BOTSWANA EMERGENCY WATER SECURITY AND EFFICIENCY PROJECT

ADDENDUM TO THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR THE SELEBI - PHIKWE TO SERULE WATER TRANSFER SCHEME SUB-PROJECT

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR THE ACCOMMODATION CAMP FOR STAFF AT THE CONTRACTOR'S CONSTRUCTION CAMP IN MMADINARE

REVISED REPORT

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PROJECT DETAILS

Project Title	Environmental and Social Management Plan for the Accommodation Camp for Staff at the Contractor's Construction Camp in Mmadinare
Project Location	Mmadinare village

PROPONENT'S DETAILS

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EXECUTIVE SUMMARY

Introduction

This Addendum to the Environmental and Social Impact Assessment (ESIA)/ Environmental and Social Management Plan (ESMP) for the Selebi – Phikwe to Serule Water Transfer Scheme sub-project presents the ESMP for the accommodation camp located on the outskirts of Mmadinare village. The facility shall be permanently occupied by China Geo-Engineering Corporation's (the Contractor) senior management whom are involved in the Scheme's construction for the duration of this phase of project implementation.

Project Description and Location

The accommodation camp is located within the Contractor's existing construction camp site, which belongs to Water Utilities' Corporation (WUC) and is being leased to China Geo-Engineering for implementation of the Selebi – Phikwe - Serule Water Transfer Scheme. The brownfield site measuring 1.42ha was previously used as a contractor's construction camp/workshop during the construction of the Letsibogo dam, which is located 500m west from the contractor's camp.

The construction of the 14 unit accommodation camp was completed in December 2021 and currently accommodates ten (10) Chinese nationals whom are part of the Contractor's management team. Initially these staff rented accommodation in Mmadinare village but due to security concerns an alternative was sought within the contractor's camp. The camp is expected to be in use for 26 months from the time of occupation (December 2021) until the end of defects liability period (anticipated to be first quarter of 2024).

The accommodation facility is separated from the contractor's construction camp which is located to the south by a 1.5m high diamond fence with an access gate. The Contractor's construction camp houses the workshop, storage room, fuel dispensing area; plant, tools and equipment storage area, isolation room, pipe and fitting area, parking and a mixing plant station. The offices for the Project Manager, as well as the Supervising Engineer, are located to the East of the accommodation camp. The two facilities are separated by a paved access road. There is no linked access between the two facilities.

Access to the accommodation camp is along a 14km tarred road that branches off the existing Selebi Phikwe - Mmadinare Road to the West and terminates about 200m west from the entrance of the contractor's camp site. The 14km tarred access road also services the Mmadinare Senior Secondary School, which is located about 5km South West of the Contractor's construction camp.

The accommodation facility measuring 60m by 60m comprises of the following:

- Kitchen and dining area measuring 40m^2 and 50m^2, respectively.
- Fourteen (14) single accommodation units each measuring 12m^2. Each accommodation unit has a toilet and shower measuring 3m by 2m. The cabins are assembled in two parallel sleeping 'blocks' with a communal kitchen/ dining block at 90 degrees to this. The cabins in each block are linked via covered walkways.
- Electric fence around the perimeter of the sleeping 'blocks' with two sliding gates located to the East of the cabins.
- Eight Closed Circuit Television (CCTV) cameras;
- Eleven (11) fire extinguishers.
- Demarcated laundry washing area and drying lines;
- Sixteen (16) air conditioners and seven (7) geysers;
- Vegetable garden measuring 210m^2;
- Multipurpose hall measuring 60m^2;
- Two conservancy tanks located east and west of the cabins;
- Very Important Person (VIP) room measuring 30m^2;
- Store room measuring 20m^2;
- Jojo tank (5000 litres) at the corner of the VIP room. The tank is filled with water from the existing tap connection on site and serves as backup water supply in the event of water supply interruptions.
- Open area (210m^2) around the buildings which have been covered with gravel stones.

In addition to the above, the accommodation camp also has internet connection.

Project Rationale

This ESMP Report is an update or addendum to the previously approved Environmental and Social Impact Assessment (ESIA)/ Environmental and Social Management Plan (ESMP) for the Selebi-Phikwe to Serule Water Transfer Scheme (June 2014 and July 2020, respectively). The ESIA/ ESMP provided an assessment of two alternative scenarios with respect to the provision of a labour camp on site. After analysing the advantages and disadvantages of having and not having a labour camp on site, the Report concluded that accommodation should be sourced from within the beneficiary villages. As a result no assessment for a Contractor's labour camp on site was undertaken. The reasons advanced by the Contractor for accommodating the management staff on site are:

- Cultural differences
- Vulnerability ('easy targets' for thefts and attacks)
- Socializing (language barrier) and
- Reinforcement of Code of Conduct and minimizing social ills.

Methodology

This addendum to the ESIA/ESMP has been prepared in compliance with Form B Regulation 5 of the Environmental Assessment Regulations of 2012, World Bank safeguard polices, World Bank Group Environmental, Health and Safety Guidelines and the Workers' Accommodation: Processes and standards - guidance note by International Financing Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD). The methodology employed in undertaking the environmental and social study is presented below:

Field Investigations

The following activities were undertaken during the field investigation:

- A visit was undertaken by the environmental team comprising the environmentalist, resident environmentalist and sociologist accompanied by the contractor's SHE Officer on the 15th of September 2021 to the project site including neighbouring areas within a 200m radius of the site for purposes of familiarization with the receiving environment, recording/noting the environmental and social issues pertaining to the proposed project, the project site and its surrounding area, as well as to collect primary baseline environmental and socio-economic data. Subsequent visits by the resident environmentalist were taken for ground truthing during preparation of the report.
- Photographing of significant aspects of the project site in order to aid in the description of the baseline environmental and social conditions of the site and its surroundings.
- Consultations with relevant stakeholders, including interested and affected parties, to solicit their views for incorporation into this Addendum ESIA/ ESMP Report, to inform the mitigation measures recommended.

Desktop Studies

The desktop study involved:

- Review of the approved ESIA/ESMP Report dated 3rd July 2020 to obtain background information on the project site, as well as environmental, social and occupational health and safety issues and impacts likely to arise during implementation of the project.
- Assembly and review of relevant policies and legislations pertaining to the project to guide the construction, operation and decommissioning of the accommodation facility as well as to ensure compliance to the laws and regulations of Botswana and the World Bank Safeguard Policies. In addition, a description of the administrative framework which governs the management of the accommodation facility is provided.
- Identification and assessment of anticipated biophysical and socio-economic impacts. This was achieved using checklists to identify impacts, consultant's expert opinion and findings of the field investigations undertaken.
- Assessment of identified impacts by adapting the BOS ISO 14001:2015 Environmental Management – Requirements with guidance for use for determining significance of environmental impacts.

The below listed activities will be undertaken during the pre-construction, construction, and operation and decommissioning of the accommodation camp.

Phase of Project Implementation and Duration	Activities to be Undertaken
Construction	• Excavation for the foundations for the concrete plinth for the prefabricated structure. • Mixing and pouring of concrete for the foundation. • Excavation for laying of water and sewage pipeline. • Construction of conservancy tanks, sewerage facilities, water reticulation, power supply provision etc. • Management of construction waste (solid and liquid) generated during construction. • Assembly of prefabricated cabin structures.
Operation	• Occupation of accommodation facility by the contractor's management staff. • Periodic supply, servicing and maintenance of the infrastructure including, but not limited to, repair of broken pipes and roofing, electrical issues, plumbing services, servicing of the conservancy tank, cleaning of water tank, servicing of the air-conditioning units, supply services, etc. • Management of waste (domestic waste, kitchen waste, vegetation from landscaping activities) and maintenance of landscape features.
Decommissioning	• Sourcing of labour (about 30 workers are anticipated to be employed). • Decommissioning of contractor's accommodation facility including structures, services, hard surfaces, gravels, fencing etc. • Decommissioning of the conservancy tank. • Backfilling of excavated areas with inert soil or left-over earth material.

Anticipated Impacts and Mitigation/Enhancement Measures

The study identified several potential impacts on the environment (biophysical and socio-economic), both negative and positive, which are likely to arise during construction (retrospective), operation (including maintenance) and decommissioning of the accommodation facility. However, adequate mitigation measures/ management actions have been prescribed to ameliorate the negative impacts and enhance the positive impacts identified, a summary of which is presented below.

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
Construction	Decline in air quality levels	Negative	1. Adequate dust suppression measures including regular sprinkling of water especially on exposed surfaces used by trucks and/or vehicles within the site. 2. Workers should be provided with dust masks during project implementation to prevent them from contracting respiratory diseases (or infections). 3. All hauling trucks should be fully covered during transportation of earth material to site.
	Noise disturbance	Positive	1. Before construction, all machinery and equipment should be well maintained in order to reduce the magnitude of noise that would be generated. 2. Ensure that all stationary equipment is carefully oriented away from sensitive receptor (Engineers' office located to the south west). 3. Workers should be provided with adequate protective clothing including earplugs while on site.
	Land pollution due to improper solid waste handling	Negative	1. Appropriate materials to be used for the construction of the accommodation camp and its ancillary services should be ordered in an effort to minimise waste generation. 2. Practice waste categorization where waste is sorted according to its nature to encourage reuse and recycling which will in turn minimise the amount of waste that will be taken to the waste disposal facility in Mmadinare. 3. No plastic covering should be left on site. All waste should be collected

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			and disposed of at the temporary waste holding facility located at the contractor's camp site.
	Falling materials from haulage trucks	Negative	1. All haulage trucks should prior to leaving from the borrow pit or site of source of earth materials, be properly covered with secured tarpaulins. 2. Haul trucks should not be overloaded. 3. Drivers of the haul truck should ensure that they maintain the legal speed limits along the haulage route.
	Potential road traffic accidents	Negative	1. Display clear information/warning signs setting out the traffic control arrangements into and out of the project site. These signs should be placed at intervals of at least 50m on approach to the turn off to the site from along the tarred road to warning motorists of ongoing construction works. 2. Speed limit of 40km/hr should be set for all vehicles and trucks' that would be travelling along the access roads leading to the project site.
	Generation of foul odour	Negative	1. Ensure that the contents of the temporary waste holding facility at the Contractor's camp are collected every week to prevent littering around the premises and also to prevent the development of foul odour. 2. Service and maintain all mobile toilets at least once a week.
	Provision of temporary employment	Positive	1. Recruit as many local people as possible especially in the semi-skilled and unskilled category.

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			2. Contracts of employment should be duly signed by newly employed workers. 3. At least 50% of the work force should comprise of the youth and females.
	Contribution to local and national revenue	Positive	As much as possible and where feasible, the contractor should procure materials for the construction of the accommodation facility from local suppliers placing emphasis on local participation.
	Potential injuries to workers	Negative	1. The Safety, Health and Environment (SHE) Officer should conduct environmental awareness induction training course for all construction crew on SHE issues. 2. A well-equipped first aid box should be readily available on site. 3. Practice good housekeeping all the time and maintain the standard to prevent unhygienic work environment.
	Potential for Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse (SHEA)	Negative	1. Engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and Sexual Harassment Exploitation and Abuse. 2. Train workers and the contractor on behaviour obligations. To make this effective, all occupants must sign a Code of Conduct (CoC) and this should be enforced for compliance. 3. The Contractor and the workers should be sensitized on the CoC and Action Plan for preventing Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer.

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
Operation	Noise disturbance	Negative	Occupants of the accommodation facility should be sensitized on ensuring that noise levels are kept to a minimum. No excessive noise should be permitted after 10pm.
	Potential risk of fire outbreak	Negative	1. All mitigation measures as provided by the Fire Department, Selebi - Phikwe Town Council should be adhered to (Appendix 2). 2. A Fire Evacuation Plan shall be prepared and include input from the local fire department responsible for fire response. The Plan should be displayed in visible places throughout the camp. 3. All fire extinguishers on site should be serviced at the time the supplier has indicated to ensure that they are in good working condition.
	Land pollution	Negative	1. At least four waste bins with secure lids should be provided and strategically placed at the accommodation camp to encourage occupants to keep the facility free of litter. Additional waste bins should be placed in the kitchen, dining area, all bathrooms and accommodation units. These bins should be lined and kept clean. 2. The Contractor should ensure that the contents of the waste bins from the area are collected and disposed of at the temporary waste holding area located at the contractor's camp site daily to prevent littering around the premises. 3. Practice waste categorization where waste is sorted according to its nature to encourage reuse and recycling which will in turn minimise the amount of waste that will be

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			taken to the waste disposal facility in Mmadinare.
	Risk of spread of diseases such as Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome) HIV/ AIDS and Malaria, Coronavirus disease (COVID-19)	Negative	1. There should be monthly sensitization of the occupants of the accommodation facility about HIV/AIDS and other STDs. 2. Occupants should be encouraged to know their status and go for HIV/AIDS testing. 3. The Contractor should provide mosquito nets to the occupants of the accommodation facility as one of the strategies to control malaria. 4. The COVID-19 Plan for the sub-project works shall be followed.
	Potential for Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse (SHEA)	Negative	1. Engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SEA/ SH. 2. Train occupants as well as temporary workers at the camp on behaviour obligations. To make this effective, all occupants must sign a CoC and this should be enforced for compliance. 3. The Contractor and the occupants of the accommodation facility should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SEA/ SH throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer.
	Provision of temporary employment	Positive	1. Workers to be recruited should be from within Mmadinare village. 2. The Contractor should adhere to all requirements of the existing labour laws.
	Generation of foul odour	Negative	1. Ensure that the contents of the conservancy tank are emptied on a quarterly basis. 2. Contents of waste bins, stored within the temporary waste holding

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			area within the accommodation camp are to be collected and disposed of twice weekly by the Contractor to prevent the development of foul odour.
	Visual intrusion of unscreened laundry/clothes drying area	Negative	The front of the laundry//clothes drying area should be screened from view using wooden fence/ planks.
	Potential increase in demand for water and energy use	Negative	**Water** 1. Read water meter monthly. Compare the results to the same month of the previous year. This will help to identify leaks as they occur, as well as monitor your conservation efforts. 2. There should be regular checks for drips, leaks, and unnecessary flows in bathrooms, laundry, kitchen within the facility and these should be repaired immediately. 3. Toilet and wash hand basin faucets that must be replaced due to normal wear-and-tear should be replaced with low-volume models, which are widely available. **Energy** 1. There should be regular maintenance of Heating, Ventilation and Control (HVAC) facilities to ensure high efficiency and to prevent breakdowns. 2. Energy audits should be conducted monthly to identify areas of high consumption within with the objective of minimising energy cost. 3. All energy-consuming equipment should be switched off when not in

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			use. This can be done manually by workers or automatically with special devices.
	Boost to local economy	Positive	1. Service providers should be sought from within Mmadinare village or neighbouring beneficiary villages. 2. Goods should be purchased from existing retail outlets in Mmadinare village.
	Protection of Contractor's senior staff	Positive	1. Ensure that all CCTVs installed as well as the electric fence erected are working properly. 2. Guard dogs kept at the accommodation site should be provided with sufficient food, water, shelter and shade and treated in a humane manner. 3. Visitors' register should be maintained at the entrance to the accommodation facility. 4. All minor gates to the facility should be kept open during working hours and the main gate access controlled at all times.
Decommissioning	Dust nuisance	Negative	1. Adequate dust suppression measures including regular sprinkling of water especially on exposed surfaces within the site should be undertaken to control generation of fugitive dust. 2. Workers should be provided with adequate protective clothing including dust masks during decommissioning works.
	Noise disturbance	Negative	1. All machines/equipment should be shut down during periods of inactivity. 2. Unnecessary revving of vehicle engines should be minimised. Noise levels should not exceed the

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			maximum decibels recommended by the manufacturer
	Potential injuries to workers	Negative	1. At least two occupants of the accommodation facility should be trained as a first aiders. 2. Fully stocked, labelled first aid box should be readily available within the camp. The box's contents should be monitored and restocked. 3. First aid incidents within the camp shall be logged, 4. Good housekeeping should be practiced to ensure minimal exposure to risk of OHS incidents and accidents occurring. 5. Ensure that information pertaining to site safety precautions is visibly displayed at the entrance to the accommodation site for all to see and signage is displayed as is necessary within the camp. 6. Provide the workers with adequate and appropriately-sized PPEs and ensure regular monitoring to ensure they are worn when on site and replaced on time when they are worn out.
	Land pollution due to improper waste handling	Negative	1. All scrap materials and /or equipment should be sent to a recycling facility. 2. No waste should be burnt or buried on site. 3. All materials to be reused should be properly stockpiled and made available/ sent off-site for reuse.
	Provision of temporary employment	Positive	1. Workers to be recruited for temporary work during decommissioning should be from within Mmadinare village. 2. The Contractor should adhere to all

Phase of Project Implementation	Potential Impact	Type of Impact	Mitigation/Enhancement Measures to be Implemented by the Contractor
			requirements of the existing labour laws.
	Potential for Gender Based Violence (GBV)and Sexual Harassment Exploitation and Abuse (SHEA)	Negative	1. The Contractor to engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SEA/SH. 2. Train workers and the Contractor on behaviour obligations. To make this effective, all occupants must sign a Code of Conduct and this should be enforced for compliance. 3. The Contractor and the workers should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SEA/SH throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer. 4. Give women equal opportunity when hiring labour between male and female employees as this could help address the problem of younger women getting into relationships for financial support and being abused in that process.

Conclusion

The conclusion of the study to produce this Addendum to the ESIA/ ESMP for the Selebi - Phikwe to Serule Water Transfer Scheme for the accommodation camp to house the Contractor's management for the sub-project is that the benefits of the accommodation facility outweigh the negative impacts. The negative biophysical and socio-economic impacts identified during preparation of this addendum can be effectively mitigated. The negative impacts can be avoided or their severity and significance minimised through implementation of the proposed mitigation measures outlined in the mitigation plan. Positive impacts can be enhanced through enhancement measures. Therefore, it is recommended that the facility continue to be used as intended for the housing of management staff working on the sub-project.

Recommendations

The following recommendations have been made for consideration during construction, operation and decommissioning of the accommodation facility.

1. The Addendum ESMP should be strictly implemented in its entirety.

2. The issues raised in the conditional approval granted by the Building Control Committee (Bobirwa Sub-District Council) should be addressed.
3. The accommodation units should be used for their intended purpose and for the maximum allowable Chinese nationals who hold management positions in the sub-project's implementation (14 in total).
4. A 10m fire break should be created to the North, West and South of the entire contractor's camp site.
5. Clearly marked accesses for pedestrians' and vehicles should be indicated on the entrance gate to the accommodation camp.
6. The contractor should dampen the workshop area especially along access routes used by trucks with water to prevent fugitive dust from impacting on occupants of the accommodation camp
7. At least two exits from the accommodation camp should be identified and clearly indicated. Along the sleeping block passage, emergency lighting should be installed and they should be of adequate intensity and automatically activated upon failure of the principal artificial light source to ensure safe evacuation.
8. At least two occupants' of the accommodation camp should be trained as first aiders
9. The accommodation camp should be kept clean and tidy and access to the facility strictly controlled.
10. Monthly checks should be done on the conservancy tank to ensure that no leaks or foul smell emanate from it, and for the emptying of the tank to be undertaken well in advance of it becoming full and overflowing.
11. In order to promote water conservation measures and to ensure efficient use of potable water, the Contractor should undertake regular checks for drips, leaks, and unnecessary flows in the toilet, bathrooms and kitchen and these should be repaired immediately.
12. Water stored in the Jojo tank should be tested prior to consumption to ensure it complies with local quality for drinking water. The tank should also be cleaned monthly.
13. Consideration should be given to installation of low consumption lighting such as CFLs as well as use of solar lights to illuminate the perimeter of the premises.
14. All air conditioning systems installed should be maintained and operated so as to prevent growth and spreading of disease or breeding of vectors.
15. Site specific method statements for the decommissioning of the accommodation facility should be submitted to the sub-projects Supervision Engineer for approval.
16. Colour-coded waste bins provided should be labelled to indicate what type of waste to be put on them. These should be kept covered clean and secure of vermin at all times. Regular disposal of waste at an approved waste management facility should be undertaken.
17. Incidents and accidents, as well as COVID-19 cases to be reported monthly.
18. Guard dogs kept at the accommodation site should be provided with sufficient food, water, shelter and shade and treated in a humane manner. In addition, the dogs should not be chained up but rather to be kept in an enclosure where they can roam free during the day.

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List of Acronyms and Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
BPC	Botswana Power Corporation
CCTV	Closed Circuit Television
CFLs	Compact Fluorescent Light Bulb
CITF	Construction Industry Trust Fund
CoC	Code of Conduct
dBA	A –weighted decibles
DEA	Department of Environmental Affairs
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESMP	Environmental and Social Management Plan
ESIA	Environmental and Social Impact Assessment
EBRD	European Bank for Reconstruction and Development
GBV	Gender Based Violence
HIV	Human Immunodeficiency Virus
HVAC	Heating, Ventilation and air conditioning
IAPs	Interest and Affected Parties
IFC	International Finance Corporation
MSDS	Materials' Safety Data Sheet
OHS	Occupational Health and Safety
PPEs	Personal Protective Equipment
PM	Particulate Matter
PMO	Project Management Office
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
VIP	Very Important Person
WHO	World Health Organisation
WUC	Water Utilities Corporation
WWTW	Waste Water Treatment Plant

CHAPTER ONE: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Addendum Rationale and Justification

This Environmental and Social Management Plan (ESMP) Report is an update or addendum to the previously approved Environmental and Social Impact Assessment (ESIA)/ ESMP for the Selebi - Phikwe to Serule Water Transfer Scheme which was prepared by Earthtec Consultancy (Pty) Ltd and approved by Department of Environmental Affairs in June 2014 and July 2020, respectively). The ESIA/ ESMP provided an assessment of two alternative scenarios with respect to the provision of a labour camp on site. After analysing the advantages and disadvantages of having and not having a labour camp on site, the Report concluded that accommodation should be sourced from within the beneficiary villages. As a result no assessment for a Contractor's labour camp on site was undertaken. Following the award of the contract to China Geo-Engineering Corporation (China Geo-Engineering), the Contractor decided to accommodate ten senior management, all Chinese nationals within the boundaries of the existing camp site from where the Contractor manages ongoing works pertaining to the implementation of the Selebi - Phikwe – Serule water supply sub-project. The reasons advanced by the Contractor for accommodating the management staff on site are:

- Cultural differences
- Vulnerability ('easy targets' for theft and attacks)
- Socializing (language barrier)
- Reinforcement of Code of Conduct (CoC) and to minimize social ills.

The contractor's camp site, within which the accommodation camp is located, measuring 150m by 100m, located on the outskirts of Mmadinare village currently accommodates the Contractor's office and general working and storage areas.

This ESMP has been prepared to manage the impacts likely to result from the operation of the accommodation camp and its ancillary infrastructure, for the duration of the implementation of the Selebi - Phikwe to Serule Water Transfer Scheme, which is expected to take 18 months to construct from its commencement date of July 2020. The potential impacts of the construction (retrospective as the facility has already been built), operation and maintenance and decommissioning phase of the Contractor's accommodation camp are assessed in this Addendum to the ESIA/ ESMP and its aims are as follows".

1.2 Objective of the Addendum to the ESIA and ESMP

a) Identify and evaluate the potential socio-cultural and environmental impacts of the proposed accommodation camp located within the existing Contractor's camp on the outskirts of Mmadinare village.
b) Undertake environmental and social studies to sufficiently address the potential impacts of constructing (retrospective), operating and maintaining, and decommissioning the accommodation camp.
c) Identify and describe procedures and mitigation measures that will eliminate or mitigate the predicted adverse impacts of the proposed facility, as well as measures that will enhance the beneficial effects

of the proposed development.

d) Ensure compliance with the requirements of the Environmental Assessment Act (No. 10 of 2011).
e) Liaise with relevant government departments, stakeholders and interested and affected parties to seek their views and issues in relation to the proposed project.
f) Prepare a detailed, project specific ESMP as part of this Addendum Report.

1.3 Scope of the Study to Produce the Addendum to the ESIA and ESMP

The scope of this study was limited to the Contractor's existing accommodation facility and the access road to the facility, as well as land uses within 200m of the site. The accommodation facility measuring 60m by 60m comprises of the following:

- Kitchen and dining area measuring 40m^2 and 50m^2,respectively;
- Fourteen (14) single accommodation units each measuring 12m^2. Each accommodation unit has a toilet and shower measuring 3m by 2m. The cabins are assembled in two parallel sleeping 'blocks' with a communal kitchen/ dining block at 90 degrees to this. The cabins in each block are linked via covered walkways.
- Electric fence around the perimeter of the sleeping 'block' facility with two sliding gates located to the east of the cabins.
- Eight (8) CCTV cameras;
- Eleven (11) fire extinguishers;
- Demarcated laundry washing area and drying lines;
- Sixteen (16) air conditioners and seven (7) geysers;
- Vegetable garden measuring 210m^2;
- Multipurpose hall measuring 60m^2;
- Two conservancy tanks located east and west of the cabins;
- Very Important Person (VIP) room measuring 30m^2;
- Store room measuring 20m^2;
- Jojo tank (5000 litres) at the corner of the VIP room. The tank is filled with water from the existing tap connection on site and serves as backup water supply in the event of no water.
- Open area (210m^2) around the buildings which have been covered with gravel stones.

1.4 Total Investment Cost

The total investment cost of the Contractors' accommodation camp is BWP 4 million including construction, operation and decommissioning.

1.5 Implementation Schedule

The construction of the Contractor's accommodation camp was completed in the December 2021 following hand-over of implementation works for the Serule - Selebi Phikwe project to the Contractor. The accommodation facility will be used for the duration of Selebi-Phikwe to Serule Water Transfer Scheme construction works including up to defects liability period which is anticipated to be in the first quarter of 2024.

1.6 Project Assumptions

The project assumptions are as follows:

- All key project team members will be available and have the necessary skills and knowledge to undertake the study.
- All the relevant stakeholders have been consulted.
- Stakeholder's responses do not change during the entire study period.
- Environmental baseline of the project site remains unchanged during the ESMP preparation as well as during construction, operation and decommissioning of the accommodation facility.

1.7 Study Limitations

No limitations were experienced in the preparation of this Addendum to the ESIA and ESMP for the accommodation camp for the Selebi-Phikwe to Serule Water Supply Scheme.

CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 Introduction

This chapter provides a description of existing relevant regulatory, planning, compliance and guidance instruments within which the construction, operation and maintenance and decommissioning of the Contractor's accommodation camp will have to be managed. In addition the project will have to adhere to prescriptions of relevant standards and plans that have a bearing on the works to be undertaken. Table 2.1 below provides a summary of the pertinent policies legislation, regulations standards, plans, as well as their relevance to the project.

2.2 Acts

Acts	Purpose	Issue	Relevance of Act to the Project	Compliance of Project to Act	Phase of Project Implementation at which Act is Applicable
Waste Management Act (1998)	This Act promotes the standards of waste management in Botswana in order to prevent harm to human, animal and plant life, to minimise environmental pollution and to conserve natural resources.	Land pollution	The Act promotes good waste management standards to prevent environmental pollution by, amongst others, prohibiting littering in any public place, highway or road. The Act requires any person who produces, carries, keeps, treats or disposes of controlled waste to take all measures applicable in preventing the escape of waste from their control. Therefore, proper waste management measures should be established to amongst others ensure that no littering occurs within the camp, odour generation is prevented, presence of vermin is avoided and that the temporary storage of waste (both solid and liquid) is undertaken in a safe manner and disposal follows best-practice.	In compliance with Part VIII Section 34 and Part XI Section 51 of the Act, the Contractor as well as the inhabitants of the accommodation camp should take all measures applicable in preventing the escape of waste from their control by providing an appropriate sized and well-constructed waste holding facility, and also ensure its contents are disposed of regularly at a designated waste disposal site.	Construction, Operation and maintenance, and decommissioning
Factories Act (1979)	This Act lays emphasise on the conditions of Employment in factories and other places regarding health, safety and welfare of individuals operating in an industry.	Health and safety of workers	The safety, health and welfare of workers as well has the standards of working conditions to be employed during project implementation will need to be upheld.	Part VII Section 53 and 54 of the Act which addresses the need for workers to be provided with protective clothing. The Contractor should also comply with Part IV which requires for the site to be kept in a clean state, and free from effluvia arising from any drain, sanitary convenience or nuisance, especially during decommissioning.	Construction, Operation and maintenance, and decommissioning
Control of Smoking (Amendment) Act (2004)	This Act makes provision for regulating or control of tobacco products and tobacco smoking.	Occupational health and safety of workers	This Act is important as it seeks to protect workers from the effects of second-hand smoke. Relevance to the implementation of the project is Part II Section 3(1) which specifies the duty of persons to protect other persons from tobacco smoke.	The contractor and his employees should comply with Part II Section 3(1) which specifies the duty of persons to protect other persons from second-hand tobacco smoke.	Construction, Operation and maintenance, and decommissioning
Public Health Act (2013) (Revised)	An Act to repeal, re-enact, consolidate and amend the law relating to public health.	Health	The Contractor(s) and their employees have to ensure a safe working environment, by making sure that all waste that will be generated during operation and decommissioning of the facility is disposed of at relevant/designated waste disposal site(s) and that adequate and proper sanitation is provided for the inhabitants of the living accommodation.	The Act is relevant as it seeks to prevent and control the spread of diseases. Part X Section 84 prohibits generation of nuisance that is likely to injure or endanger human health.	Construction, Operation and maintenance, and decommissioning
Environmental Assessment Act (2010)	This Act provides for environmental impact assessment to be used to assess the potential effects of planned developmental activities to determine and to provide mitigation measures for effects of such activities as may have a significant adverse impact on the environment to put in place a monitoring process and evaluation of the environmental impacts of implemented	Impact assessment	Guides the assessment of the identified impacts of the proposed project and recommends appropriate mitigation measures so as to inform the construction, operation and decommissioning of the infrastructure.	The preparation of the ESMP is in compliance with Part II, Section 9 of the Act.	Construction, Operation and maintenance, and decommissioning

Acts	Purpose	Issue	Relevance of Act to the Project	Compliance of Project to Act	Phase of Project Implementation at which Act is Applicable
	activities and to provide for matters incidental to the foregoing.				

2.3 Vision

Vision	Purpose	Issue	Relevance of Vision to the Project	Compliance of project to Vision	Phase of Project Implementation at which Vision is applicable
Vision 2036 – Prosperity for All	To achieve prosperity for all through the achievement and fulfilment of individual, community, and national goals at all levels in order to achieve: Sustainable economic development Human and social development Sustainable environment Governance, peace and security	Prosperity	Of relevance to the project is Pillar 3 Sustainable Environment which emphasises the efficient use of natural resources as well as minimising or reducing pollution. It seeks to promote reuse and recycling of waste, especially at source.	The Contractor should ensure that occupants' of the accommodation camp are sensitised on the efficient use of water and energy (electricity). In addition, bins should be provided to encourage the occupants to recycle waste. Emphasis should be placed on the re-use and recycle of materials especially those that would be obtained during decommissioning of the camp.	Construction, Operation and Decommissioning

2.4 Regulations

Regulations	Purpose	Issue	Relevance to the Project	Compliance of project to Regulation	Phase of Project Implementation at which regulation is applicable
Environmental Assessment Regulations (2012)	Related to the Environmental Assessment (EA) Act (2010) is the Environmental Assessment (EA) Regulations (2012). It provides guidelines on the structure and content of Scoping, ESMP and ESIA reports.	Impact monitoring	It prescribes the guidelines on the content and structure of the Addendum to the ESIA and ESMP.	The structure and content of this ESIA Addendum Report and ESMP has been in accordance with the prescription of Form B (Regulation 5) of the EA Regulations of 2012.	Construction, Operation and Decommissioning

2.5 Guidelines

Guideline	Purpose	Issue	Relevance of the Guideline to the Project	Compliance of project to the Guidelines	Phase of Project Implementation at which Guideline is applicable
World Health Organisation (WHO) global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide	To offer quantitative health-based recommendations for air quality, expressed as long- or short-term concentrations of a number of key air pollutants. Though not legally binding, the goal of the guidelines is to provide guidance to countries to reduce levels of air pollutants and thereby decrease the worldwide health burden resulting from exposure to air pollution.	Air pollution	It sets out the threshold limits of air pollution which should not be exceeded during implementation of works.	The Contractor should comply with the set guidelines for $PM_{2.5}$ and PM_{10} to ensure a safe working environment.	Construction, decommissioning
International Finance Corporation an European Bank for Reconstruction and Development -	Addresses the processes and standards that should be applied to the provision of workers' accommodation in relation to projects funded	Workers accommodation	It outlines the standards which the contractor should meet in order to ensure that the living accommodation provided are safe, comfortable and convenient	Compliance to Part II of the Guidelines - Standards For And Management Of Workers' Accommodation	Construction and operation

Guideline	Purpose	Issue	Relevance of the Guideline to the Project	Compliance of project to the Guidelines	Phase of Project Implementation at which Guideline is applicable
Workers' accommodation: processes and standards A guidance note by IFC and the EBRD	by the EBRD or IFC				

2.6 Strategy

Strategy	Purpose	Issue	Relevance of the Strategy to the Project	Compliance of Project to the Strategy	Phase of Project Implementation at which Act is applicable
The Third Botswana National Multi-sectoral HIV and AIDS Strategic Framework (NSF III) for (2018 to 2023)	This NSF outlines priority interventions between 2018 and 2023, to guide a collaborative, multi-sectoral national response to the HIV epidemic in Botswana. The vision, mission and goals of the NSF III are as follows: **Vision:** Ending the AIDS epidemic in Botswana by 2030. **Mission:** To accelerate implementation and enhance efficiencies towards HIV epidemic control by 2020 and beyond 2023. **Goals:** Zero new HIV infections, zero AIDS-related deaths and Zero discrimination by 2030.	Health	The strategic framework is of relevance to the project as it deals with prevention of new HIV infections. Therefore, workers should be sensitized on issues pertaining to HIV/AIDS (Acquired Immunodeficiency Syndrome/ Acquired Immunodeficiency Syndrome), Tuberculosis (TB), STIs (Sexually Transmitted Infections), STDs (Sexually Transmitted Diseases) etc.	The contractor through the SHE officer shall develop measures to adequately address the concerns of this strategy by providing the occupants of accommodation facility awareness talks (on HIV/ AIDS and TB prevention), provision of condoms as well as undertaking HIV/AIDS screenings and tests.	Operation and maintenance, and decommissioning
Botswana Strategy for Waste Management (1998)	The objectives of this strategy are to: • Minimise and reduce waste in industry, commerce, and private households. • Maximise environmentally sound waste reuse and recycling. • Promote environmentally sound waste collection, treatment, and disposal.	Land pollution	The strategy promotes good waste management/handling practices and maximum use of raw materials through reuse and recycling to minimise and reduce waste generated by the project.	Principle of Prevention whose basic premise is to minimise environmental pollution by introducing appropriate management measures before damage occurs.	Operation and maintenance, and decommissioning

2.7 The World Bank Safeguard Policies

The establishment of the accommodation facility triggers the following World Bank Safe Guard Policies: -

World Bank Safeguards Operational Policy (OP)	Triggered by this Project	Remarks
OP 4.01 Environmental Assessment	Yes	Initial evaluation has identified potential negative environmental and social impacts, thus, there is a need for an environmental and social assessment to ensure appropriate mitigation measures are in place during all stages of works pertaining to the accommodation camp.
OP 4.11 Physical Cultural Resources	No	No sites of cultural or historical significance will be affected by the establishment of the facility.
OP 4.12 Involuntary Resettlement	No	The establishment of the accommodation facility will not require resettlement of any party. The facility will be constructed on piece of land that belongs to Water Utilities' Corporation (WUC) and is being leased to China Geo-Engineering for implementation of the Selebi – Phikwe - Serule Water Transfer Scheme.

2.8 Administrative/ Institutional Framework

The following institutions have a role in administering the implementation of the project:

Ministry of Land Management, Water and Sanitation Services

The project proponent, Ministry of Land Management, Water and Sanitation Services is responsible for the implementation of the environmental management plan for the Contractor's accommodation camp. The Ministry through the Project Management Office (PMO) has to ensure that the Contractor adheres or follows all the recommendations proposed in the Addendum to the ESIA/ ESMP in order to mitigate the anticipated negative impacts and enhance the positive impacts.

Department of Environmental Affairs (DEA)

The Department of Environmental Affairs (DEA) is mandated with the protection and improvement of the quality and safety of the environment, to promote conservation and sustainable use of natural resources. DEA is responsible for the implementation of the Environmental Assessment Act (2010) and the Environmental Assessment Regulations (2012). The DEA is responsible for reviewing and approving of the Environmental and Social Management Plan. The Department will undertake environmental audits by reviewing periodic environmental monitoring reports that will be submitted by the project proponent/Contractor to DEA during implementation of the project.

Water Utilities Corporation (WUC)

Water Utilities Corporation (WUC) is a parastatal with the mandate of supplying portable water to all urban centers and villages in the country, as well as managing wastewater under the Water Sector Reform Programme (WSRP).

The Contractor's accommodation camp on the outskirts of Mmadinare village is under the jurisdiction of WUC. Water to the accommodation camp is supplied by the Corporation.

Botswana Power Corporation (BPC)

Botswana Power Corporation (BPC) is responsible for the supply of electricity to all urban centers and villages. BPC is responsible for the power supply to the accommodation camp.

Physical Planning Department (Bobirwa Sub-District Council)

The Physical Planning Department offers professional advice to developers and assess applications for planning and grants permission for residential, commercial, industrial, civic and community, and recreational developments, change of land use, subdivision and consolidation of plots. Application for review of site layout and proposed conservancy tanks was submitted to the Bobirwa Sub-District Council Building Control Department. Following review of the application by the Sub-District's Council Building Control Committee, conditional approval was granted pending submission of documentation pertaining to conservancy tank, driveways and access roads and parking bays as well as consulting the DEA (Appendix 1). Consultations with DEA will, however, follow after the ESMP for approval of the addendum to the ESMP for the accommodation facility by the World Bank Safeguard Team. However inspection of the accommodation or sleeping cabins was not done as these are considered to be temporary structures.

Department of Environmental Health

The Department of Environmental Health in the Bobirwa Sub-District Council is tasked with ensuring protection of the environment and human health through provision of all environmental health services to the communities of Mmadinare village. The Department is mandated with day-to-day collection and disposal of all household domestic waste. They are, however, not responsible for the collection of waste from construction sites. As such the Contractor should ensure that all waste that will be generated during the construction, operation and decommissioning of the accommodation camp should be collected and disposed of at the Mmadinare waste disposal site where applicable.

Contractor – China Geo-Engineering

The Contractor China Geo-Engineering will be responsible for the day to day operation of the living quarters. To effectively implement this, the Contractor shall appoint a Safety Officer to oversee the operation of the facility. The Contractor through the Safety Officer will ensure that occupants are well informed of the contents of the ESMP so that negative impacts associated with the occupation of the living accommodation are prevented or minimised. The Contractor is to prepare and submit monthly compliance reports which will detail compliance with the environment and social mitigation measures/ management actions presented in the ESMP.

CHAPTER THREE: PROJECT DESCRIPTION

3.1 Introduction

This chapter describes the accommodation camp which will provide the Contractor's management with living facilities adjacent to the Contractor's construction camp site on the outskirts of Mmadinare village for the duration of the implementation of works pertaining to the Selebi - Phikwe to Serule Water Transfer Scheme.

3.2 Purpose of the Project

The purpose of the project is to provide accommodation for the contractor's senior management staff the maximum number to be accommodated on site is 14. Currently, ten (10) of the Contractor's management staff (Chinese nationals) have been accommodated on site for the duration of the construction works, including the project defects liability period.

3.3 Status of and Lifespan of the Project

The construction of the accommodation facility was completed in December 2022. The facility is expected to serve the Contractor for a period of 26 months (from its occupation in December 2021 until the end of defects liability period which is anticipated to be during the first quarter of 2023). After completion of works and the defects liability period, it is anticipated that the accommodation camp will be demolished. The decommissioning of the camp will take approximately one month.

3.4 Addendum Scope

The study that culminated in the production of this Addendum to the ESIA/ ESMP was limited to the accommodation camp and the access road leading to the facility, as well as land uses within 200m of the site.

3.5 Site Plan Layout and Description of Accommodation Facility

The accommodation camp site plan layout in relation to the contractor's work camp is as presented in Appendix 2. The accommodation camp, measuring 60m x 60m is located within the Contractor's existing camp site (150m x 100m) which is fenced. The existing camp site belongs to WUC and is being leased to China Geo-Engineering. The site was previously used during the construction of the Letsibogo dam which is about 770m west from the site as a contractor's camp site.

The Contractor's living accommodation camp has been constructed and is separated from the construction camp site by a 1.5m high diamond mesh wire fence with an access-controlled gate. Around the perimeter of the sleeping blocks excluding the kitchen/dining area is a 1.5m high electric fence. Two sliding gates have been provided for access to the cabins. Ten (10) of the fourteen (14) single-person accommodation units are currently occupied. The maximum occupancy at any one time is ten (10) persons of the male gender.

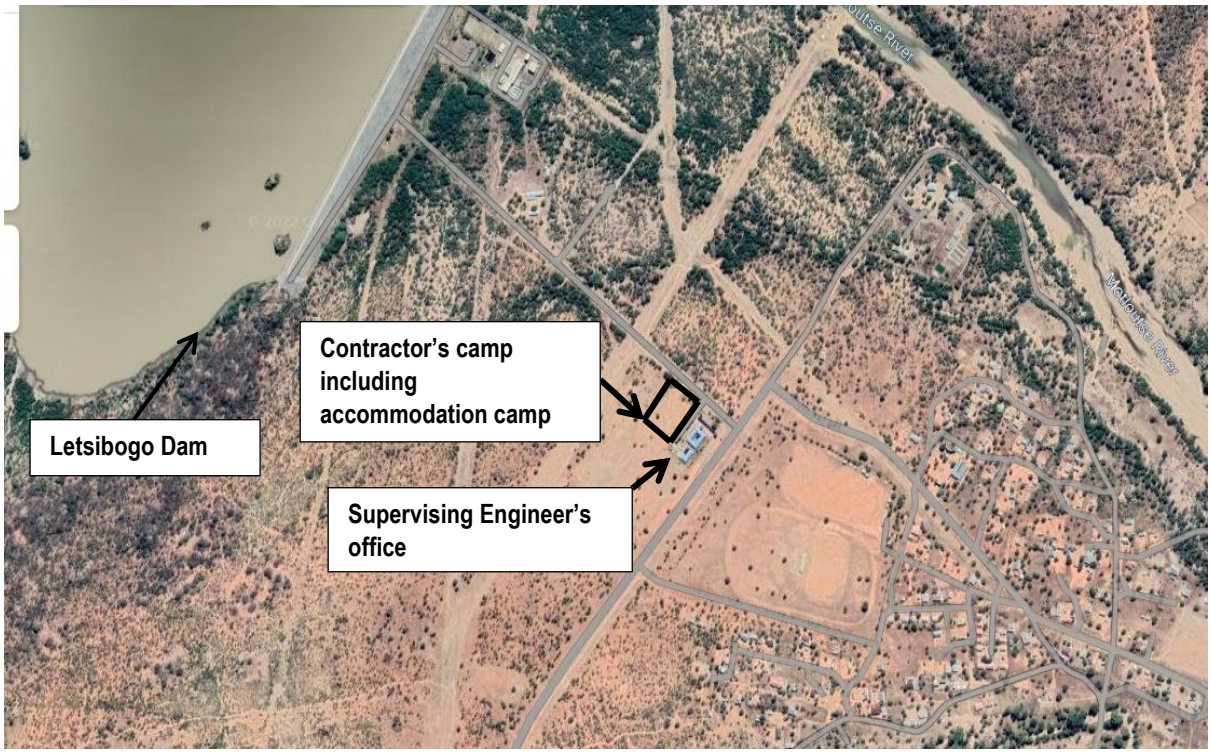


Figure 3.1: Contractor's camp in relation to other land uses

The accommodation camp is fenced off from the Contractor's offices which are located to the North. To the West of the accommodation camp is the Contractor's construction camp which houses the workshop and storage room, fuel dispensing area, plant, tools and equipment area, isolation room, pipe and fitting area and a mixing plant station. The entire contractor's camp site is manned by security guards.

In addition, there are 8 CCTV cameras installed around the accommodation perimeter. To the East from the Contractor's camp site are the offices for the Project Manager and Supervising Engineer. There is no access from the camp to supervising engineer's office. There are two accesses into the accommodation camp premises, one from the main gate to the site located east from the contractor's work camp and the other to the north from the accommodation camp premises, which leads to the soil laboratory and the site office for the contractor. This access is open during the daytime and closed at 17.00hrs daily. Access to the accommodation premises is controlled at all times.

Access to the accommodation camp is along the 14km tarred road that branches off from the Selebi-Phikwe-Mmadinare road and leads to the Letsibogo dam. The access road also services the Mmadinare Senior Secondary School, Letsibogo Primary School and Merementsi Community Junior Secondary School and which are located 5km, 2.9km and 1.5km South West from the Contractor's camp. The composition of the Contractor's accommodation camp, which is limited to occupation by the Chinese management team is presented in Table 3.1 below.

Table 3.1 Components of the Accommodation Camp at the China Geo-Engineering Camp Site, Mmadinare Village.

Item No	Components	Description
1	Number of persons	The accommodation camp has maximum capacity for 14 occupants. Currently there are ten (10) Chinese nationals that form part of the Contractor's management team that are accommodated within the facility. All the occupants are males.
2	Number of single En-suite accommodation cabins	There are fourteen (14) cabins, each measuring 12m². Each cabin accommodates a single person and has a separate bathroom which has a toilet and shower.
3	Provision of kitchen, dining and pantry	There is a communal kitchen which measures 40m², a communal dining room area measuring 50m² and a pantry measuring 20m². These facilities are located in the western portion of the living accommodation area.
4	Provision of toilets	Each room has a toilet and shower combined measuring 3m by 2m.
5	Waste disposal	Waste generated from the accommodation camp's occupants will be kept in waste plastic bags, taken to the general temporary waste holding area, within the accommodation camp, for onward collection and disposal by the company responsible for collection of domestic waste from the construction camp site. The anticipated waste from the site will mainly be domestic waste, including food waste. Food waste will be recycled at the vegetable garden located East from the living accommodation area. Liquid waste from the use of the toilets and washrooms will be channelled to the conservancy tank measuring 2m*4m *2.m which will be maintained and emptied (on an *ad-hoc* basis when required) by a licensed waste management company.
6	Provision of drinking water	Potable water for domestic use (drinking, cooking, cleaning, washing) within the facility is sourced from existing WUC connection to the camp site. A separate meter box has been provided for the accommodation facility. In addition, a 5000 litre Jojo tank will be provided within the accommodation camp to temporarily store potable water in the event of interrupted supplies.
7	Power supply	Power to the site will be sourced from the existing BPC transformer located in front of the WUC offices, which houses the Supervising Engineer.

Entrance of the accommodation camp from Contractor's site office

Entrance of the accommodation camp from the workshop

COVID-19 sanitation station by the accommodation entrance

Kitchen

Multipurpose room

Cabins with geysers and air conditioning. To the right is the electric fence

Sleeping blocks

View of electrified fence and sliding gate

Dining room

Covered laundry area

CCTV camera

Colour coded bins on site

View of vegetable garden

View of Supervising Engineers' building to the left and Contractor's camp site to the right

Pantry

3.6 Project Activities

The following activities will be undertaken during the construction (retrospective), and operation and decommissioning of the accommodation camp.

Table 3.2: Project Activities for Contractor's Living Accommodation at Mmadinare.

Phase of Project Implementation and duration	Activities' to be Undertaken
Construction (4 months)	• Excavation for the foundations for the concrete plinth for the prefabricated structure • Mixing and pouring of concrete for the foundation. • Excavation for laying of water and sewage pipeline. • Construction of conservancy tanks, sewerage facilities, water reticulation, power supply provision etc. • Management of construction waste (solid and liquid) generated during construction. • Assembling of prefabricated structures.
Operation (26 months)	• Occupation of accommodation facility by the Contractor's management staff. • Periodic supply, servicing and maintenance of the infrastructure including, but not limited to, repair of broken pipes and roofing, electrical issues, plumbing services, servicing of the conservancy tank, cleaning of water tank, servicing of the air-conditioning units, supply services, etc. • Management of waste (domestic waste, kitchen waste, vegetation from landscaping activities) and maintenance of landscape features.
Decommissioning (3 months)	• Sourcing of labour (about 30 workers are anticipated to be employed) • Decommissioning of Contractor's accommodation facility including structures, services, hard surfaces, gravels, fencing etc. • Decommissioning of the conservancy tank. • Backfilling of excavated areas with inert soil or left-over earth material.

3.7 Project Duration

It is anticipated that the Contractors' living accommodation will be in use for about 26 months for the duration of the works and defects liability period (December 2021 to first quarter 2024).

3.8 Waste Generation and Disposal Methods

Table 3.2 below gives a summary of the anticipated waste types to be generated by occupants of the accommodation facility during the construction, operation, as well as during decommissioning and the proposed waste disposal methods. It is estimated that given a maximum of 14 occupants on site, about 310kg of waste will be generated per month during occupation of the facility.

Table 3.3 Types of Waste Streams to be Generated during construction, Operation and Decommissioning Phases

Waste Streams	Phase of Project	Waste Type	Temporary Storage Facility	Waste Disposal Method
Excess top soil and excavated material	Construction	G	Stock piled on site	Mmadinare Waste Disposal Facility
Kitchen waste (organic matter)	Operation	G	Used as manure within the vegetable garden located on site	Used as manure within the vegetable garden on site
Kitchen waste (used oil)	Operation	HHW	Stored in 5 litre containers and reused	Reused
Waste from landscape maintenance	Operation	G	Green garden refuse bags	Mmadinare Waste Disposal Facility
Waste paper, aluminium (beverage) cans, used bottles, plastic wrappings	Operation	G	Waste bins which will be colour-coded and appropriately labelled.	Taken to scrap yards either in Selebi Phikwe or Mmadinare where it is sold for recycling. Plastic wrappings are disposed of at the Mmadinare Waste Disposal Facility
Broken light bulbs	Operation	G	Stored in sealed heavy duty plastic bags	To be collected by a licensed waste company for disposal at the Mmadinare Waste Disposal Facility.
Clinical waste	Construction, operation and decommissioning	Sp: H	Black labelled plastic bags, which will be temporarily stored in a colour-coded, appropriately labelled 240l wheelie bin with a secure fitting lid within accommodation camp site camp.	To be collected for disposal by a licensed clinical waste management company for disposal at the Francistown Landfill that accepts hazardous clinical waste for incineration.

Waste Streams	Phase of Project	Waste Type	Temporary Storage Facility	Waste Disposal Method
Human waste	Construction, operation and decommissioning	G	Flush toilets connected to conservancy tank which is emptied when full, which is anticipated to be every 3.5 months	To be collected by a local professional company that specialises in the transfer of toilet waste from conservancy tanks for safe disposal of at the Selebi - Phikwe Waste Water Treatment Works (WWTW).
Dog waste (feaces)	Operation, decommissioning	G	Collected in a black plastic bag	To be collected by a local professional company that specialises in the transfer of waste for safe disposal of at the Selebi - Phikwe Waste Water Treatment Works (WWTW).

Note: -General Waste; Sp: H-Special: Hazardous Waste; Sp: W-Special: Wet Waste, Sp: HHW – Household Hazardous Waste

CHAPTER FOUR: OUTCOME OF CONSULTATIONS HELD

4.1 Introduction

This chapter presents the outcome of consultations that were held with relevant stakeholders and interested and affected parties (IAPs) between the 10th and 30th of March 2022 regarding the accommodation camp for the contractor's management staff located on the outskirts of Mmadinare village.

4.2 Objectives of Stakeholder Consultations

The purpose of the consultations was to:

1. Inform relevant IAPs of the construction of the contractor's accommodation camp and to seek their views regarding any potential impacts the construction, operation as well as decommissioning, of the facility would generate,
2. Ascertain the effects (positive, neutral and negative) of the operation and maintenance, as well as decommissioning of the accommodation facility on the biophysical and social environment,
3. Identify which of the proposed activities will have a significant impact on the biophysical and social environment therefore needing particular mitigation/ management actions to be proposed in the ESMP, and
4. Seek practical and achievable mitigation measures/ management actions that are appropriate to the local conditions, which should be considered in the development of the ESMP and its implementation in order to eliminate or reduce potential negative impacts and/ or enhance potential positive impacts.

4.3 Methodology

The following methods were employed in undertaking the consultation exercise:

- Reconnaissance visit: A site visit was undertaken in order for the safeguards team to appreciate the prevailing environmental conditions (biophysical and socio-economic) at and around the project site.
- Identification of stakeholders: Objective Oriented Project Planning was used to identify stakeholders and IAPs of relevance to the implementation of the proposed project. Table 5.1 presents the stakeholders that were identified, method of consultation as well as the justification for their consultation. Following the identification of the stakeholders, letters attached with questionnaire were hand delivered to the identified stakeholders. The purpose of the consultations which are in compliance with Section 6 (6) of the EA Act (2010) was to obtain the views and concerns of the stakeholders regarding the implementation of the proposed project and how their concerns should be addressed.

Table 4.1: Consultation Methodology with Stakeholder and Interested and Affected Party

Stakeholder	Strategy/ Method Used	Justification for Consultation	Date consulted	Date response received
Department of Environmental Health (Bobirwa Sub-District Council)	Self-administered questionnaire	Responsible for environmental management in the project area.	21st March 2022	24th March 2022
Fire Department (Selebi - Phikwe)	Self-administered questionnaire	To acquire information on fire management measures to be put into place during project implementation.	21st March 2022	30th March 2022
Mmadinare Tribal Administration, Mmadinare	Face-to-face Interview	Village leadership / representative of the community of Mmadinare Village.	10th March 2022	10th March 2022

A summary of all the responses received from the stakeholders and IAPs consulted is presented in Tables 4.2. Copies of the letters sent as well as responses received are presented in Appendix 4 while minutes of the meeting held with Mmadinare Tribal Administration are presented in Appendix 5.

Table 4.2: Summary of Responses from Stakeholders Consulted

Institution	Contact Person/Designation	Summary of Concerns and Views	Response to Concerns and Views
Department of Environmental Health (Bobirwa Sub-District Council)	M.M. Joseph, Principal Environmental Health Officer	Management of solid and liquid waste, rubble, safety of neighbouring land uses during decommissioning activities.	These have been addressed under Impacts 3 and 5. In addition mitigation measures have been provided to mitigate these impacts in Chapter 7. Issue of safety is not considered significant as the project site is not located within or near a built up area. The accommodation facility is about 300m from the nearest homestead located to the east of the site near the football pitch site.
Fire Department (Selebi-Phikwe Town Council)	Masedi Bungu Station Fire Officer	A number of recommendations' were made following an inspection of the site on the 14th of April 2022. These are presented in Appendix 2	These have been communicated to the contractor for their immediate implementation
Mmadinare Tribal Administration, Mmadinare	Kgosi Holland, Kgosi of Mmadinare village	During the consultation, the following questions were raised • How many Chinese internationals reside within the accommodation camp? • Are there any Batswana locals residing at the accommodation camp? • How is the accommodation camp laid out? • Why don't the Chinese internationals want to rent in the village?	Responses given to the questions asked are presented in Appendix 6.

CHAPTER FIVE: IDENTIFICATION AND ASSESSMENT OF ENVIRONMENTAL AND SOCIAL IMPACTS

5.1 Introduction

This chapter focuses on identifying and assessing the anticipated environmental (biophysical and socio-economic) impacts related to the construction, operation and maintenance, and decommissioning of Contractor's living accommodation facilities for use during the ongoing works related to the implementation of Selebi - Phikwe to Serule Water Transfer Scheme. The significance of the potential impacts identified have been characterized on the basis of their severity, spatial/temporal extent, whether positive, neutral or negative, whether immediate, short- or long-term and whether they are biophysical and socio-economic. In addition, mitigation measures and management actions have been prescribed to eliminate or reduce the negative impacts and enhance positive identified. Prior to identifying and assessing the impacts, a brief description of the method of assessment is provided.

5.2 Methods of Identifying Anticipated Impacts

The following methodologies were used in identifying the potential environmental issues likely to emanate during implementation of the project.

- Consultations with IAPs and stakeholders.
- Review of findings of the field survey and professional judgment (field and experience with similar projects).
- Use of a simple checklist to list components of the environment that would require assessment due to activities to be undertaken during project implementation.

A summary of the impacts that are likely to occur during the operation and maintenance, and decommissioning phases of the accommodation camp as well as their causes are presented in Table 5.1 below.

5.3 Methodology for Assessment of Anticipated Impacts

The anticipated impacts of the implementation of the project have been assessed by adopting the Botswana Bureau of Standard Environmental Management – Requirements with Guidance for Use (BOS ISO 14001:2015) criteria for determining significance of environmental aspects and their associated impacts. The system assesses the significance of environmental impacts as follows:

Significance of Environmental/ Social Impact= Probability x Consequence

Consequence of Impacts

The consequences of impacts are derived from consideration of the magnitude or extent of the following parameters:

- **Severity/Magnitude** refer to the magnitude of the impact/risk:
- **Duration** refers to the time component of the impact/risk;
- **Spatial extent** is area covered by the impact/risks;

Table 5.1: Potential Impacts of the Contractor's Accommodation Camp in Mmadinare

Phase	Activities	Impact (s)	Cause(s)
Construction	• Site preparation • Sourcing of and transportation of construction materials to site, • Movement of trucks and vehicles in and out of the site • Stockpiling and use of earth materials including gravel	***Negative* Biophysical *Impacts***	
		Decline in air quality levels	- Lack of implementation of dust suppression measures e.g. sprinkling of water - Fumes from the exhaust of machinery, construction trucks and vehicles - Dumping of earth/gravel materials on site
		Noise disturbance	- Movement of construction vehicles in and out of the site - Operation of machinery and equipment - Construction works noise
		Land pollution due to improper solid waste handling	- No provision of waste receptacles with lids/ Provision of inadequately sized waste receptacle/ Waste receptacles not placed in a convenient position for use - Lack of timely collection of contents of waste receptacle for disposal - Lack of provision of adequate toilets - Lack of maintenance of portable toilets
		Potential road traffic accident	- Delivery of construction materials to site - Speeding by the drivers of the construction trucks/vehicles - Lack of presence of flagmen along access road to the site
		Generation of foul odour	- Smell from use of mobile toilet/untimely maintenance - Decomposed waste in waste bins - Fumes from operation of diesel operated construction machines/equipment
		Falling materials from haulage trucks	- Improper fastening of cover over the truck - Over loading/negligent loading of materials
		Positive Social Impact	
		Provision of temporary employment	Preparation of the site for construction of the accommodation facility
		Transfer of skills	Construction of the accommodation facility

Phase	Activities	Impact (s)	Cause(s)
		Contribution to local and national revenue	Payment of taxes
		Negative social impact	
		Potential risk of injuries to workers	- Negligence by workers on proper use of PPE/ Incorrect PPE provided - Poor housekeeping (untidy working area) - Electrical faults - Mechanical faults - Lack of concentration - Fatigue
		Potential for GBV and SHEA	- Substance abuse (drugs and alcohol) - Self defence - Poverty
Operation	Operation of the living accommodation facility	***Negative Biophysical Impacts***	
		Land pollution due to improper waste handling	- Delayed collection of waste from the waste holding facility and leaking of waste receptacles - Lack of proper waste management and housekeeping within the accommodation camp - Incorrect disposal of washing waste water, liquid kitchen water and used oils
		Noise disturbance	- Conversations between accommodation camp residents and visitors to the facility - Noise from the kitchen during preparation of food - Accommodation camp residents playing music, watching television etc. - Noise from maintenance activities - Noise from vehicles servicing the accommodation camp e.g. toilet waste collection
		Potential risk of fire and explosions	- Presence of combustible gases and liquids in the kitchen and during maintenance activities. - Leaks and spills of flammable products.

Phase	Activities	Impact (s)	Cause(s)
			- Improper housekeeping. - Human error
		Generation of foul odour	- Smell from use of flush toilet/untimely maintenance of drains, conservancy tank etc - Decomposed waste in waste bins. - Overflowing septic tank
		Potential increase in demand for water and energy use	- Use of restrooms - Landscape maintenance - Use of HVACs - Cooking
		Potential safety risk to occupants of the accommodation camp	- Slips in the bathrom - Negligence - Burns from slashing hot oil in the kitchen - Food poisoning - Lack of adhereance to safety protocols
		Positive Social Impact	
		Boost to local economy	Procurement of goods (food, toiletries) and servicies such as security services and collection of waste for disposal.
		Protection of contractor's senior staff	Provision of security around accommodation facility
		Provision of temporary employment for locals	Workers temporarily employed to service the accommodation camp including cook, cleaners, guards, waste management, repairs etc.
		Negative Social Impact	
		Potential for GBV and SHEA	- Substance abuse (drugs and alcohol) - Self defence - Poverty
		Visual intrusion of unscreened laundry/clothes drying area	Lack of proper screening of the drying/laundry area

Phase	Activities	Impact (s)	Cause(s)
Decommissioning	Dismantling of the living accommodation facility and associated services	Dust nuisance	- Movement of trucks into and out of the accommodation camp site.
		Noise disturbance	- Movement of trucks into and out of the site to remove structures and equipment during decommissioning including removal of cabins, toilets, kitchen, paving, laundry structures, waste holding facility
		Land pollution due to improper waste handling	- Inadequate housekeeping (lack of timely disposal of contents of waste receptacles, provision of inadequately sized waste receptacle)
		Potential injury to workers	- Fatigue - Lack of knowledge of hazards present - Provision of inappropriate PPEs - Improper use of PPEs and lack of their use - Improper use of equipment - Lack of attention while undertaking works
		Provision of temporary employment	- Decommissioning of the living accommodation facilities and associated infrastructure

Hence this defines the consequence in the formula below:

Consequence = severity+ duration+ spatial scale

Probability refers to the likelihood of the identified impact/risk occurring.

The significance of the impact is defined below as:

*Consequence **x** Probability*

The criterion for ranking consequence and probability is presented Table 6.2 below:

Table 5.2: Criterion for ranking Consequence and Probability

Severity/ Magnitude	Duration	Spatial Scale	Probability
10 – Very high	5 – Permanent	5 – International	5 – Definite
8 – High	4 – Long-term (impact ceases after operational life)	4 – National	4 – Highly probable
6 – Moderate	3 – Medium-term (4-40 years)	3 – Regional	3 – Medium probability
4 – Low	2 – Short-term (0-3 years)	2 – Local	2 – Low probability
2 – Minor	1 – Immediate	1 – Site only	1 – Improbable
0 – None			0 – None

Source: Adapted from BOS ISO 14001:2004(pg 13)

The highest significance (SG) score which can be obtained is 100. The significance of environmental effects is then classified as high, moderate or low as follows;

SG>60: High environmental significance

SG>30<60: Moderate environmental significance

SG<30: Low environmental significance

The model allows for clear assessment of both negative and positive impacts eliminating subjectivity. It also shows clearly acceptable impacts whose effects can be improved by implementing mitigation measures, and those that are not acceptable. In so doing, indicates to the decision-maker whether a

project should proceed or not or whether a particular activity should be undertaken or not based on the overall risk or significance.

5.4 Assessment of Impacts

An evaluation of the anticipated impacts during the construction, operation and decommissioning phases is presented in this section and the relevant mitigation and enhancement measures for these impacts are discussed in Chapter Six.

The construction phase presented here is retrospective as the preparation of the Addendum to the approved ESMP was undertaken three months after the completion of works on the construction of accommodation facility in December 2021.

Table 5.1: Assessment of Anticipated Impacts

Activity	Impact	Assessment						Remarks
		S/M	D	SS	C	P	SG	
Construction Phase								
• Trenching/ Excavation, • Transportation / Hauling in of construction materials • Installation of electrical appliances • Stockpiling and use of earth materials including gravel	**Negative Biophysical Impacts**							
	Decline in air quality levels	6	1	2	9	5	**45**	The main issue of air quality is the generation of dust from site clearing activities, stock piling of sand, transportation of earth/gravel materials to site and from the use of cement and earth materials. These are mitigable and the potential impact of moderate significance and would directly emanate from the project implementation.
	Noise disturbance	6	2	2	10	5	**50**	Noise levels are anticipated to be high during site preparation and construction activities. In addition, the operation of machinery and the movement of vehicles in and out of the site will also result in an increase in ambient noise. The impact is a cumulative one as the construction of the camp will be running concurrently with setting up of the Contractor's work camp located to the north, adjacent to the site.
	Land pollution due to improper solid waste handling	10	2	2	14	4	**56**	During construction, waste including litter, used/damaged planks, used cement bags, plastic wraps from equipment delivered to site and excess spoil will be generated. If this waste is not handled appropriately it could result in littering of the site and its surroundings and this can be aesthetically displeasing. In addition domestic solid waste and if not collected for disposal on time has the potential to generate a foul odour which can be irritating.
	Falling materials from haulage trucks	8	5	2	15	4	**60**	During construction of the camp site, earth and gravel materials needed for construction will be transported to site. During transportation, if the truck is not properly covered or if the truck is unduly overloaded, materials from the trucks can spill or fall unto the road. The fallen materials can strike pedestrians causing injuries, cause damage to vehicles that follow/ tail-gate the loaded trucks. In addition, some of the earth material could spill onto the road with the potential to cause traffic delays, disruption to traffic movement and/ or road accidents occurring.
	Potential road traffic accident	6	5	4	17	3	**51**	Construction vehicles and trucks travelling along the access road(s) to the site are often linked with death and injuries to workers and members of the public. Traffic along the tarred access road to the site will include movement of construction passenger vehicles, trucks as well as movement of vehicles belonging to residents residing along the route to the site especially the first 12km along the tarred route. It is anticipated that increase in flow of traffic in and out of the project site would be inevitable. Relatively moderate levels of construction traffic are likely to be experienced in peak hours but will not be constant. Nonetheless, if appropriate safety measures are not put in place, construction traffic carrying materials, to, and from the site can have a significant impact on road safety.
	Generation of foul odour	6	2	1	9	3	**27**	Foul smell can emanate from use of mobile toilets by workers, untimely maintenance of the mobile toilets, decomposed waste in waste bins as well as fumes from operation of diesel operated construction machines/equipment. This can make the site less conducive to work in.
	Positive Social Impacts							
	Provision of temporary employment	8	1	2	11	5	**55**	The activities during construction of the accommodation facility are anticipated to create employment for skilled and unskilled labour force for residents of Mmadinare village. These activities include the delivery of earth materials to site, outsourcing of security services to ensure safety and security as well as outsourcingg collection of waste from the site. Employment opportunities will be created mainly for unskilled workers. It is anticipated that between 15 and 20 people will be employed during construction.

Activity	Impact	Assessment						Remarks
		S/M	D	SS	C	P	SG	
	Transfer of skills	6	5	4	15	5	**75**	The construction of the camp will require the use of skilled and unskilled labour. It is therefore anticipated that there would be skills transfer from experienced and trained workers on site to labourers who are novice. The transfer of technical knowledge would lead to human capacity building and self-reliance for the labourers who can then carry on with using this acquired skill and building upon them on other projects that they would be engaged in, in the future. Examples of skills anticipated to be transferred during implementation of the project include interpersonal skills, operation of a JCB, brick laying, teamwork, carpentry, time management etc.
	Contribution to local and national revenue	8	2	4	14	5	**70**	The implementation of the project will increase revenue and taxes for both the central and local authorities. This includes taxes resulting from the construction project such as VAT on materials and services**.** The project will provide a positive boost to the local and national economy through its multiplier effect on the construction sector including manufacturers and suppliers of local materials such as manufacturers of protective wear, local cement manufacturers/suppliers, local suppliers of sand and stone aggregate, finished products e.g. electrical wiring.
	Negative social impact							
	Potential for GBV and SHEA	10	5	2	17	4	**68**	GBV as well as SHEA are some of the social ills that have plagued Botswana and continue to be a social issue that requires a concerted effort to ensure that it is eradicated. It is therefore pertinent that occupants of the accommodation camp be sensitised on preventing any occurrence of GBV as well as SHEA of women.
	Potential injuries to workers	10	5	4	19	4	**76**	Injuries and in some cases even fatalities occur at construction sites. This is of high negative significance. This impact is to be avoided at all cost. Depending on the severity it may not be reversible and has to be mitigated by avoidance.
Operation phase	***Negative Biophysical Impacts***							
Operation of the living accommodation facility	Land pollution due to improper solid waste management	6	4	2	12	4	**48**	It is inevitable that waste will be generated during implementation of the project. Thus proper management of waste that would be generated is vital and central to achieving a hygienic standard as well as minimising or preventing land pollution. Anticipated waste to be generated includes domestic solid waste (used cans, used bottles, waste paper, broken plates and cups, broken water/sewer pipes), as well as vegetative waste from the kitchen and landscaping activities. If this waste is not handled appropriately it could result in littering of the site and its surroundings and this can be aesthetically displeasing.
	Generation of foul odour	6	1	2	9	5	**45**	Living accommodation facilities have the potential to generate foul odours. It is anticipated that during operation, solid waste (mainly in the form of domestic/household waste) will be generated from activities related to cooking, personnel hygiene (bathing, brushing), repairs and maintenance of the accommodation units and ancillary faculties', garden refuse from maintenance of landscape around the facility as well as vegetable garden. The waste generated could also include used products or material, such as old clothing, old furnishing, retired appliances, glass, paper, metal and plastic packaging, discarded tins/cans and old books and newspapers. When these are not properly disposed of or become wet, they can give off foul smell which can be unpleasant. Foul smell could also potentially emanate from decomposed waste in waste bins. This can make the site less attractive to live in. Also foul odour can come from lack of properly maintained toilets, leaking sewage pipes and lack of timely collection of contents of conservancy tank.
	Noise disturbance	6	2	2	10	5	**50**	During operation, it is anticipated that residents of the accommodation camp would generate noise. This would mostly likely be as a result of conversations amongst the occupants and between the occupants and visitors to the facility, noise from television and radios and honey sucker during toilet waste removal. Given that the living facility borders the Contractor and Supervising Engineer's site office to the East, should the noise levels be high during office hours, these could be a nuisance to those working in the office. Noise measurements taken over a three day period revealed that the levels were below the BOBS threshold of 70dBA (Leq) for a facility such as the accommodation facility which is within an industrial area, civic and community land use including a show ground.

Activity	Impact	Assessment						Remarks
		S/M	D	SS	C	P	SG	
	Potential risk of fire and explosions	10	1	2	13	4	**52**	Occupation of the accommodation camp has the potential to result in fire and explosions occurring due to amongst others: - Use of faulty equipment such as heaters, gas stoves etc. - Electrical fires due to faulty wiring - Smoking near flammable substances - Vapours from flammable liquids - Kitchen fires - Outside braai's. Other possible ignition sources include sparks associated with the build-up of static electricity, lightning and open flames from smoking, burning waste or other items on site
	Visual intrusion of unscreened laundry/clothes drying area	6	4	1	11	5	**55**	Entering the accommodation area, one is welcomed by the sight of the laundry and drying area which s between the cabin and the TV/ kitchen area. This creates an unpalatable sight to behold.
	Potential increase in demand for water and energy use	6	5	4	17	3	**51**	It is anticipated that there will be water and energy demand by the occupants of the accommodation facility during its operation. Water demand is expected to be for toilet flushing, washing of hands, landscaping and cooking /food preparation. The occupants are also anticipated to utilise energy for lighting, ventilation, water heating, space heating and space cooling. In the absence of data, it is anticipated that the occupation of the facility is likely to peak the demand and consumption for water and energy within village.
	Positive Social Impacts							
	Provision of temporary employment	8	2	1	11	4	**44**	During operation activities such as cleaning of the perimeter of the area, cleaning of the individual cabin spaces and communal facilities, laundry services, outsourced security services to ensure safety and security of the site, servicing of equipment and conservancy tank etc. will be required. Currently only one person has been employed as a cleaner at the camp site. Outsourced services related to security, as well as servicing of equipment and maintenance of the conservancy tanks, is part of the overall management of the Contractor's camp within which the accommodation facility is located.
	Protection of contractor's senior staff	10	4	1	15	5	**75**	One of the reasons advanced for the having the camp on site was not to make them vulnerable to theft and attacks. The perimeter of the sleeping blocks is secured with a 1.5m high electric fence. In addition, the accommodation has three gated accesses, two to the sleeping bocks and one at the main entrance to the accommodation camp. Security guards are employed to guard the entire camp site including the accommodation facility located within the Contractor's work camp. In addition eight (8) CCTV cameras have been installed around the perimeter of the accommodation camp.
	Boost to local economy	10	4	1	15	5	**75**	The operation of the camp will require the procurement of goods (toiletries, gas, food, drinks) and services (security services, waste collection and disposal) from within Mmadinare village and surrounding areas including Selebi - Phikwe. The procurement of services has the potential of enhancing multiplier effect through the creation of employment which can result in generation of a source of household income.
	Negative Social Impact							
	Potential safety risk to occupants of the	10	5	5	20	3	**60**	Accommodation camps are generally considered as 'home away from home' and are meant to provide comfort to the occupants. But just like home, accidents and injuries such as slips and falls in the bathroom, tripping from ladders and stools not properly stored away, poisoning from use of medications and cleaning products, suffocation from inhalation of smoke from the kitchen, cuts from

Activity	Impact	Assessment						Remarks
		S/ M	D	SS	C	P	SG	
	accommodation camp							broken glass etc. are likely to occur and can have severe long term impact on the affected individual. It is therefore imperative that adequate measures are put in place to prevent the occurrence of these accidents.
	Potential for Gender Based Violence (GBV)and Sexual Harassment Exploitation and Abuse (SHEA)	10	5	2	17	4	**68**	GBV as well as SH/SEA are some of the social ills that have plagued Botswana and continue to be a social issue that requires a concerted effort to ensure that it is eradicated. It is therefore pertinent that occupants of the accommodation camp be sensitised on preventing any occurrence of GBV as well as SEA/SH of women.
Decommissioning Phase (Post operation)								
Dismantling of the living accommodation facility and associated services	**Negative Biophysical Impacts**							
	Noise disturbance	6	2	2	10	3	**30**	Putting down of the cabins, kitchen facility, decommissioning of the conservancy tank, removal of the air conditioners and geysers, decommissioning of all electrical installations and water and sewer lines, movement of trucks in and out of the site are likely to generate some level of noise. However, the impact of the noise that would be generated is anticipated to be of moderate significance as there will be no sensitive receptors around the area (occupants of the Contractor's site office to the east and the Supervising Engineers office to the south would have vacated the office). Noise during this phase of project implementation is expected to be of a temporal nature.
	Dust nuisance	6	1	2	8	4	**32**	During decommissioning, activities related to ripping of the concrete foundation for the cabins, opening up of trenches for removal of laid water and sewage pipes as well as the conservancy tank and movement of trucks and vehicles in and out of the site are likely to give rise to dust which can affect the air quality within and around the area.
	Potential injury to workers	8	5	4	17	3	**51**	During decommissioning, some of the works to be undertaken are likely to result in occupational injuries and accidents to workers responsible for the decommissioning. These injuries could have long-term effects on the affected workers long after the project is complete. Accidents/ injuries are likely to result from: • Electric shock; • Tripping over hazards; • Noise (leading to hearing impairments); • Heat stroke and heat exhaustion due to prolonged periods in the sun with no shade; • Lack of provision of appropriate PPEs; and • Lack of proper supervision.
	Potential risk of fire and explosion	8	1	2	11	4	**44**	During decommissioning, lack of proper handling and storage of electrical equipment including air conditioners, gas stoves, gas cylinders, electrical cables etc. have the potential of causing fire and explosion.

Activity	Impact	Assessment						Remarks
		S/M	D	SS	C	P	SG	
	Land pollution due to improper waste handling	6	4	2	12	4	48	During decommissioning, site rehabilitation will require that all cabin parts, electrical cables, cement slabs, fence poles and mesh wire, gravel stones, iron sheets, broken glass, wood, amongst others be removed from site and properly disposed of. Prior to disposal, the waste would need to be stored temporarily. If no provision is made for the storage, it could result in littering of the site and its surroundings and this can be aesthetically displeasing.
	Positive Social Impacts							
	Provision of temporary employment	8	2	1	11	4	44	During decommissioning, when the cabins and other structures (including the conservancy tank) and other ancillary service infrastructure will be dismantled and taken off site, it is anticipated that about 30 people including truck driver, JCB operator will be employed to assist on a short-term basis over a period of three (3) months.

Note: **S/M**= Severity/Magnitude, **D**= Duration, **SS**= Spatial Scale, **C**= consequence, **P**= Probability, **SG**= Significance

Key

Negative Impacts

	Low	Below 30
	Moderate	Between 30 and 60
	High	Above 60

Positive Impacts

	Low	Below 30
	Moderate	Between 30 and 60
	High	Above 60

CHAPTER SIX: MITIGATION MEASURES

6.1 Introduction

This chapter presents the proposed mitigation and enhancement measures, and management actions for the negative and positive impacts that have been identified as likely to occur during construction, operation, as well as the decommissioning phase of the Contractor's accommodation camp on the outskirts of Mmadinare village. Having assessed the impacts of the implementation of the project, the proposed mitigation and enhancement measures presented herein are for impacts that have been considered to be moderate or high.

Table 6.1: Anticipated Impacts and their Mitigation/Enhancement Measures

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
Construction	Decline in air quality levels	1. Adequate dust suppression measures including regular sprinkling of water especially on exposed surfaces used by trucks and/or vehicles within the site. 2. Workers should be provided with dust masks during project implementation to prevent them from contracting respiratory diseases (or infections). 3. All hauling trucks should be fully covered during transportation of earth material to site.
	Noise disturbance	1. Before construction, all machinery and equipment should be well maintained in order to reduce the magnitude of noise that would be generated. 2. Ensure that all stationary equipment is carefully oriented away from sensitive receptor (Supervising Engineers' office located to the south west). 3. Workers should be provided with adequate protective clothing including earplugs while on site. 4. All machines/equipment should be shut down during periods of inactivity. 5. Unnecessary revving of vehicle engines should be minimised. Noise levels should not exceed the maximum decibels recommended by the manufacturer
	Land pollution due to improper solid waste handling	1. Appropriate materials to be used for the construction of the accommodation camp and its ancillary services should be ordered in an effort to minimise waste generation. 2. Practice waste categorization where waste is sorted according to its nature to encourage reuse and recycling which will in turn minimise the amount of waste that will be taken to the landfill. 3. No plastic covering should be left on site. All waste should be collected and disposed off at the temporary waste holding facility located at the Contractor's camp site. 4. No waste should be burnt or buried on site. 5. Adequate facility for the storage of building materials should be created. Access to this facility should be controlled.
	Falling materials from haulage trucks	1. Only pre-approved haul routes shall be used. 2. All haulage trucks should prior to leaving from the borrow pit or site of source of earth materials, be properly covered with secured tarpaulins. 3. Haul trucks should not be overloaded.

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
		4. Drivers of the haul truck should ensure that they maintain the legal speed limits along the haulage route.
	Potential road traffic accident	1. Display clear information/warning signs setting out the traffic control arrangements into and out of the project site. These signs should be placed at intervals of at least 50m on approach to the turn off to the site from along the tarred road to warning motorists of ongoing construction works 2. Speed limit of 40km/hr should be set for all vehicles and trucks' that would be travelling along the access roads leading to the project site.
	Generation of foul odour	1. The Contractor should ensure that the contents of the temporary waste holding facility at the contractor's camp are collected every week to prevent littering around the premises and also to prevent the development of foul odour. 2. All mobile toilets should be serviced and maintained at least once a week
	Provision of temporary employment	1. Recruit as many local people as possible especially in the semi-skilled and unskilled category. 2. Contracts of employment should be duly signed by newly employed workers. 3. The Contractor should adhere to labour laws. 4. At least 50% of the work force should comprise of the youth and females.
	Contribution to local and national revenue	As much as possible and where feasible, the Contractor should procure materials for the construction of the accommodation facility from local suppliers placing emphasis on local participation.
	Potential injuries to workers	1. The Safety, Health and Environment Officer should conduct an environmental awareness induction training session for all construction crew on SHE issues. 2. A well-equipped and labelled first aid box should be readily available on site. The box's contents should be monitored and restocked. 3. First aid incidents within the camp shall be logged, 4. Practice good housekeeping all the time and maintain the standard to prevent unhygienic work environment. 5. Good housekeeping should be practiced to ensure minimal exposure to risk of OHS incidents and accidents occurring.

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
		6. Ensure that information pertaining to site safety precautions is visibly displayed at the entrance to the premises for all visitors to see. 7. Provide the workers with adequate and appropriately sized PPEs and ensure regular monitoring to ensure they are worn when on site and replaced on time when they are worn out.
	Potential for Gender Based Violence (GBV)and Sexual Harassment Exploitation and Abuse (SEA/SH)	1. The Contractor to engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SEA/SH. 2. Train workers and the Contractor's management on behaviour obligations. To make this effective, all occupants must sign a code of conduct and this should be enforced for compliance. 3. The Contractor and the workers should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SEA/SH throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer. 4. Give women equal opportunity when hiring labour between male and female employees as this could help address the problem of younger women getting into relationships for financial support and being abused in that process.
Operation	Noise disturbance	The occupants of the accommodation facility should be sensitized on ensuring that noise levels are kept to a minimum. No excessive noise should be permitted after 10pm.
	Potential risk of fire outbreak	1. All mitigation measures as provided by the Fire Department, Selebi - Phikwe Town Council should be adhered to (Appendix 2). 2. A Fire Evacuation Plan should be prepared and include input from the Fire Department (Selebi - Phikwe Town Council). The Plan should be displayed in visible places throughout the camp. 3. All fire extinguishers on site should be serviced at the time the supplier has indicated to ensure that they are in god working condition. 4. Install fire and emergency alarm systems that are both audible and visible, and undertake regular fire drills. 5. All sources of ignition including matches, cigarettes should be kept away from all flammable liquids. 6. All flammable liquids (such as aerosol cans) and chemicals (such as hand sanitizers) should be stored within a protected area and protected from direct sunlight. 7. All fire hazard areas should be clearly defined and labelled (e.g. no smoking, no cellular phones).

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
		8. Ensure that all the three 48kg gas cylinder(s) are located outside the kitchen unit and kept in a cage 9. Occupants should be sensitized on issues related to the use, handling, storage, cleaning up and disposal of flammable liquids. 10. An emergency assembly point should be designated outside the camp, in a safe area and fire drills undertaken regularly. 11. Material Safety Data Sheets (MSDS) should be filed for all hazardous substances. 12. Fire extinguishers, water bowser, fire buckets filled with sand, fire blankets should be kept near to sources of ignition (e.g. kitchen cooking stove) and open fires and be unobstructed and clearly labelled. 13. The accommodation camp should have an audible fire alarm. Regular fire drills should be undertaken to ensure that all occupants of the camp are familiar with the Fire Evacuation Plan and procedures to be followed in the event of an outbreak of fire. 14. Contact details of emergency services personnel who deal with fires should be clearly displayed on notice boards within the camp. 15. Open fires ('braais') should only be made within designated areas, during wind-free times and when all fire prevention and control measures are in place.
	Land pollution	1. At least four waste bins with secure lids should be provided at the accommodation camp to encourage occupants to keep the facility free of litter. Additional waste bins should be placed in the kitchen, dining area, all bathrooms and accommodation units. These bins should be lined and kept clean. 2. The Contractor should ensure that the contents of the waste bins from the area are collected and disposed of at the temporary waste holding area located at the Contractor's camp site daily to prevent littering around the premises. 3. Practice waste categorization where waste is sorted according to its nature to encourage reuse and recycling which will in turn minimise the amount of waste that will be taken to the waste disposal facility in Mmadinare. 4. No waste should be burnt or buried on site.

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
		5. The waste holding area shall be labelled as such, access-controlled and kept clean and free of vermin. 6. Greens (vegetable waste, fruit scrap, coffee grounds, filter) food left over's, browns (dead leaves, twigs) should be stored in a compost bucket/ bin in a shaded area behind the kitchen. 7. A waste register and manifests shall be kept for all waste disposed. Solid general waste shall be disposed of on a weekly basis at the Mmadinare waste disposal facility. All liquid waste (that may contain oils) shall be disposed of into the conservancy tank. 8. Toilet waste shall be temporarily stored in the conservancy tank and then collected by a licensed waste management company on a quarterly basis for disposal at Selebi - Phikwe Wastewater Treatment Works (WWTW). 9. All recyclable or reusable waste (e.g., wood, tin, paper) should be properly stored for recycling or reuse and records of frequency and quantity of waste recycled or reused kept.
	Potential safety risk to occupants of the accommodation camp	1. At least two occupants of the accommodation facility should be trained as first aiders. 2. Occupants' should be provided with basic OHS training on basic hazard awareness, site specific hazards and emergency procedures for fire, evacuation, etc. 3. Potential poisonous substances such as ant spray, rodent repellants should be store in a stored in a secured cabinet 4. Ensure that there is adequate ventilation in the kitchen 5. Concrete paving along the walkways should be checked regularly for any ingress and these should be repaired immediately 6. All ladders and stool used around the camp should be properly stored when not in use 7. Proper hygiene should be maintained during food preparation 8. All food stuff purchased should be properly stored away from heat, dust. Raw and cooked food should be stored separately.
	Risk of spread of diseases such as HIV/AIDS and Malaria, COVID-19	1. There should be monthly sensitization of the occupants of the accommodation facility about HIV/AIDS and other STDs/ STIs. 2. Occupants should be encouraged to know their status and be encourage to go for voluntary HIV/AIDS testing

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
		3. The Contractor should provide mosquito nets to the occupants of the accommodation facility as one of the strategies to control malaria. 4. With occupation of the accommodation facility occurring during the COVID-19 pandemic, the Contractor should have in place an implementable COVID-19 Plan in order to prevent the spread of the virus within the facility and the community. 5. There should be strict adherence to social distancing and all COVID-19 protocols should be observed without fail. 6. Occupants should be sensitized on the importance of taking every precaution to prevent contracting and spreading the COVID-19 virus. 7. Practice good housekeeping all the time and maintain the standard to prevent unhygienic work environment.
	Potential for Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse (SHEA)	1. The Contractor to engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SHEA. 2. Train occupants as well as temporary workers at the camp on behaviour obligations. To make this effective, all occupants must sign a code of conduct and this should be enforced for compliance. 3. The contractor and the occupants of the accommodation facility should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SHEA throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer.
	Provision of temporary employment for maintenance of the accommodation facility	1. Workers to be recruited should be from within Mmadinare village. 2. The contractor should adhere to all requirements of the existing labour laws.
	Generation of foul odour	1. The Contractor should ensure that the contents of the conservancy tank are emptied on a quarterly basis. 2. There should be regular monthly checks carried out on all toilets and sewerage pipes to ensure that there are no leaks or bursts 3. Contents of waste bins, are to be collected and disposed of twice weekly by the contractor to prevent the development of foul odour.

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
	Visual intrusion of unscreened laundry/clothes drying area	The front of the laundry//clothes drying area should be screened from view using wooden planks/ fencing.
	Potential increase in demand for water and energy use	**Water** 1. Water audits should be undertaken monthly to identify the distribution of the water consumption, the costs associated with the consumption and measures which should be put in place to ensure water use efficiency. 2. Read water meter monthly. Compare the results to the same month of the previous year. This will help to identify leaks as they occur, as well as monitor your conservation efforts. 3. There should be regular checks for drips, leaks, and unnecessary flows in bathrooms, laundry, kitchen within the facility and these should be repaired immediately. 4. Toilet and wash hand basin faucets that must be replaced due to normal wear-and-tear should be replaced with low-volume models, which are widely available. **Energy** 5. There should be regular maintenance of HVAC facilities to ensure high efficiency and to prevent breakdowns. 6. Energy audits should be conducted monthly to identify areas of high consumption within with the objective of minimising energy cost. 7. All energy-consuming equipment should be switched off when not in use. This can be done manually by workers or automatically with special devices. 8. Consideration should be given to installation of low consumption lighting such as CFLs as well as use of solar lights to illuminate the perimeter of the premises.

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
	Protection of Contractor's senior staff	1. Ensure that all CCTVs installed as well as the electric fence erected are working properly. 2. Visitors' register should be maintained at the entrance to the accommodation facility. 3. All minor gates to the facility should be kept open locked during working hours and the main gate access controlled at all times. 4. Guard dogs kept at the accommodation site should be provided with sufficient food, water, shelter and shade and treated in a humane manner. 5. Visitor orientation and control program should be established to ensure visitors do not enter hazard areas unescorted
	Boost to local economy	1. Service providers should be sought from within Mmadinare village or neighbouring beneficiary villages. 2. Goods should be purchased from existing retail outlets in Mmadinare village
Decommissioning	Dust nuisance	1. Adequate dust suppression measures including regular sprinkling of water especially on exposed surfaces within the site should be undertaken to control generation of fugitive dust. 2. Workers should be provided with adequate protective clothing including dust masks during decommissioning works.
	Noise disturbance	1. All machines/equipment should be shut down during periods of inactivity 2. Unnecessary revving of vehicle engines should be minimised. Noise levels should not exceed the maximum decibels recommended by the manufacturer
	Potential injuries to workers	1. Fully stocked and labelled first aid box should be readily available within the camp. The box's contents should be monitored and restocked. 2. First aid incidents within the camp shall be logged, 3. Good housekeeping should be practiced to ensure minimal exposure to risk of OHS incidents and accidents occurring. 4. Ensure that information pertaining to site safety precautions is visibly displayed at the entrance to the accommodation site for all to see and that the site itself has visible safety signage, as required. 5. Provide the workers with adequate and appropriately sized PPEs and ensure regular monitoring to ensure they are worn when on site and replaced on time when they are worn out.

Phase of Project Implementation	Impact	Mitigation/Enhancement Measures
	Land pollution due to improper waste handling	1. All scrap materials and /or equipment should be sent to a recycling facility. 2. No waste should be burnt on site. 3. All materials to be reused should be properly stockpiled.
	Provision of temporary employment	1. Workers to be recruited should be from within Mmadinare village. 2. The Contractor should adhere to all requirements of the existing labour laws.
	Potential for Gender Based Violence (GBV)and Sexual Harassment Exploitation and Abuse (SH/SEA)	1. The Contractor to engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SEA/SH. 2. Train workers and the contractor on behaviour obligations. To make this effective, all occupants must sign a code of conduct and this should be enforced for compliance. 3. The Contractor and the workers should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SEA/SH throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer. 4. Give women equal opportunity when hiring labour between male and female employees as this could help address the problem of younger women getting into relationships for financial support and being abused in that process.

CHAPTER SEVEN: ENVIRONMENTAL MANAGEMENT PLAN

7.1 Introduction

This chapter presents the Environmental and Social Management Plan (ESMP) for the construction, operation and maintenance, and decommission of the Contractor's living accommodation camp for use during the ongoing works for the construction of Selebi - Phikwe to Serule Water Transfer Scheme. This ESMP has been prepared based on the identification and assessment of the identified anticipated positive and negative environmental (biophysical and socio-economic) impacts likely to emanate as a result of the implementation of the project, which are detailed in Chapter 7.

The purpose of the ESMP is to avoid or at least minimize the significance of potential negative impacts of the project on the environment by moderating the spatial extent and duration of the impacts and enhance the potential positive impacts. The ESMP provides guidelines to be followed in ensuring that environmental issues are taken into consideration during all phases of the project. Due to the specificity and dynamics of environmental impacts (positive, neutral and negative) there is a need for monitoring of the ESMP as this will enable responsible authorities to respond to any changes in earlier findings, which may lead to protection of the environment.

7.2 Environmental and Social Management Plan Components

The environmental issues considered in the ESMP are categorized into three phases- construction, operation and decommissioning phases. A retrospective construction phase impact assessment was undertaken as the as the construction of the facility had been completed prior to the preparation of the ESMP addendum.

7.2.1 Mitigation Plan

Tables 7.1 to 7.2 presents the mitigation plan for the project during the construction and operation phases of the establishment of the accommodation facility. The Plan presents ways for the management measures/ management actions which should be undertaken to mitigate the anticipated negative impacts, by detailing:

- what impact is to be mitigated,
- the mitigation measures to be implemented,
- resources required for implementing the measures, and
- assigning responsibility on who undertakes the mitigation measure.

7.2.2 Monitoring Plan

Tables 7.3 to 7.4 highlight aspects of project implementation which should be maintained to show compliance of the activities of the project against set environmental standards and regulations. This ESMP is a site specific plan developed to ensure that the use and maintenance of the Contractor's accommodation camp is undertaken in an environmentally sustainable manner.

The mitigation and monitoring plan for the decommissioning phase is presented in Chapter 8.

Table 7.1: Mitigation Plan - Construction Phase

Phase of Project Implementation/ Development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
Construction	• Site preparation • Sourcing of and transportation of construction materials to site • Movement of trucks and vehicles in and out of the site • Stockpiling and use of earth materials including gravel	Decline in air quality levels	To reduce impact of dust on workers	Adequate dust suppression measures including regular sprinkling of water especially on exposed surfaces used by trucks and/or vehicles within the site. Workers should be provided with nose masks during project implementation to prevent them from contracting respiratory diseases (or infections). All hauling trucks should be fully covered during transportation of earth material to site.	Contractor	Water and water bowser to suppress dust, Air sampler, Nose masks, iron sheets for boarding perimeter of the site	P100,000
		Noise disturbance	To minimise noise distuirbace on workers and the occupants of engineers' offcie to the East	Before construction, all machinery and equipment should be well maintained in order to reduce the magnitude of noise that would be generated. Ensure that all stationary equipment is carefully oriented away from sensitive receptor (Engineers' office located to the south west). Workers should be provided with adequate protective clothing including earplugs while on site. All machines/equipment should be shut down during periods of inactivity. Unnecessary revving of vehicle engines should be minimised. Noise levels should not exceed the maximum decibels recommended by the manufacturer	Contractor	Sound level meter, ear plugs	P20,000.00
		Land pollution due to improper solid waste handling	To prevent littering and ensure proper management of waste	Appropriate materials to be used for the construction of the accommodation camp and its ancillary services should be ordered in an effort to minimise waste generation. Practice waste categorization where waste is sorted according to its nature to encourage reuse and recycling which will in turn minimise the amount of waste that will be taken to the landfill. No plastic covering should be left on site.	Contractor	Waste recycle bins, shaded materials storage area, licensed waste collector	P100,000.00

Phase of Project Implementation/ Development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
				All waste should be collected and disposed off at the temporary waste holding facility located at the contractor's camp site. No waste should be burnt or buried on site. Adequate facility for the storage of building materials should be created. Access to this facility should be controlled.			
		Falling materials from haulage trucks	To prevent materials from falling out from haul trucks	All haulage trucks should prior to leaving from the site of source of earth materials, be properly covered with secured tarpaulins Haul trucks should not be overloaded Drivers of the haul truck should ensure that they maintain the legal speed limits along the haulage route	Contractor	Tarpaulins	P10,000
		Potential road traffic accident	To minimise traffic delays and to prevent road accidents/ collisions	Display clear information/warning signs setting out the traffic control arrangements into and out of the project site. These signs should be placed at intervals of at least 50m on approach to the turn off to the site from along the tarred road to warn motorists of ongoing construction works Speed limit of 40km/hr should be set for all vehicles and trucks' that would be travelling along the access roads leading to the project site.	Contractor	Road signs, Traffic Management Plan Flagmen/women	P10,000.00
		Generation of foul odour	To prevent foul odour from emanating from the accommodation facility	The Contractor should ensure that the contents of the temporary waste holding facility at the contractor's camp are collected every week to prevent littering around the premises and also to prevent the development of foul odour. All mobile toilets should be serviced and maintained at least once a week.	Contractor	Licensed waste management company to collect and dispose of waste as well as maintain mobile toilets	P25,000
		Provision of temporary employment	To ensure that socio-economic benefits of the project is spread to local communities	Recruit as many local people as possible especially in the semi-skilled and unskilled category. Contracts of employment should be duly signed by newly employed workers. The contractor should adhere to labour laws	Contractor	Money for payment of workers	P100,000.00

Phase of Project Implementation/ Development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
				At least 50% of the work force should comprise of the youth and females.			
		Contribution to local and national revenue	To enhance local and national revenue	As much as possible and where feasible, the Contractor should procure materials for the construction of the accommodation facility from local suppliers placing emphasis on local participation.	Contractor	Finance	P1,000,000.00
		Potential injuries to workers	To ensure and promote the wellbeing of workers To ensure a safe working environment	The Safety, Health and Environment (SHE) Officer should conduct an environmental awareness induction training for all construction crew on SHE issues. A well-equipped and labelled first aid box should be readily available on site. Practice good housekeeping all the time and maintain the standard to prevent unhygienic work environment Good housekeeping should be practiced to ensure minimal exposure to risk of OHS incidents and accidents occurring. Ensure that information pertaining to site safety precautions is visibly displayed at the entrance to the premises for all visitors to see. Provide the workers with adequate and appropriately sized PPEs and ensure regular monitoring to ensure they are worn when on site and replaced on time when they are worn out.	Contractor	One (1) SHE officer, One first aid box, labels for work areas, appropriately sized PPEs for the workers, safety information sign	P60,000.00
		Potential for Gender Based Violence (GBV)and Sexual Harassment Exploitation and Abuse (SH/SEA)	To prevent occurrence of Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse.	The contractor to engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SH/SEA. Train workers and the contractor on behaviour obligations. To make this effective, all occupants must sign a code of conduct and this should be enforced for compliance. The contractor and the workers should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SH/SEA throughout the implementation of the project and compliance should	Contractor	GBV Expert, financial resources. Code of Conduct	P150,000

Phase of Project Implementation/ Development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
				be monitored by safeguards specialists or a dedicated GBV compliance officer. Give women equal opportunity when hiring labour between male and female employees as this could help address the problem of younger women getting into relationships for financial support and being abused in that process.			
Sub-total cost of mitigation measures							**P1,455,000.00**
10% contingency							**P 145,500.00**
Total cost of mitigation measures							**P1,600,500.00**

Table 7.2: Mitigation Plan- Operation Phase

Phase of Project Implementation/ development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
Operation	Occupation of the accommodation facility	Noise disturbance	To reduce impact of noise pollution on adjacent land use	The occupants of the accommodation facility should be sensitized on ensuring that noise levels are kept to a minimum. No excessive noise should be permitted after 10pm	Contractor	Sound level meter	P 15,000.00
		Generation of foul odour	To prevent foul odour from emanating from living accommodation premises	The Contractor should ensure that the contents of the conservancy tank are emptied on a quarterly basis. There should be regular monthly checks carried out on all toilets and sewerage pipes to ensure that there are no leaks or bursts Contents of waste bins, kept at the accommodation camp are to be collected and disposed of twice weekly at the Mmadinare dumping site by the contractor to prevent the development of foul odour.	Contractor	Waste bins, licensed waste collection company	P 50,000.00
		Risk of spread of diseases such as HIV/AIDS & Malaria, COVID 19	To prevent the spread of diseases such as HIV/AIDS & Malaria, COVID 19	There should be monthly sensitization of the occupants of the accommodation facility about HIV/AIDS and other STIs/ STDs. Occupants should be encouraged to know their status and go for HIV/AIDS testing. The contractor should provide mosquito nets to the occupants of the accommodation facility as one of the strategies to control malaria. With occupation of the accommodation facility occurring during this COVID-19 pandemic, the contractor should have in place an implementable COVID-19 Plan in order to prevent the spread of the virus within the facility and the community. There should be strict adherence to social distancing and all COVID-19 protocols should be observed without fail. Occupants should be sensitized on the importance of taking every precaution to prevent contracting and spreading the COVID 19 virus.	Contractor	Mosquito nets (10), COVID 19 plan, HIV/AIDs awareness pamphlets	P50,000.00

Phase of Project Implementation/ development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
				Practice good housekeeping all the time and maintain the standard to prevent unhygienic work environment.			
		Potential safety risk to occupants of the accommodation camp	To prevent OHS injuries to occupants of the accommodation camp	At least two occupants of the accommodation facility should be trained as first aiders. Occupants' should be provided with basic OHS training on basic hazard awareness, site specific hazards and emergency procedures for fire, evacuation, etc. Potential poisonous substances such as ant spray, rodent repellents' should be store in a stored in a secured cabinet. Ensure that there is adequate ventilation in the kitchen Concrete paving along the walkways should be checked regularly for any ingress and these should be repaired immediately All ladders and stool used around the camp should be properly stored when not in use Proper hygiene should be maintained during food preparation. All food stuff purchased should be properly stored away from heat, dust. Raw and cooked food should be stored separately.	Contractor	OHS trainer, storage area for ladders, stools, chemicals	P50,0000.00
		Potential for Gender Based Violence (GBV)and Sexual Harassment Exploitation and Abuse (SH/SEA)	To prevent occurrence of Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse.	The contractor to engage an expert on GBV to conduct a monthly awareness and education discussion on GBV and SH/SEA. The Contractor and the occupants of the accommodation facility should be sensitized on the Codes of Conduct and Action Plan for preventing GBV and SH/SEA throughout the implementation of the project and compliance should be monitored by safeguards specialists or a dedicated GBV compliance officer.	Contractor	GBV Expert, financial resources. Code of Conduct	P250,000.00

Phase of Project Implementation/ development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
		Protection of contractor's senior staff	To ensure the safey of the contarcor's senior staff	Ensure that all CCTVs installed as well as the electric fence erected are working properly. Visitors' register should be maintained at the entrance to the accommodation facility.	Contractor	Finances, maintenance crew from CCTV and electric fence suppilers	P100,000.00
		Boost to local economy	To ensure that socio-economic benefits of the project is spread to local communities	Service providers should be sought from within Mmadinare village or neighbouring beneficiary villages. Goods should be purchased from existing retail outlets in Mmadinare village	Contractor	Finances	P250,000.00
		Land pollution	To prevent littering and ensure proper waste management	At least four covered waste bins should be provided and strategically placed around the accommodation facility. The Contractor should ensure that the contents of the waste bins from the area are collected and disposed of at the temporary waste holding area daily to prevent littering around the premises. Practice waste categorization where waste is sorted according to its nature to encourage reuse and recycling which will in turn minimise the amount of waste that will be taken to the landfill. No waste should be burnt or buried on site.	Contractor	Labourers, licensed waste collection company, four (4) covered colour coded waste bins	P 100,000.00
	Laundering	Visual intrusion of unscreened laundry/clothes drying area	To minmise visual obstrution of the laundry/clothes drying area	The front of the laundry//clothes drying area should be screened from view using wooden planks	Contractor	Wooden planks, nails	P10,000.00
	Use of the kitchen, charging of cell phones, storage of flammable liquids/gases	Potential risk of fire outbreak and pollution	To prevent outbreak of fire	All mitigation measures as provided by the Fire Department, Selebi - Phikwe Town Council should be adhered to (Appendix 2). A Fire Evacuation Plan shall be prepared and include input from the Fire Department (Selebi Phikwe Town Council). The Plan shall be displayed in visible places throughout the camp. All fire extinguishers on site should be serviced at the time the supplier has indicated to ensure that they are in god working condition.	Contractor	At least minimum of 4 fire extinguishers, a well sized cage for the three gas cylinders, fire and emergency alarm, fire hazard signs	P 100,000.00

Phase of Project Implementation/ development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
				Install fire and emergency alarm systems that are both audible and visible All sources of ignition including matches, cigarettes should be kept away from all flammable liquids. All flammable liquids (such as aerosol cans) and chemicals (such as hand sanitizers) should be stored within a protected area and protected from direct sunlight. All fire hazard areas should be clearly defined and labelled (e.g. no smoking, no cellular phones). Ensure that all three 48kg gas cylinder(s) are located outside the kitchen unit and kept in a cage. Occupants should be sensitized on issues related to the use, handling, storage, cleaning up and disposal of flammable liquids. An emergency assembly point should be designated outside the camp, in a safe area. Material Safety Data Sheets (MSDS) should be filed for all hazardous substances. Fire extinguishers, water bowser, fire buckets filled with sand, fire blankets should be kept near to sources of ignition (e.g. kitchen cooking stove) and open fires and be unobstructed and clearly labelled. The accommodation camp should have an audible fire alarm. Regular fire drills should be undertaken to ensure that all occupants of the camp are familiar with the Fire Evacuation Plan and procedures to be followed in the event of an outbreak of fire.			

Phase of Project Implementation/ development	Activities likely to Generate Impact	Impact to be Mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
				Contact details of emergency services personnel who deal with fires should be clearly displayed on notice boards within the camp. Open fires ('braais') should only be made within designated areas, during wind free times and when all fire prevention and control measures are in place.			
	Maintenance of the cabins, communal living area and their surroundings, cooking of meals	Provision of employment	To ensure that socio-economic benefits of the project is spread to local communities	Workers to be recruited should be from within Mmadinare village. The Contractor should adhere to all requirements of the existing labour laws.	Contractor	Workers, finance	P100,000.00
Sub-total cost of mitigation measures							P975,000.00
10% contingency							P97,500.00
Total cost of mitigation measures							P1,072,500.00

Table 7.3 Monitoring Plan Construction Phase

Phase	Impact to be mitigated/ Enhanced	Parameter to be monitored	Monitoring objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or existing standards	Recommended Action if threshold is exceeded
Construction	Noise pollution	Noise levels in decibels Number of complaints from occupants of engineers' office adjacent to the site	To monitor compliance with existing standards/ regulations To verify effectiveness of mitigation measures	Engineers' building adjacent to the site	Noise limit at the construction site kept at or below 70 dB during working hours Absence of complaints from occupants of Engineers' office adjacent to the site	Use of sound level meter for measuring noise levels Review of records kept by the contractor of complaints received from occupants of engineers' office adjacent to the site Interviews with occupants of engineers' office adjacent to the site	Contractor Department of Environmental Health, Bobirwa Sub-District Council	Daily for duration of construction works	Comparison of average daily noise levels with baseline data using trend analysis Use of line/bar graph to show number of complaints received daily Results presented in monthly compliance monitoring report submitted to contractor, DEA, Department of Occupational Health and Safety, Supervising Engineer duration of construction works.	Noise limit at the construction site kept at or below 70 dB during works. Zero/ No noise complaints from occupants of engineers' office adjacent to the site	Identify and remove all equipment's causing excessive noise from site for repairs Identify the cause of noise and take corrective action
	Dust nuisance	Dust (PM_{10}), Number of complaints from occupants of engineers' office adjacent to the site	To monitor compliance with $PM_{(10)}$ standards for Botswana To verify effectiveness of mitigation measures in minimising air pollution	Engineers' building adjacent to the site	Emission levels of PM_{10} not exceeding 200 µg/m^3 per month Absence of complaints from occupants of engineers' office adjacent to the site	Use of air sampler to measure level of air pollutants. Review of Contractor's records of complaints received from neighbours. Interviews with occupants of Engineers' office adjacent to the site	Contractor Department of Environmental Health, Bobirwa Sub-District Council	Daily for duration construction works	Use of a bar chart showing recorded emission levels of PM_{10} Use of tables to present number and type of complaints from neighbours of dust nuisance. Results presented in monthly compliance monitoring report submitted to	Emission levels of PM_{10} not exceeding 200 µg/m^3 per month Absence of complaints from neighbours abutting the site	For dust, source of emission to be identified and corrective action taken. All works temporally suspended and dust suppression undertaken.

Phase	Impact to be mitigated/ Enhanced	Parameter to be monitored	Monitoring objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or existing standards	Recommended Action if threshold is exceeded
									contractor, and Department of Waste Management and Pollution Control for duration of construction works.		
	Land pollution (solid waste pollution)	Presence of litter	To verify effectiveness of mitigation measures in minimising air pollution	Engineers' building adjacent to the site	No litter present	Observation Photographs	Contractor Department of Environmental Health, Bobirwa Sub District Council	Daily for duration of construction works	Use of photographs to show evidence of littering Results presented in monthly compliance monitoring report submitted to contractor, project supervising engineering team and Department of Environmental Health for duration of construction works including corrective measures/actions taken.	No/ zero litter observed on site	Identify cause of complaints from neighbouring land users and institute corrective action immediately
	Falling materials from haulage trucks	Materials fallen from haulage trucks	To verify effectiveness of mitigation measures in preventing or minimizing material from fallen from haulage trucks	Along the haulage access road to the contractor's accommodation camp	No haulage materials fallen along haulage access road to the Contractor's accommodation camp	Observation	Contractor, Department of Road Transport and Safety	Daily during haulage of materials to and from site	Use of text and photograph to report on observations. Information to be presented in the monthly compliance monitoring report submitted to Contractor, DEA and Supervising Engineer.	No haulage materials falling along haulage access road to the Contractor's accommodation	Ensure that all haulage trucks are covered and no overloading is allowed
	Provision of temporary employment	Number of people employed	To verify effectiveness of enhancement measures	Construction site office	Between 20 and 50 people provided with temporary employment	Observation Documentary review of	Contractor Department of Labour	Monthly, during construction works	Use of bar chart to highlight number and gender of people employed.	Sourcing of unskilled workers from within Mmadinare village.	Request assistance from the Bobirwa Sub-District Labour Office in recruiting required labour force

Phase	Impact to be mitigated/ Enhanced	Parameter to be monitored	Monitoring objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or existing standards	Recommended Action if threshold is exceeded
						employment record			Results presented in monthly compliance monitoring report submitted to contractor, project supervising engineering team, Bobirwa Sub-District Council Labour Office for duration of construction works		
	Potential traffic congestion and reduced traffic safety	Number of complaints received from neighbouring land users long access road	To monitor compliance with existing Botswana Road Traffic Regulations To verify effectiveness of mitigation measures in minimising traffic disruption	Along the tarred access road leading to the site	No traffic congestions reported and no accidents recorded	Observation Review of complaints register	Contractor Traffic Department Botswana Police Mmadinare.	Daily during construction	Use of photographs, use of tables to highlight number of traffic congestion complaints received. Results presented in monthly compliance monitoring report submitted to contractor, DEA and project supervising engineering team for duration of construction works including corrective measures/actions taken	No complaints received from neighbouring land users along tarred access road Zero/ no accident recorded	Review traffic management plan and institute immediate corrective action
	Potential injuries to workers	Number of injuries to workers.	To verify effectiveness of mitigation measures in minimising occupational health and safety risk to workers	Accommodation site	Zero/ no work related injuries to workers	Review of record for number of injuries to workers reported.	Contractor Department of Occupational Health and Safety	Daily for duration of construction works	Use of both textual and tabular methods to indicate the number of reports of injuries to workers. Results presented in monthly compliance monitoring report submitted to contractor, project Supervising Engineer	Zero/ no work related injuries to workers	Safety and health/ housekeeping measures should be reviewed and appropriate action instituted.

Phase	Impact to be mitigated/ Enhanced	Parameter to be monitored	Monitoring objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or existing standards	Recommended Action if threshold is exceeded
									for duration of construction works including corrective measures/actions taken.		
	Transfer of skills	Number of locals trained	To ensure transfer of skills to locals	Site	All unskilled workers trained	Review of records of skill training programmes and schedules and number of workers trained	Contractor, CITF, Departments of Labour and Social Security	Monthly for duration of works	Use of both textual and tabular methods to indicate the skill training programmes and schedules and number of workers trained. Results presented in compliance monitoring report submitted to DEA and the developer	All unskilled workers trained	Ensure that all unskilled workers are trained and provided with certificate of training
	Contribution to local and national economy	Suppliers of construction materials	To ensure that local suppliers are given opportunity to benefit from the project	Records kept at the contractor's office of suppliers supplying materials to the site	Raw materials for construction of the contractor's camp as well as materials to be used for the infrastructure services to be provided sourced locally	Review of contractor's records on suppliers	Contractor	Monthly for duration of works	Use of both textual and tabular methods to indicate the sources of construction materials, quantity purchased as well as their value. Results presented in compliance monitoring report submitted to DEA and the supervising engineering team.	At least 90% of construction materials are purchased locally.	Contractor should ensure that at least 90% of all construction materials are sourced locally.

Table 7.4: Monitoring Plan - Operation and Maintenance Phase

Phase	Impact to be Mitigated/ Enhanced	Parameter to be Monitored	Monitoring Objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of Monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or Existing Standards
Operation and maintenance	Noise disturbance	Noise levels in decibels	To monitor compliance with existing noise level standards for Botswana To verify effectiveness of mitigation measures in minimising noise pollution	Border between living accommodation and site office	Noise kept below 70dBA during working hours	Use of sound level meter for measuring noise levels	Department of Occupational Health and Safety, WUC Project Management Office, SHE Officer, Environmentalist	Three times daily (at 0800hrs, 12 noon and 1600hrs).	Comparison of average daily noise levels with baseline data using trend analysis. Use of line/bar graph to show number of complaints received daily Results presented in monthly compliance monitoring report submitted to contractor, Department of Occupational Health and Safety, developer and project engineer for duration of operation of the facility	Noise levels kept below 70dBA during work hours.
	Potential risk of fire outbreak	Fire outbreak	To verify effectiveness of mitigation measures in preventing fire outbreak	Accommodation area	Zero/ no fire out breaks on site	Observation	SHE Officer, Environmentalist	Daily	Photography, Findings presented in monthly compliance monitoring reports submitted to Supervising Engineer, DEA, Fire Department and Department of Occupational Health and Safety including corrective measures/actions taken.	Zero/ no fire out breaks on site
	Land pollution	Presence of litter	To ensure that all waste generated is disposed of properly. To verify effectiveness of mitigation measures in minimising land pollution	Accommodation area	No littering within and around the temporary living accommodation facility	Observation Photography	Environmental Health Department, SHE Officer, Environmentalist	At least twice daily (0800hrs and 1600hrs)	Photographs to show any presence of litter. Use of both textual and tabular methods to indicate the number of reports of littering complaints received. Results presented in monthly compliance monitoring report submitted to Contractor, DEA, and Supervising Engineer.	No/ zero litter observed on site. No waste left within the temporary waste holding facility for more than a week
	Provision of temporary employment	Number of people Employed	To ensure that socio-economic benefits of the project is spread to local beneficiary communities	Accommodation area	About 4 people Employed	Observation Documentary review of	Contractor	Monthly	Use of bar chart to highlight number and gender of people Employed.	Request assistance from the District Labour Office in recruiting required labour force.

Phase	Impact to be Mitigated/ Enhanced	Parameter to be Monitored	Monitoring Objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of Monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or Existing Standards
						Employment record			Results presented in monthly compliance monitoring report submitted to contractor, project engineer and Department of Labour for duration of occupation of the facility.	
	Potential safety risk to occupants of the accommodation camp	Number of injuries or accidents to occupants	To prevent OHS injuries to occupants of the accommodation camp	Accommodation camp	No injuries or accidents to occupants reported/recorded	Review of records from the trained first aiders	District Health Management Team, Mmadinare	Monthly	Results presented in monthly compliance monitoring report submitted to contractor, project engineer and DEA for duration of occupation of the facility.	Identify cause of injury/accidents and institute corrective action.
	Risk of spread of diseases such as HIV/AIDS and malaria, COVID-19	Number of cases of HIV/AIDS & Malaria, COVID 19 reported at the accommodation facility	To prevent the spread of diseases such as HIV/AIDS & Malaria, COVID 19	Accommodation facility	No cases of HIV/AIDS and Malaria, COVID-19 reported	Review of health data from the Contractor, consultations with the Mmadinare Clinic	District Health Management Team, Mmadinare	Monthly	Results presented in monthly compliance monitoring report submitted to contractor, Supervising Engineer	Reinforce sensitisation campaign for HIV/AIDS and Malaria, COVID-19
	Generation of foul odour	Foul odour	To prevent nuisance from foul odour	Sanitary facilities, toilets, temporary waste holding facility	No foul smell from waste bins and conservancy tank.	Use of sense of smell	Environmental Health Department, SHE Officer, Environmentalist	Weekly	Use of text to present findings from visit to the temporary living accommodation area. Results presented in monthly compliance monitoring report submitted to Contractor, DEA and Supervising Engineer.	No smell emanating from the toilets and temporary waste holding area.
	Potential increase in demand for water and energy use	Water consumption (m^3) Electricity consumption (kWh)	To verify effectiveness of mitigation measures in minimizing water and energy consumption To ensure efficient use of water and electricity	Within the accommodation camp	Water and energy consumption levels within limits	Review of monthly water and electricity bills	Contractor Botswana Power Corporation Water Utilities Corporation	Monthly	Internal monthly audits by contractor	To be determined by contractor following monitoring audits of water and electricity usage
	Visual intrusion of unscreened laundry/clothes drying area	Unsightly view of laundry/clothes drying area	To minmise visual obstrution of the laundry/clothes drying area	Laundry/clothes drying area	To screen the laundry/clothes drying area from view of outsiders	Observation	Contractor	Daily	Internal monthly audits by contractor	Ensure that screening around the facility ia maintained
	Potential for Gender Based Violence	Number of cases of Gender Based Violence	To prevent occurrence of Gender Based Violence (GBV) and	Within the accommodation camp	No report of Gender Based Violence (GBV)	Consultations with Botswana Police (Mmadinare)	Contractor, GBV Specialist,	Monthly	Internal monthly audits by contractor	GBV specialist to intensify awareness

Phase	Impact to be Mitigated/ Enhanced	Parameter to be Monitored	Monitoring Objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of Monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or Existing Standards
	(GBV)and Sexual Harassment Exploitation and Abuse (SH/SEA)	(GBV)and Sexual Harassment Exploitation and Abuse (SHEA) reported	Sexual Harassment Exploitation and Abuse.		and Sexual Harassment Exploitation and Abuse (SH/SEA)		Botswana Police (Mmadinare)		Results presented in monthly compliance monitoring report submitted to Ccontractor, DEA and Supervising project engineer.	on GBV , SH/SEA issues

CHAPTER EIGHT: DECOMMISSIONING PLAN

8.1 Introduction

The Decommissioning Plan is a site-specific plan developed to ensure that appropriate environmental management practices are followed during the decommissioning phase of a project. The decommissioning plan details all remediation, site control and monitoring activities that will be undertaken during the decommissioning of the living accommodation facility near the China Geo-Engineering construction camp site in Mmadinare including associated infrastructure. The Plan ensures that all the anticipated environmental impacts during decommissioning will be properly managed and works/activities will comply with all applicable environmental rules and regulations and administrative rules and prescriptions (see Table 8.1).

Table 8.1: Mitigation Plan - Decommissioning Phase

Phase of Project Implementation/ Development	Activities likely to generate impact	Impact to be mitigated/Enhanced	Mitigation Objective for the Impact	Mitigation Measures	Responsibility/ Implementing Agency	Resources	Estimated Cost
Decommissioning	Removal of structures, removal of electrical equipment, clearing of gravel stones,	Dust nuisance	To reduce impact of dust on workers	1. Adequate dust suppression measures including regular sprinkling of water especially on exposed surfaces within the site should be undertaken to control generation of fugitive dust. 2. Workers should be provided with adequate protective clothing including nose masks during decommissioning works.	Contractor	Water and water bowser to suppress dust, Air sampler	P 50,000
		Noise disturbance	To reduce impact of noise pollution on workers	1. All machines/equipment should be shut down during periods of inactivity. 2. Unnecessary revving of vehicle engines should be minimised.	Contractor	One (1) Sound level meter	-
		Land pollution	To prevent littering through properly waste management	1. All scrap materials and /or equipment should be sent to a recycling facility. 2. No waste should be burnt or buried on site. 3. All materials to be reused should be properly stockpiled.	Contractor	Temporary waste holding area	P 20, 000
		Potential injury to workers		1. Well equipped first aid box should be readily available on site. 2. Good housekeeping should be practiced to ensure minimal exposure to risk of OHS incidents and accidents occurring. 3. Ensure that information pertaining to site safety precautions is visibly displayed at the entrance to the accommodation site for all to see. 4. Provide the workers with adequate and appropriately sized PPEs and ensure regular monitoring to ensure they are worn when on site and replaced on time when they are worn out.	Contractor	First aid box, safety signs, PPEs	P100,000
Sub-total cost of mitigation measures							P170,000.00
10% contingency							P 17000.00
Total cost of mitigation measures							P187,000.00

Table 8.2: Monitoring Plan - Decommissioning Phase

Phase	Impact to be mitigated/ Enhanced	Parameter to be monitored	Monitoring objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or existing standards	Recommended Action if threshold is exceeded
Decommissioning	Dust nuisance	Dust ($PM_{2.5,\ 10}$)	To monitor compliance with existing air quality standards for Botswana To verify effectiveness of mitigation measures in minimising air pollution	Within and around the living accommodation area	Emission levels of PM_{10} not exceeding 200 µg/m^3 per month	Observation Review of records of air quality data recorded.	Project Management Office (WUC)	Twice daily (0800hrs and 1600hrs)	Use of a bar chart showing recorded emission levels of PM_{10} Results presented in monthly compliance monitoring report submitted to contractor, DEA Client and Supervising Engineer.	Emission levels of PM_{10} not exceeding 200 µg/m^3 per month.	For dust, source of emission to be stopped and work should be ceased until the dust has suppressed Identify and remove all equipment causing excessive air pollutants from site for repairs.
	Noise disturbance	Levels of noise in decibels (dB)	To verify effectiveness of mitigation measures in minimising noise pollution	Within and around living accommodation area	Noise kept below 70 dBA during decommissioning activities	Use of hand held noise level meter	Project Management Office (WUC)	Twice daily (0800hrs and 1600hrs)	Comparison of average daily noise levels with baseline data using trend analysis. Use of line/bar graph to show number of complaints received daily Results presented in monthly compliance monitoring report submitted to contractor, Department of Environmental Health, Client and project engineer for duration of operation of the facility.	Noise levels not exceeding 70 dBA	Review management measures and corrective actions put in place
	Potential injuries to workers	Number of recorded injuries to workers -	To ensure and promote the wellbeing of workers. To verify effectiveness of mitigation measures in minimising occupational	Within and around living accommodation area	No accidents, incidents, near misses or damage to health of workers reported	Review of records of causes and frequencies of accidents, injuries.	Department of Occupational Health and Safety, Project Management Office (WUC)	Daily	Bar chart showing number of accidents, incidents and near misses or damage to health of workers reported/recorded. Findings of records review including corrective measures/actions taken presented in	No physical injuries or damage to health of workers reported.	Safety and health/ housekeeping measures should be reviewed and appropriate action instituted.

Phase	Impact to be mitigated/ Enhanced	Parameter to be monitored	Monitoring objective	Source or Location of Monitoring	Key Performance Indicator	Method(s) of monitoring	Responsible Agent for Monitoring	Frequency of Monitoring	Reporting Mechanism	Threshold or existing standards	Recommended Action if threshold is exceeded
			health and safety risk to workers						monthly compliance monitoring report submitted to contractor, developer project engineer and Department of Occupational Health and Safety.		
	Provision of temporary employment	Number of people Employed	To ensure that socio-economic benefits of the project is spread to local beneficiary communities	Accommodation area	About 4 people Employed	Observation Documentary review of Employment record	Project Management Office (WUC)	Monthly	Use of bar chart to highlight number and gender of people Employed. Results presented in monthly compliance monitoring report submitted to contractor, developer, project engineer and Department of Labour for duration of construction works	Request assistance from the District Labour Office in recruiting required labour force	Provision of temporary Employment
	Land pollution	Presence of litter/waste	To ensure that all waste generated is disposed of properly.	Within and around the living accommodation area	No/ zero litter observed on site	Observation	Project Management Office (WUC)	Daily	Internal monthly audits by property managers on behalf of the developer during implementation of works	No/ zero litter observed on site	Identify cause of complaint and corrective measures should be taken

CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS

9.1 Introduction

This Addendum to the ESIA/ ESMP for the Selebi-Phikwe to Serule Water Transfer Scheme presents the findings of the environmental and social assessment that was undertaken for the construction (retrospective), operation (including maintenance) and decommissioning of the Contractor's (China Geo-Engineering Corporation) accommodation camp (living facility) on the outskirts of Mmadinare village. The accommodation camp is to be utilised during construction works for the Selebi - Phikwe to Serule Water Transfer Scheme sub-project.

During the environmental assessment and report preparation the following were noted:

- The temporary accommodation facility is already in existence, having been constructed by the Contractor in December 2021, prior to the commencement of the environmental study.
- The living accommodation camp is located within the perimeter of the existing Contractor's site (construction) camp, which is located on the outskirts of Mmadinare village. The site camp includes the workshop, materials' storage room, fuel dispensing area; plant, tools and equipment storage area, isolation room, pipe and fitting area, parking and a mixing plant station as well as the site offices for the Contractor, and is fenced and access controlled. The Supervising Engineer's Offices is located alongside the camp.
- The accommodation camp has various levels of security for its occupants.
- The camp is located about 300m away from an occupied homestead.
- The accommodation facility is separated from the Contractor's construction camp which is located to the west and the contractor's site office to the north by a 1.5m high diamond fence.
- There are two access points located to the west (main entrance to the camp) and to the north of the camp accommodation camp.
- The offices for the Project Manager, as well as the Supervising Engineer, are located to the East from the accommodation camp. The two facilities are separated by a paved access road. There is no linked access between the two facilities.
- The accommodation camp is to be occupied (i.e. lived in permanently) by no more than ten (10) senior management whom are all male Chinese nationals (i.e. not locals). Presently ten (10) of the 14 accommodation cabins are occupied.

The preparation of this ESMP Report was guided by the Environmental Assessment Regulations (2012). The methodology used involved:

- Site visit to the existing accommodation camp with the intention of understanding the prevailing biological, physical and socio-economic characteristics of the site and its immediate surroundings, as well as to collect primary data on environmental parameters including noise levels and air quality.
- A desktop review of existing literature related to the environmental and socio-economic characteristics (baseline information) of the project area in order to appreciate the existing conditions prevailing around the proposed site and also to contextualize how the project area would be affected by the implementation of the project. In addition, a review of existing policies, plans, programmes and legislation was undertaken.

- Consultations with relevant stakeholders and interested and affected parties to solicit as well as to incorporate their views into the Addendum to the ESIA/ ESMP in order to inform the recommended mitigation measures.

All observations, the issues and comments raised by all relevant stakeholders and interested and affected parties as well as findings from documentary review were taken into account in the preparation of this Report. In addition, appropriate mitigation or enhancement measures were recommended to manage the following anticipated positive and negative environmental and social impacts of the accommodation facility:

Positive Impacts

- Provision of temporary employment
- Transfer of skills
- Contribution to local and national economy
- Enhanced security for contractor's senior staff
- Boost to local economy

Negative Impacts

- Dust nuisance
- Land pollution
- Visual intrusion of unscreened laundry/clothes drying area
- Noise disturbance
- Potential risk of fire and explosions
- Potential injury to workers
- Generation of foul odour
- Potential traffic congestion and reduced traffic safety
- Potential increase in demand for water and energy use
- Potential for Gender Based Violence (GBV) and Sexual Harassment Exploitation and Abuse (SHEA)
- Risk of spread of diseases such as HIV/AIDS and Malaria, COVID 19
- Falling materials from haulage trucks

The site specific Addendum to the Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) for the sub-project has therefore been prepared in order to reduce the anticipated significance of the negative environmental impacts and enhance potential positive impacts of the accommodation camp during the construction, operational and decommissioning phases. The ESMP will require regular monitoring to ensure compliance. In the event that there are alterations to the operational design of the facility, this management plan should be amended accordingly and the associated impacts assessed.

9.2 Conclusion

The preparation of the Addendum to the ESIA and ESMP revealed that the benefits of implementing the project outweigh the negative impacts. The negative biophysical and socio-economic impacts identified during preparation of the ESMP are mitigable and their severity can be minimised through implementation of the proposed mitigation measures/ management actions outlined in the ESMP. It is thus recommended that the Contractor's accommodation camp for the Selebi - Phikwe to Serule Water Transfer Scheme proceed, as the anticipated negative impacts of the facility and can be mitigated to a low level of significance (as is the case for the construction phase) and are outweighed by the potential positive impacts.

9.3 Recommendations

The following recommendations have been made for consideration during operation (including maintenance) and decommissioning of the accommodation camp.

1. The Addendum ESMP should be strictly implemented in its entirety.
2. The issues raised in the conditional approval granted by the Building Control Committee (Bobirwa Sub-District Council) should be addressed.
3. The accommodation units should be used for their intended purpose and for the maximum allowable Chinese nationals who hold management positions in the sub-project's implementation (14 in total).
4. A 10m fire break should be created to the North, West and South of the entire contractor's camp site.
5. Clearly marked accesses for pedestrians' and vehicles should be indicated on the entrance gate to the accommodation camp.
6. The contractor should dampen the workshop area especially along access routes used by trucks with water to prevent fugitive dust from impacting on occupants of the accommodation camp
7. At least two exits from the accommodation camp should be identified and clearly indicated. Along the sleeping block passage, emergency lighting should be installed and they should be of adequate intensity and automatically activated upon failure of the principal artificial light source to ensure safe evacuation.
8. At least two occupants' of the accommodation camp should be trained as first aiders
9. The accommodation camp should be kept clean and tidy and access to the facility strictly controlled.

10. Monthly checks should be done on the conservancy tank to ensure that no leaks or foul smell emanate from it, and for the emptying of the tank to be undertaken well in advance of it becoming full and overflowing.
11. In order to promote water conservation measures and to ensure efficient use of potable water, the Contractor should undertake regular checks for drips, leaks, and unnecessary flows in the toilet, bathrooms and kitchen and these should be repaired immediately.
12. Water stored in the Jojo tank should be tested prior to consumption to ensure it complies with local quality for drinking water. The tank should also be cleaned monthly.
13. Consideration should be given to installation of low consumption lighting such as CFLs as well as use of solar lights to illuminate the perimeter of the premises.
14. All air conditioning systems installed should be maintained and operated so as to prevent growth and spreading of disease or breeding of vectors.
15. Site specific method statements for the decommissioning of the accommodation facility should be submitted to the sub-projects Supervision Engineer for approval.
16. Colour-coded waste bins provided should be labelled to indicate what type of waste to be put on them. These should be kept covered clean and secure of vermin at all times. Regular disposal of waste at an approved waste management facility should be undertaken.
17. Incidents and accidents, as well as COVID-19 cases to be reported monthly.
18. Guard dogs kept at the accommodation site should be provided with sufficient food, water, shelter and shade and treated in a humane manner. In addition, the dogs should not be chained up but rather to be kept in an enclosure where they can roam free during the day.

CHAPTER TEN: UNDERTAKING BY ENVIRONMENTAL CONSULTANT

I, the undersigned, on behalf of the members of the Environmental Team certify that the information provided is to the best of our knowledge true and correct as at the time of reporting.

L.A. Archer 9th September 2022

…….....

Name Signature Date

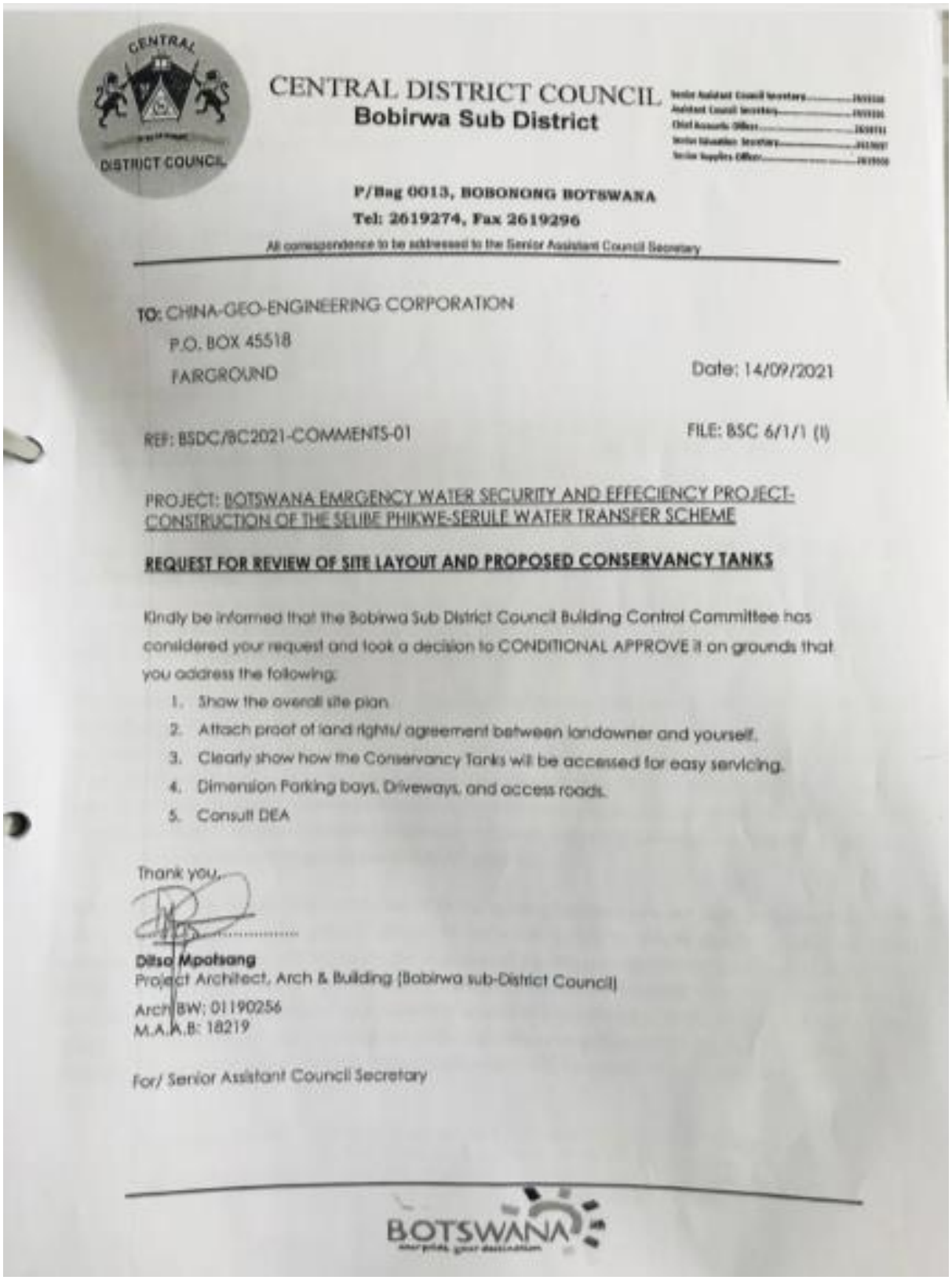
Personnel	Qualification	Role
L.A. Archer	PhD	Environmentalist (BEAPA No. 2013.0034)
E. Joina	BSc	Resident Environmentalist
P. Sebape	BA	GIS mapping

References

1. Republic of Botswana (2017). Central District Development Plan (2017/18-2022/23).
2. Statistics Botswana (2011). Cities and Towns. Population and Housing Census, 2011
3. Statistics Botswana (2015a). Cities and Towns. Population and Housing Census, 2011 Selected Indicators.
4. Statistics Botswana (2015b). Central Bobirwa District population and Housing census selected indicators. 15-27.
5. National Aids Coordinating Agency (2013). "Botswana HIV Impact Survey IV (BAIS IV): A technical Report".
6. International Finance Corporation and European Bank for Reconstruction and Development - Workers' Accommodation: Processes and Standards - A guidance note by IFC and the EBRD.

APPENDICES

Appendix 1: Response from Physical Panning Department (Building Control), Bobirwa Sub-District Council



CENTRAL DISTRICT COUNCIL
Bobirwa Sub District

P/Bag 0013, BOBONONG BOTSWANA
Tel: 2619274, Fax 2619296
All correspondence to be addressed to the Senior Assistant Council Secretary

TO: CHINA-GEO-ENGINEERING CORPORATION
P.O. BOX 45518
FAIRGROUND

Date: 14/09/2021

REF: BSDC/BC2021-COMMENTS-01

FILE: BSC 6/1/1 (I)

PROJECT: BOTSWANA EMRGENCY WATER SECURITY AND EFFECIENCY PROJECT-CONSTRUCTION OF THE SELIBE PHIKWE-SERULE WATER TRANSFER SCHEME

REQUEST FOR REVIEW OF SITE LAYOUT AND PROPOSED CONSERVANCY TANKS

Kindly be informed that the Bobirwa Sub District Council Building Control Committee has considered your request and took a decision to CONDITIONAL APPROVE it on grounds that you address the following:

1. Show the overall site plan
2. Attach proof of land rights/ agreement between landowner and yourself.
3. Clearly show how the Conservancy Tanks will be accessed for easy servicing.
4. Dimension Parking bays, Driveways, and access roads.
5. Consult DEA

Thank you,

Dilso Mpotsang
Project Architect, Arch & Building (Bobirwa sub-District Council)
Arch BW: 01190256
M.A.A.B: 18219

For/ Senior Assistant Council Secretary

Appendix 2: Response from Fire Department, Selebi - Phikwe Town Council

SELEBI PHIKWE TOWN COUNCIL

Telephone: 2610570/2610266
2610790/2601311
2610951/2610952

Toll Free: 0800 600 716

Fax: 2611851

Telegrams: MEEPONG

Private Bag 1
Selebi Phikwe

30 March 2022

FIRE DEPARTMENT

RE: FIRE INSPECTION REPORT AT CHINA GEO CORPORATION/MMADINARE CAMP

Following an inspection conducted on the above mentioned premises we hereby submit our findings and recommendations.

The inspection was conducted on the 14 April, 2022 as per the request.

CHINA GEO CORPORATION

On the 14 April 2022 the Fire Department responded to the request of China Geo Corporation to come and inspect their living accommodation (camp) in Mmadinare. The following are the recommendations which have been made after making inspection in the camp.

- You are being advised to provide arrow signs for every first aid fire extinguisher.
- Remove the Fire Assembly point sign under the tree and place it where it can easily be seen, even from a distance.
- Provide a cage for the 19kg's gas cylinder.
- Provide exit sign for routes to be used in an emergency.
- Chefs/cooks must be included in the fire safety training plan.
- You must conduct fire evacuation drills at least twice annually.
- Maintain a fire breaker around the fence.
- Provide a second no smoking signage on the other side of the fence.
- Provide fire notices, to be printed and displayed with instruction of action to be taken in case of fire (Call Fire Brigade, The Police, Telephone No)

Common causes of fire.

Most fires are preventable

Identify fire hazard in the work place

Identify any combustible:

- The presence of waste materials (combustible) should be minimized.
- Practice good housekeeping.
- Remove materials stacked in corridors or gangways.
- Frequently collect waste materials and take them to the dumping site, avoid accumulation of combustible waste.
- Storage: combustible substance such as flammable liquids (oil),and gases should be stored in small quantities.

Identify the source of heat:

All workplaces will contain heat/ignition sources;

Some are obvious: cooking sources, heaters, boilers, engines, heat from process, electrical circuits and other equipments.

If possible remove all source of ignition or replace with safer forms.

Take great care in areas where portable heaters are used or where smoking is permitted to reduce chance of fire.

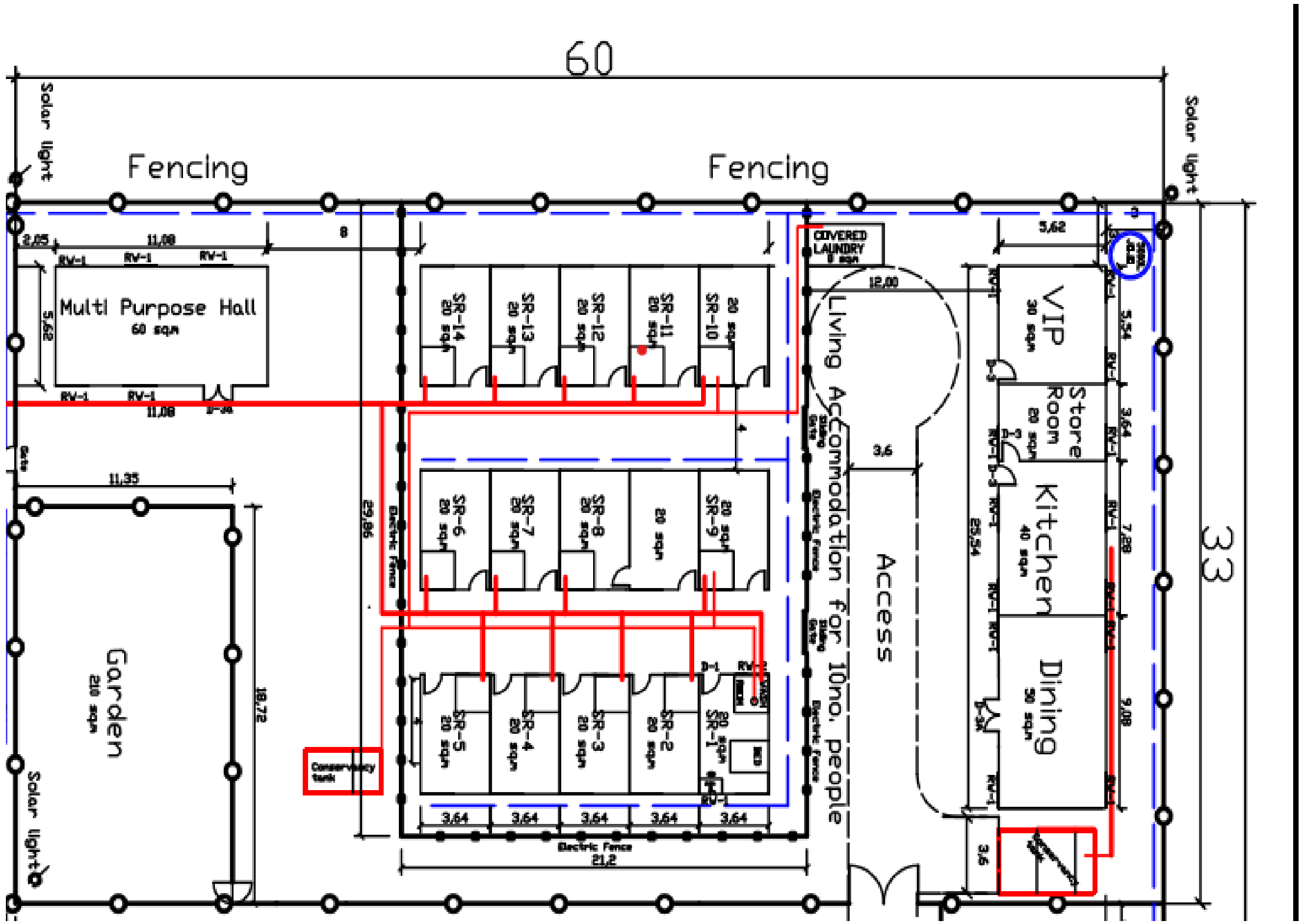
Provide means of giving warning in case of fire; everybody is supposed to hear the fire alarm.

Lastly you should bear in mind people with disability, hearing impairment and physically challenged during evacuations.

Masedi Bungu
Station Fire Officer

For Town Clerk

Appendix 3: Site Layout of Accommodation Area


60
Fencing
Fencing
Solar light
Solar light
Solar light
Multi Purpose Hall
60 sqm
COVERED LAUNDRY
Living Accommodation for 10no. people
Access
VIP
30 sqm
Store Room
20 sqm
Kitchen
40 sqm
Dining
30 sqm
Garden
210 sqm
Conservancy tank
Electric Fence
33

Appendix 4: Baseline noise and air quality for the accommodation facility

The monitoring was done over a 15 min interval using Video Particle Counter with built-in camera Model (VPC300) and the results averaged for each of the recording days. The air quality tests revealed that the levels recorded for $PM_{2.5}$ were below the WHO threshold of 15 µg/m³ while the levels for PM_{10} were above WHO threshold of 45 µg/m³ for an average exposure over 24 hours. The relatively high PM_{10} recorded was attributed to the dust that was generated due to movement of trucks within the contractor's camp site adjacent to the accommodation camp to the East as well as batching of cement

The exercise was undertaken on from 21st to 23rd March 2022.

Air quality levels at accommodation camp day 1

Recording Point	**Recording Time**		**Air Composition(ug/m³) average**		**Observations & Comments**
	Start time	**End time**	$PM_{2.5}$	PM_{10}	
Campsite gate	09:00am	09:15am	6	45	Slight breeze, sunny,
Middle of the accommodation camp	15.30am	15.45am	7	66	Slight breeze, sunny,
Average			6.5	55.5	

Air quality levels at accommodation camp day 2

Recording Point:	**Recording Time**		**Air Composition(ug/m³) average**		**Observations & Comments**
	Start time	**End time**	**$PM_{2.5}$**	**PM_{10}**	
Campsite gate	07:30am	07:45am	7	62	Heavy breeze, clear sky,
Middle of the accommodation camp	15.10am	15.25am	6	63	Heavy breeze, clear sky,
Average			6.5	62.5	

Air quality levels at accommodation camp day 3

Recording Point:	Recording Time		Air Composition(ug/m^3) average		Observations& Comments
	Start time	End time	$PM_{2.5}$	PM_{10}	
Campsite gate	07:30am	07:45am	7	65	slight breeze, clear sky,
Middle of the accommodation camp	15.10am	15.25am	8	59	slight breeze, clear sky,
Average			7.5	62	

Noise Levels

Noise levels at accommodation campsite day 1

Location	Recording Time		Noise Level (dBA) Average			Observations & Comments
	Start time	End time	Min	Max	L_{eqv}	
Campsite gate	08.30am	08.35am	40.5	55.4	**47.9**	Birds chirping,, slight breeze
Middle of the accommodation camp	09.30am	09.35am	53.6	58.2	**55.9**	slight breeze, Birds chirping, ,

Noise levels at accommodation campsite day 2

Location	Recording Time		Noise Level (dBA) average			Observations and Comments
	Start time	End time	Min	Max	L_{eqv}	
Campsite gate	10.10am	10.15am	50.5	63.7	**57.1**	Birds chirping, slight breeze
Middle of the accommodation camp	11.30am	11.35am	58.6	66.4	**62.5**	slight breeze, Birds chirping,

Noise levels at accommodation campsite day 3

Location	**Recording Time**		**Noise Level (dBA)**			**Observations and Comments**
	Start time	**End time**	**average**			
			Min	Max	L_{eqv}	
Campsite gate	10.10am	10.15am	50.8	68.7	**59.7**	Birds chirping, slight breeze
Middle of the accommodation camp	11.30am	11.35am	58.6	70.4	**64.5**	slight breeze,

Appendix 5: Letters Sent to Stakeholders and their Responses

Earthtec (Pty)Ltd
Consultancy

P.O.Box 405754, Gaborone
Plot 14417, Suite 2, Eland House
Makgadigau Rd, Gaborone West Industrial
Tel: 392 3604 • Fax: 316 2082 •Email: earthtec@bbi.co.bw

21st March 2022

Assistant Secretary
Bobirwa Sub District Council
Bobonong

Attn: Environmental Health Department

Dear Sir/Madam,

Environmental Management Plan for Accommodation of Staff at Contractor's Camp in Mmadinare – Addendum to the Approved ESIA/ESMP for Construction of Selibe-Phikwe to Serule Water Transfer Scheme

The Government of Botswana through Water Utilities Corporation (WUC) has engaged China Geo Engineering Corporation to undertake works pertaining to the implementation of the Botswana Emergency Water Security and Efficiency Project (BEWSEP) for the Selebi-Phikwe to Serule Water Transfer Scheme. The Selebi-Phikwe to Serule Water Transfer Scheme sub-project serves to improve water supply to the beneficiary six settlements of Mmadinare, Serule, Gojwane, Moreomabele, Topisi and Damuchojenaa over the next 20 years.

As part of construction works, the contractor intends to provide living accommodation for his senior Chinese staff near his contractor's camp in Mmadinare Village. The construction of the living accommodation has been completed. The facility is expected to serve the contractor for a period of 18 months which is the period over which construction works are anticipated to take. Following completion of works, it is anticipated that the living accommodation facility will be demolished following the end of the defect liability period.

Earthtec Consultancy (Pty) Ltd has been commissioned by the Project Implementation Unit at Water Utilities Corporation to prepare an addendum to the approved Environmental and Social Impact Assessment /Environmental and Social Management Plan for the operation of the contractor's living accommodation.

In fulfilment of Section 7 (2) of the Environmental Assessment Act (2010) as well as the requirements of the World Bank, we are by this letter writing to inform you of the project and also to seek your views and concerns with regards to employment issues that the contractor should take cognisance of.

Attached to this letter is a questionnaire, which we kindly request your office to respond at your earliest convenience.

Yours sincerely,

Lateefat Archer
For/Earthtec Consultancy (Pty) Ltd

Environmental Management Plan for Accommodation of Staff at Contractor's Camp in Mmadinare – Addendum to the Approved ESIA/ESMP for Construction of Selibe-Phikwe to Serule Water Transfer Scheme

Questionnaire: Environmental Health Department

1. What are environmental health issues should be taken into consideration during operation and decommissioning of the living accommodation facility?

a. Proper management of solid and liquid waste
b. Proper management of rubble waste during demolition
c. Proper management of liquid waste (Sewage)
d. Safety of people in the neighbourhood or passersby
e. during demolishing of structures

2. What mitigation measures could be put in place to assist with the health issues stated above?

a. Avail solid waste receptacles and arrange for disposal at the nearest disposal point
b. Arrange for disposal of rubbles at the nearest disposal point
c. Avail toilets and arrangements for emptying of the toilets
d. whenever full or during decommissioning of the accommodation
e. Avail Signage

Name of respondent: M M JOSEPH
Designation: ENVIRONMENTAL HEALTH OFFICER II
Signature:
Date: 6/21/03/23

Appendix 6: Minutes of Meeting Held with Kgosi G. Holland of Mmadinare Tribal Administration

Meeting with Kgosi G. Holland (+267 75453334)

A meeting was held on the 10th of March 2022 at the Mmadinare village main Kgotla, in the presence of the one of the village Kgosi. The objective of the meeting was to inform them about the proposed project and also for them to convey the proceedings to the community, bullets below depict some of the comments and questions that were raised during the meeting.

Question:

1. How many Chinese locals stay at the campsite?

Answer: The camp consists of 11 Chinese international management personnel.

Question:

2. Are there any Batswana locals residing at the campsite?

Answer: No Batswana locals, all Batswana rent within the village.

Question:

3. How is the accommodation setup built?

Answer: There are fourteen (14) cabins, one person each due to Covid-19 restrictions, fenced facility from office blocks. There is a kitchen, dining room area and pantry, each room has a toilet and shower combined, no sharing.

Question:

4. I understand there are some China Geo-Engineering company rented houses around the Mmadinare village, who stays in them?

Answer: Batswana senior staff members have been provided with rented houses within Mmadinare village.

Question:

5. Why don't the Chinese nationals want to rent in the village?

Answer: They have noted that it is a safety measure arrangement for them to avoiding any GBV case and suffering any other social activities case and therefore them being isolated from the village helps them to comply with the project requirements.

Conclusion

Lastly Kgosi G. Holland noted that he does not have a problem with the Chinese nationals staying at the proposed area, as they are already giving back to the community by having rented houses for other staff within the Mmadinare village. He noted lastly that he will convey the message to other Kgosi's who were not available during the consultation that in case anyone begs to differ with his opinion he shall render additional comments to the consultation.