae construction and electro-magnetic radiation levels are within the international standards of The Atomic Energy and Radiation Protection Act, Act 5 of 2005 and "Guidelines for Limiting Exposure to Electromagnetic Fields (100kHz to 300GHz)" (March 2020, developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP))		
		• The National Radiation Protection Authority should be involved during this phase (operational) to assess the possible emissions from antennae.	National Radiation Authority of Namibia and Proponent	Ongoing
Civil aviation	Civil aviation impact	• PowerCom should ensure that no other high projections/extensions will be added on top of the antennae that may compromise aerodrome (civil aviation) safety. • PowerCom should ensure that the structures adhere to the Namibia Civil Aviation Regulations (NAMCARs) Part 139 Aerodromes and Heliports: Licencing and Operation. • In the case that PowerCom will need to increase the height of the tower or add additional infrastructure on top of the tower, prior consultations should be made with Civil Aviation Department to ensure that the new infrastructure does not interfere with civil aviation operations.	Proponent	Ongoing

3.5 Phase 4: Decommissioning Management Actions

The table below (**Table 3-5)** presents the management action for decommissioning phase.

Table 3-5: Decommissioning phase management actions

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Tower Decommissioning	Loss of better mobile network coverage Loss of jobs	• The proponent should ensure that the mobile coverage is not compromised, by putting up an alternative cellular infrastructure. • The Proponent will redeploy employees no longer employed in operating the tower.	Proponent	Pre-decommissioning
Health and Safety	Health and Safety during removal of infrastructure	• Workers should be trained on how to handle hazardous materials and equipment on site. • Workers should be trained on how to handle demolition activities safely. • The contractor(s) should ensure that all personnel are provided with personal protective equipment (PPE), such as gloves, safety boots, safety glasses and hard hats at all times during construction hours on site. • No workers should be allowed to drink alcohol during working hours. • No workers should be allowed on site if under the influence of alcohol.	Proponents Representative and Contractor	During decommissioning

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
Waste Management	Waste handling and removal during removal of infrastructure	• The decommisioning site should be kept tidy at all times. • All domestic and general waste produced on a daily basis should be contained daily in covered bins. • No waste may be buried or burned on site or anywhere else. • Waste containers (bins) should be emptied weekly and removed from site to the municipal waste disposal site. • Separate waste containers for hazardous and domestic / general waste must be provided, and the appropriate disposal methods for each type of waste employed. • The workforce should be sensitised to dispose of waste in a responsible manner and not to litter. • No waste may remain on site after the completion of the project. • It is recommended that the recycling and re-use of removed infrastructure should be explored and implemented.	Environmental Officer and Contractor	Ongoing
Decommissioning team		• Decommissioning workers will be transported in a bus (or similar suitable passenger vehicle) to and from site.	Proponents Representative and Contractor	Ongoing

Environmental Feature	Impact	Management Actions	Responsibility	Timeframes
		• If the decommissioning team is not allowed to use the toilets available on site, portable toilets (i.e. easily transportable) should be available at a ratio of at least 1 toilet per 10 workers. • No workers may reside on-site for the entire duration of the construction period. • No cooking on site to prevent the risk of fires.		

4 CONCLUSIONS

GCS has provided practical mitigation measures and monitoring regimes for all phases of the proposed tower development. Should the mitigation measures provided within this EMP be implemented effectively, GCS is of the opinion that no significant environmental or social impacts will be generated.