Environmental & Social Impact Assessment for the proposed Rezoning Erf 6225 and 6226 to accommodate the construction of Sacred Heart Mother and Child Hospital, Windhoek extension 15 (Eros), Khomas Region -Namibia

Environmental and Social Management Plan (ESMP)

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EXECUTIVE SUMMARY

Overall access to health care in Namibia is good, with 76% of the population living within a 10 km radius of a health facility. On average, in rural areas, there are about 5 780 people per PHC clinic and 58 825 people per district hospital. Namibia experienced a rapid urbanization as evidenced in the increase in the proportion of the population living in urban areas from 28% in 1991 to 50% in 2018. Hospitals, however, suffer from overcrowding and long wait times, as a large number of people bypass clinics and health care closer to home and go directly to Private hospitals that are perceived to offer a higher quality of care. The project proponent intends to provide a solution to a growing health care demands like shortage of workforce and specialized services.

Sacred Heart Mother and Child Hospital (SHMCH) appointed Enviroplan Environmental Consultants to carry out this Environmental and Social Management Plan study which is a step towards applying an Environmental Clearance certificate (ECC).

This report was prepared as part of a pre-planning phase of the proposed health care facility to understand the nature of environmental, occupational health and safety and social (EOHS&S) risks associated with existing or planned activities and hence develop accompanying mitigation and prevention measures to manage risks.

Definition of terms

Environment – the natural and man-made resources, both biotic and abiotic, occurring in the lithosphere and atmosphere, water, soil, minerals and living organisms, whether indigenous or exotic, and the interaction between them.

Environmental Impact Assessment (EIA) – an evaluation of a project to determine its impact on the environment and human health and to set out the required environmental monitoring and management procedures and plans.

Manage – means to manage with a view to securing its protection, conservation, regulations, rehabilitation, and sustainable use.

Monitor – means to assess continuously the state and trends of developments on any part of the environment as well as the actual or potential impact of any activity on the environment and human health.

Natural resource – the air, soils, minerals and waters of Namibia, mammals, birds, fish, trees, grasses, springs, vleis, sponges, marshes, swamps and public streams.

Pollution – any direct or indirect alteration of the physical, thermal, chemical, biological properties of the environment caused by discharge, emission, or deposit of a substance into the environment.

Project – means any activity which has or is likely to have an impact on the environment.

Sustainable utilization – means the use or exploitation of the environment which guards against extinction, depletion or degradation of any natural resource and permits the replenishment of natural resources by natural means or otherwise.

Waste – includes domestic, commercial or industrial material, whether in liquid, gaseous or solid form, which is discharged, emitted or deposited into the environment in such volume, composition or manner as to cause pollution.

Acronyms

DEA	Directorate of Environmental Affairs
ESMP	Environmental and Social Management Plan
EMA	Environmental Management Act
EA	Environmental Assessment
OSHEW	Occupational Safety Health and the Environment Wellness
MET	Ministry of Environment and Tourism
MSDS	Material Safety Data Sheet
SABS	South African Bureau of Standards
SHMCH	Sacred Heart Mother and Child Hospital

1.0. INTRODUCTION

The proponent, Sacred Heart Mother and Child Hospital hereby can be referred to as the project proponent intends to establish a first of its kind state- of – the art, Mother and Child hospital. Population increase and pressure on health resources is a major driver for the development. The proposed activities spearheaded to the application for Environmental Clearance certificate because the project site needs a rezoning certificate from the Urban and Regional Planning Board.

Infrastructure study was done subject to municipal requirements as specified by the City of Windhoek. Eros has seen quite substantial. Traffic study was done to assess the suitability of the proposed activity. The study was done to assess the transport impact by traffic engineers to determine the current traffic operations at various pre-determined intersections within Eros. Results indicate that the densification within the study area has a potential to add *1198* trips to the study intersections during AM peak hour (944 in and 255 out) and PM peak hour (302 in and 896 out). The study recommended that some identified intersections upgraded to mini roundabouts on the proponent's costs.

The proposed project pre planning, construction and operational phases will be guided by this ESMP report in fulfillment to the Environmental Management Act of 2007 and its regulations.

1.1. Project location

The proposed Sacred Heart Mother and Child Hospital project site is on consolidated ERF 6225 and ERF 6226, Windhoek Extension 15 (Eros). The development is proposed on a consolidated vacant site which is flanked on the Eastern side by Heliodoor Street (The main Road linking both Omuramba and Eros road to the Eros Mediclinic and a quitter road side Nossob Street.

Table 1: Project site coordinates

Point number	Latitude	Longitude
A	-22032'33.6'' S	- 17005'16.5''E

Figure 1: Project site locality map

2.0. PROPOSED PROJECT ACTIVITIES

The proposed project has three main activities which can be subdivided into three as follows:

Pre-Planning, Construction and Operation phases.

Pre-planning phase of the proposed activities includes budgeting/ funding, lay out planning and designing, market analysis, and acquiring necessary certification/ clearances.

Construction phase of the project will establish a multi storey building to be used for medical activities as well as other proposed land uses. Activities to be conducted will include the following:

- Erection of a multi storey building as shown in appendix (i), proposed layout plans.
- Water and Electrical installations
- Area lighting installations
- Installation of medical equipment
- Marketing

Operation phase of the project will see the functioning of a well-established and fully equipped Private hospital at proposed project site. The hospital will target the following customers:

Paediatrics Specialists: Children's medical specialists that provide advanced medical care in their respective specialties. •

Obsetrics and Gynecologists: Focus on pregnancy and related health issues, while gynecologists focus on general reproductive health.

Paediatricians: General medical care, monitors growth and development, and tracks and administers immunizations for infants, children, adolescents, and young adults.

General Practitioners: Treat all common medical conditions and refer patients to hospitals and other medical services for urgent and specialist treatment. • Other

Specialists: This is a group of doctors that does not specialize in children, but may come across pediatric patients (E.g. Orthopedic doctors who see patients with a variety of conditions that affect the muscles, nerves, bones, joints, and connective tissue

3.0. SCOPE OF ESMP

The scope of services undertaken by the Consultant included the preparation of the ESMP in line with the world class standards, legal legislations and international construction standards and operational requirements for best practices are as follows:

- Provide a detailed description of the proposed activity;
- Identify all legal and administrative issues that govern the development and operation of the proposed project;
- Consider the potential environmental and social impacts of the development, and assess the significance of the identified impacts;
- Conduct a risk assessment of the project;
- Outline management and mitigation measures in an ESMP to minimize and/or mitigate potentially negative impacts.

4.0. LEGISLATIVE AND POLICY FRAMEWORKS

SHMCH will be guided by a comprehensive legislative framework that is relevant to the proposed line of business, in terms of environmental sustainability, public health and good standing practices. In this section, relevant legal instruments as well as their applicable provisions have been discussed. The applicability is provided on table 1, a list of legislation and procedures relevant to the proposed project development.

Table 2: Legislative and Policy frameworks

Aspect	Legislation	Relevant Provisions	Relevance to the Project
The Constitution	**Namibian Constitution First Amendment Act 34 of 1998**	- "The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilization of living natural resources basis for the benefit of all Namibians, both present and future." (Article 95(l)).	- Through implementation of the ESMP the proponent will ensure conformity to the constitution in terms of environmental management and sustainability.
Environmental	**Environmental Management Act 7 of 2007**	- Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). - Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)). - According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Minister of Environment and Tourism or in a manner prescribed by the Minister. - Details principles which are to guide all EAs	- This Act and its regulations should inform and guide this ESMP.
	Pollution and Waste Management Bill (draft)	- This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution so as to maintain a clean and safe environment. - The bill also describes how waste should be managed in order to - reduce environmental pollution. Failure to comply with the requirements considered an offence and is punishable.	- The project should be executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste during construction or operation. - Mostly medical waste from operation and materials that during construction phase.

Aspect	Legislation	Relevant Provisions	Relevance to the Project
Water	Water Act 54 of 1956	The Water Resources Management Act 24 of 2004 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: A permit application in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. Prohibits the pollution of underground and surface water bodies (S23(1).	A permit is required to dispose of domestic and industrial wastewater. Construction water is already available from municipal portable water system under the user pays principle Underground water pollution in any way will not be encouraged during all phases of the project.
Occupational Health and Safety and the Environment	Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'.	135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery about the structure of such buildings of otherwise in order to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building;" (Ministry of Labour and Social Welfare). This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair Labour practices.	- The proponent will employ people from Oshakati as well as the entire Region and the company shall comply in with the provisions of Chapter 4 of this Act, securing a safe environment and preserving the health and welfare of employees at work. This will include applying appropriate hazard management plans and enforcing Occupational Health and Safety (OHS) enforcement by contractors.
	Public Health and Environmental Act, 2015	- Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	- The operations will have to be conducted in a safe and sustainable manner and inspections by the town council, conducted frequently in terms of fitness of the site, i.e. (ablution, site office, food handling standards)
Aspect	Legislation	Relevant Provisions	Relevance to the Project
	Namibia Food Safety Policy	All food safety standards applicable in Namibia must ensure that no food dangerous to health and/or fit for human or animal consumption should be offered for consumption.	The proponent shall ensure that all stages for which they are responsible foodstuffs to the final

Occupational Health and Safety and the Environment		To ensure food safety for all consumers in the Republic of Namibia, and provide sufficient food safety guarantees on all food products traded nationally, or exported to other countries Facilitate development of Acts and Regulations on food safety by relevant ministries;	consumer, are carried out in a hygienic way in accordance with regulations
	Machinery and Occupational Safety Act, 1983 (Act No. 6 of 1983).	operator could injure oneself or other employees with machinery with possibility of fatalities over speeding trucks/ fork lift/ all other vehicles lead to vehicle accidents resulting in potential fatalities	. BBS Coaching to be done whenever responsible personnel is assigned to work with new/ heavy power machines/ equipment . Driver checklists to be available and strictly adhered to during deliveries
Land Use	Town Planning Ordinance 18 of 1954	Change of Land use an approved Town Planning Scheme applies must be consistent with that scheme (S31).	ERF 6225 and 6226 Application for rezoning was approved by the City of Windhoek and the ECC will help the application to the Urban and Regional Planning board.

The proposed activities will attract a land use and transformation, hazardous substance treatment, handling and storage which are listed activities in the Environmental Management Act of 2007 and 2012 regulations. Overleaf (table 2) are activities which are applicable to the EMA 2007 which will guide the proposed developments.

Table 3: Listed activities, EMA 2007

ACTIVITY	RELEVANT SECTIONS
LAND USE AND TRANSFORMATION	**- 5.1 (a)** The rezoning of land from Residential use to industrial/ commercial use
HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE	**-9.2** Any process or activity which requires a permit, license or other form of authorization, or the modification of or changes to existing facilities for any activity which requires an amendment of an existing permit, license or authorisation or which requires a new permit, license or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.
***Applicability*:** *The proposed project site (ERF 6226 Windhoek extension 15) was initially a 'General Residential' with a density of 1:700m^2 and rezoned to Office with bulk of 1;0, While ERF 6225 was initially zoned Office with bulk of 0.4 zoned to Office with bulk of 1.0. Consolidation was done to come up with enough space for the proposed hospital.* *The proposed hospital will be entitled to handling, use and disposal of hazardous substances. This need the proponent to understand the contents of the ESMP and make sure hazardous substances are handled correctly and according to the Material Safety Data Sheet (MSDS) provided.*	

5.0. GUIDE TO THE PROPOSED ACTIVITIES

5.1. Facilities and Infrastructure

Premises – The project is sited within reach to the public and the location has mixed businesses. Please refer to the infrastructure study attached as Appendix B of the ESR.

5.2. Machinery and Equipment

Machinery maybe be used during the construction phase includes, excavators, front and loaders, heavy duty tipper trucks, concrete mixers, hand power machines, and other commonly used of power tools. All machinery to be used in all phases of the project must follow appropriate guidelines to prevent fatalities and incidents for malfunctioning and public nuisance. Safety provisions to pedestrians and visitors to the site must be provided with maneuvering directions and or personal protective equipment (PPE) to visitors.

5.3. Personnel

During all phases of the project, contractors, subcontractors and hired personnel should be trained and have adequate technical knowledge to carry out assigned duties. All duties are to be done according to factory guidelines and procedures. Training of all staff members including newly recruited staff must be done continuously as per the company training policy. Responsibilities between staff members must be clearly allocated and carried out based on the relevant procedures. Necessary clothing both for protection, health and identification need to be worn always. Barricading to be done for protection of the public as well as dust suppression measures. Operation phase of the project will bring employment opportunities, GDP per capita income as well as improved medical services in Oshakati and entire region. Recruitment will be done to experienced and trained personnel to offer distinctive services.

5.4. Quality policy

SHMCH is mandated to implement a quality policy from which its operations and quality objectives will be based on. The policy must ensure that all suppliers of equipment and consumables are environmentally friendly and sustainable. Besides the quality policy, quality

manuals should state, in detail, the necessary steps to be followed to meet the desired quality goals. The manual must be a guiding document to all the activities, routines, distribution of responsibilities, work procedures and instructions that are necessary for achieving the quality goals for day-to-day operations. Activities stated in the quality manual must be well documented and they should be about the quality policy. Both the quality policy and quality manual must be understood by staff members, implemented, maintained and reviewed to allow for continuous improvement throughout the construction and operations of the facility.

5.5. Audit policy

This is a gauging policy that tells whether the Safety, Health, Environment, Social and Quality Management Systems during operations are being implemented or not. This tool also checks if the objectives of the ESMP are met as well as addressing environment and social issues to ensure that there is sustainability and respect for public and employees' safety. Audit results needs to be documented and analyzed for weaknesses and defects in the systems in order to ensure rectifications are initiated.

5.6. Development phases

Proposal will comprise various phases. For this ESIA, the phase-based activities were categorized to enable impact assessment and analysis. The different project sections are as follows:

Construction Phase (Site Preparation)

- Excavation of trenches and pits for services and infrastructure according to the municipal approved designs
- Installation of engineering serviceable components
- Electrical reticulation above and below ground
- Construction of buildings, paving, storm water drainage, site access streets and related infrastructure
- Transportation of equipment, components, machines and building material to site

- Site clean-up and housekeeping

5.7. Operational Phase

The proposed project will bring a first of its kind specialist hospital for women and children in Namibia. The idea will bring a 4 floors high rise building on consolidated ERF 6225 and ERF 6226, Windhoek Extension 15. Its operational phase will be characterized by day to day running of the private hospital in a similar way most of the hospitals in the capital are operating.

Decommissioning/Closure Phase

This phase will involve a permanent closure of the facility. At this point in time. It will be difficult to foresee the impacts of decommissioning the proposed project apart from loss of employment. However, if the client wants to decommission the project, he must do a decommissioning study and provide for appropriate or sustainable measures.

5.8. Environmentally sensitive areas identified

The proposed project site might have most of the negative impacts during construction phase. Construction activities might affect the neighbor residents in the immediate environs. Impacts such as dust, noise, traffic congestion and land use change can be mitigated through the implementation of the ESMP which will form part of the ESIA report.

6.0. ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

This ESMP has been prepared according Namibia's Environmental Management Act and its guidelines. Reference was used to craft due diligence questions which were discussed with the client's architect and management team to get an understanding of how they plan to manage the risks for the proposed structure as well as other land use activities.

As these guidelines do not provide an exhaustive list for environmental, occupational health and safety and social (EOHS&S) risks, relevant legislations and other guidelines for construction good practice were utilized. Potential Socio economic, environmental aspects, health and

safety hazards were identified and appropriate management plans were developed that will minimize risks.

6.1. Impact assessment methodology

An impact assessment matrix was used to assess all possible impacts of the project on the environment. In line with Namibia Environmental Management Act No. 7 of 2007 and the Environmental Impacts Regulations (GN 30 in GG 4878 of 6 February 2012) with the direction on impacts analysis the following impact assessment criteria was identified by the team and deemed suitable. Table 2 below illustrates the Impact screening criteria which was instrumental to the assessment process.

Table 4: Impact Screening criteria

Aspect	Description
Nature	Focuses on the type of effect that project activities will have on environmental components. Addresses questions related to "what will be affected and how?"
Extent	Spatial extend of the project and anticipated spatial extend of impacts indicating whether the impact will be within a limited area (on site where construction is to take place); local (limited to within 15km of the area); regional (limited to ~100km radius); national (extending beyond Namibia's boarders).
Duration	This looks at the temporal issues pertaining to time frames e.g. whether the impact will be temporary (during construction only), short term (1-5 years), medium term (5-10 years), long term (longer than 10 years, but will cease after operation) or permanent.
Intensity	Establishes whether the magnitude of the impact is destructive or innocuous and whether it exceeds set standards, and is described as none (no impact); low (where natural/ social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standards/requirements).
Probability	Considers the likelihood of the impact occurring and is described as uncertain, improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).

Significance	Significance is given before and after mitigation. Low if the impact will not have an influence on the decision or require to be significantly accommodated in the project design, Medium if the impact could have an influence on the environment which will require modification of the project design or alternative mitigation (the route can be used, but with deviations or mitigation) High where it could have a "no-go" implication regardless of any possible mitigation (an alternative route should be used).

The application of the above criteria will be used to determine the significance of potential impacts using a combination of duration, extent, and intensity/magnitude, augmented by probability, cumulative effects, and confidence. Significance is described as follows:

Table 5: Impact Rating Criteria

Significance Rating	Criteria
Low	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given development description. This would be allocated to impacts of any severity/ magnitude, if at a local scale/ extent and of temporary duration/time.
Medium/ Moderate	Where the impact could have an influence on the environment, which will require modification of the development design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term.
High	Where the impact could have a significant influence on the environment and, in the event of a negative impact the activity(ies) causing it, should not be permitted (i.e. there could be a 'no-go' implication for the development, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.

Table 6: Environmental and socio-economic Impact and Risk Matrix

Environmental Impact	Element	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
TOPOGRAPHY	Topography and Landscape	Manhole construction	Construction	Short term	Low	Local	Direct	Probable	Low Negative
	Soil	Contamination to soil from waste disposal, paints, oils and other lubricants and chemicals used in construction and operation phases.	Construction Operations	Long term	Moderate	Local	Direct	Improbable	Low Negative
LAND CAPABILITY	Socio Economic Activities	Rezoning impacts	Construction and Operations	Long term	High	Local	Direct	Probable	Moderate Positive
WATER	Groundwater quality	Groundwater source and soil may be impacted by construction activities	Construction	Short term	High	Local	Direct	Probable	Moderate Negative

Environmental Impact	Element	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
AIR QUALITY	Air Quality	Generation of dust causing a nuisance to neighboring residents and businesses	Construction	Short term	Low	Local	Direct	Probable	Moderate Negative
	Noise Pollution	Nuisance from construction machinery and vehicular noise.	Construction	Long term (operation)	Low	local	Direct	Probable	Low Negative
SOCIO-ECONOMIC	Socio Economic Activities	Temporary employment prospects in the area	Construction	Short Term	Low	Local	Direct	Probable	Moderate Positive
	Socio Economic Activities	Security concerns due to increased number of persons in the area	Operations	Long	High	Local	Direct	Probable	Moderate Negative

Environmental Impact	Element	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
SOCIO-ECONOMIC	Socio Economic Activities	Job creation operations personnel	Operations	Long term	High	Local	Direct	Highly Probable	Moderate Positive
	Contributing to the National Economy and Food security	Improved food manufacturing and distribution services	Operations	Long Term	Moderate	National	Direct	Highly Probable	High Positive
HEALTH AND SAFETY	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction Operations	Short term	Moderate	Local	Direct	Probable	Moderate Negative
	Loss of property and human life	Construction machinery accidents, fires resulting in fatalities, damage to properties, fires and power surges.	Construction Operations	Long term	High	Local	Direct	Probable	Moderate Negative

HEALTH AND SAFETY	Element	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance
	Electrical Safety	Burns, shocks and electrocution	Construction Operations	Short term	Moderate	Local	Direct	Probable	Moderate Negative
	Transportation/ distribution	over speeding truck leads to vehicle accidents resulting in potential fatalities	Operations	Long Term	High	Local	Direct	Probable	Moderate Negative
	Transportation/ distribution	poor communication between employees during offloading resulting in multiple injuries	Operations	Long Term	Moderate	Local	Direct	Probable	Low Negative
	Manual lifting	poor lifting techniques during manual lifting of heavy load can cause employees to suffer from back injuries	Construction Operations	Long Term	Moderate	Local	Direct	Probable	Moderate Negative

7.0. ASSESSMENT OF SOCIAL ISSUES

7.1. Employment of Child Labor

Employment of child Labor is common in Namibia, as the Labor is cheap, thus specific provisions are required to ensure that entrepreneurs do not employ child labor. No personnel will be hired and is under the age of sixteen (16) on the date of employment.

7.2. Employees Occupational Health and Safety Wellness

Sacred Heart Mother and Child may face different construction sector Health and Safety issues, this will need the contractor or project proponent to ensure machine operation and electrical safety training as well as firefighting, first aid and emergency response.

7.3. Inconsistency in wage payment

Inconsistency in wage payment between male and female workers is very common in the informal sector, thus the proponent's wages will be linked to results and therefore there are no wages disparities anticipated once operational. There is also need to ensure that both men and women are employed.

7.4. Land Use Changes

Land use change is inevitable since the allocated land was surveyed and serviced for development. Application for Rezoning and consolidation was approved by The City of Windhoek- department of urban and transport planning. Social activities associated with the project site will be affected, considerably good than harm.

7.5. Traffic jam

A traffic study was done for the proposed project and suggests that the following should be done prior to project development:

- Upgrading Heliodoor Street and Eros road to a roundabout (traffic circle).

8.0. RISK ASSESSMENT AND PROJECT ALTERNATIVES

Risk assessment is an imperative element to consider when conducting the Environmental Assessment exercise for any given project. In a bid to fulfil the risk assessment practices for the proposed project a baseline risk assessment has been undertaken by Enviroplan Consulting team and this has resulted in several options for development on the proposed project

Alternative 1 – Proceed with hospital establishment as well as other business initiatives. Medical services will be improved in the city and the entire region as well as putting Namibia on the world map (socially and economically). The proposed activity is a first of its kind in Namibia. The Environmental team proposed the methods to reduce impacts that are likely to emanate with the proposed development.

Alternative 2 – Do not proceed with the Project. This alternative comes with anti-development perspective. There is needy for a specialized hospital which focuses on a vulnerable population (mothers and children).

8.1. The objectives of the risk assessment were to:

- Identify areas of uncertainty that need further study to enable a more accurate assessment of risks to be made.
- Compare the risks associated with the 2 scenarios.
- Identify risk controls and assess the residual risks associated with the two scenarios.
- Identify where further study is needed to reduce the risks associated with the two scenarios to reduce risks to acceptable levels.

Risk assessment outcomes

For the two scenarios above, the identified high-level risks primarily related to:

- Environmental, Social and Occupational Health & Safety Risks

8.2. Environmental Risks

The construction phase of the project will result in number of environmental risks in terms of pollution (noise and littering), however these are low risk impacts and management procedures has been put in place.

8.3. Socio- Economic Risks

The proposed project development will bring about good than harm. Employment creation has already begun during the pre-planning phase, construction as well an operation phase. The project will generate revenue for the country and a very lucrative income to the developer.

Project implementation is likely to attract immoral behavior, illicit dealings as a result of temporary construction workers. Law enforcement agencies will be alerted and activities during construction and operation phases will be closely monitored.

8.4. Occupational Health and Safety Risks

The construction phase of the proposed project involves working at heights as well as use of toxic chemicals such as paints posing a wide range of HSE hazards. However, measures to be put in place to ensure that safety is first during the construction phase, HSE management Plan has been recommended herewith.

9.0. ENVIRONMENTALAND SOCIAL MANAGEMENT PLAN (ESMP)

9.1. Summary

As part of the proposed project development project, significant residual impacts identified in the previous chapters are mitigated to the extent possible, giving due regard to the scale of operations of the individual micro enterprises, through a systematic environmental and social management plan. This plan describes measures to be adopted for reducing/managing impacts of each activity in the process, and assigns responsibility of implementation and monitoring/reporting

to the stakeholder best placed to carry it out. This plan is supplemented with independent monitoring to ensure and improve implementation of the plan.

9.2. ESMP

The ESMP has been developed to minimize the residual impacts of construction activities related to the proposed developed, particularly in relation to;

- Environmental pollution; and
- Minimize Health and Safety impacts.

A detailed ESMP is presented in the following formats:

- description of the agreed measures, responsibilities and instruments for the environmental management;
- Guidelines for audit and monitoring

9.2.1. Occupational Health Safety and Environmental Impacts

From the preceding discussion, following interpretations may be made:

- Major polluting activities from noise, fuel, paints, finishes, construction debris and heavy-duty machinery oils;
- Personal protective equipment should be provided to each worker;
- Health checkup of workers should be carried out on regular basis i.e. once in a year; and
- Training of employees on using dangerous machinery should be ensured and operating certificates in place.
- Compliance to the various statutory laws as applicable to the construction and medical health care facility operations.

Table 7: ESMP Roles and responsibilities

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Sacred Heart Mother and Child/ Project Managers	Responsible to enforce ESMP implementation to contractors
Environmental Control Officer	Implement, review and update the ESMP • Ensure all reporting and monitoring required under ESMP is undertaken, documented and distributed as needed • Conduct environmental site training (tool box talks) and inductions with the support of an environmental consultant. • Conducts environmental audit at work site with the support of environmental consultant. • Close out all non-conformances. • Ensure materials being used on site are environmentally friendly and safe.
MET, Funders/ Government departments/ stakeholders	Approve the ESMP and any amendments to the ESMP Approve reports of environmental issues and non-conformances as issued. Review and approve environmental reports submitted as part of ESMP implementation

(a) Construction Phase

The construction phase is the most critical component of project implementation since it is more on a long term, however and it is normally associated with less impact as compared to operational phase in some instances. This phase will

comprise of the actual day to day running of the construction activities. The construction activities should to be completed within a period not exceeding a year. There will be several impacts that will occur on a daily basis or other sequential routine. The phase forms the basis of an Environmental and Social Management Plan that is detailed in this Chapter. The major impacts identified by this study for the operational phase are as detailed in the previous chapter.

Table 8: Construction Phase ESMP

Impact	Description	Effects	Responsibility	Action	Phase
Noise pollution	Noise will be generated through construction works, machinery movements and ground leveling.	-The health of working personnel could be disturbed. -Community residents could be disturbed by the noise. -General annoyance.	**Site Agent/ Contractor**	A construction interval will be established, used and adhered to. Workers will be issued earplugs to protect them from excessive noise. Public will be notified through printed timetable stating planned operational activities. Construction activities will be conducted during daytime. -Site notices will be erected on, around the site-notifying visitors, and nearby residents of different hazards on site. -No go areas marked as sensitive environments, especially for birds needs to be avoided during construction and operation.	**Construction**

Impact	Description	Effects	Responsibility	Action	Phase
Dust Generation	Dust will accumulate because of manhole excavations, drilling works and onsite movements	- Can lead to respiratory illnesses especially to those working in the area. - General air pollution. -Nuisance to nearby residents	- **Site Agent/ Contractor**	- -Ensure that protective equipment such as respirators are distributed to employees, and ensure their use. - -Site notices to be erected on and around the site to inform visitors and surrounding residents. - Dust suppression using water	**Construction**

Impact	Description	Effects	Responsibility	Action	Phase
Waste Generation	The proposed project will generate volumes of waste from construction works, domestic and medical waste	-Chemical pollution from oil spills, paint spills, roof and wood finish as well as other toxic materials that may be used for construction. -Construction rubble, empty packaging containers/bags and materials remnants. -Construction workers can also pollute the surrounding environs if they are not provided with adequate toilet facilities and a waste management system for domestic waste. -Medical waste if not disposed as prescribed in the Material safety data sheets (MSDS), might cause detrimental effects to the environment	**Site Agent/ Contractor**	- Ensure that all waste from construction activities is stored and contained in designated containers and transported to a designated waste disposal site. -Hazardous waste storage bin will be on site and an independent hazardous waste transporting company will be contracted to collected hazardous waste storage bin whenever it is full. -Visual inspections monitoring -Waste separation will be provided for to allow for recycling of recyclable materials i.e. glass, hazardous waste, paper, bio-degradable waste.	**Construction**

Impact	Description	Effects	Responsibility	Action	Phase
Safety and Health risk	Construction and Electrical related Safety and Health hazards	Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, electrocutions, fires, etc.	**HSE Officer**	- Equip workers with Personal Protective Equipment (PPE) & training -Conduct OHS toolbox talks -Provide site signs warning and informing about different hazards on site. -Fire safety to be implemented with emergency firefighting kit readily available -Barricade working areas to prevent public access - Install warning signs around the site especially where there are live connections. - -Electrical and construction safety training	**Construction**

Impact	Description	Effects	Responsibility	Action	Phase
Employment creation	The project will provide an opportunity of outsourcing work	- Improves disposable income to those employed and their immediate families.	- **Site Agent/ Contractor**	- Work with locals on acquiring non-skilled Labor from the residents.	**Construction**
Business linkages	-Raw materials acquiring and contracted companies provide an opportunity for businesses.	-Local suppliers will be presented with an opportunity to Empower their businesses. -Construction workers can be provided with accommodation, food and services from the local community increasing business activities.	- **Site Agent/ Contractor**	-The proponent will outsource most of its materials and services from Rundu town.	**Construction**

(b). Operational phase

The operational phase of the proposed project erupts the functioning of maternity, casualty, surgical, medical, labor, multi intensive care unit (ICU) wards, theatre and consulting rooms in Oshakati. That will add on a few numbers of government hospitals within the region.

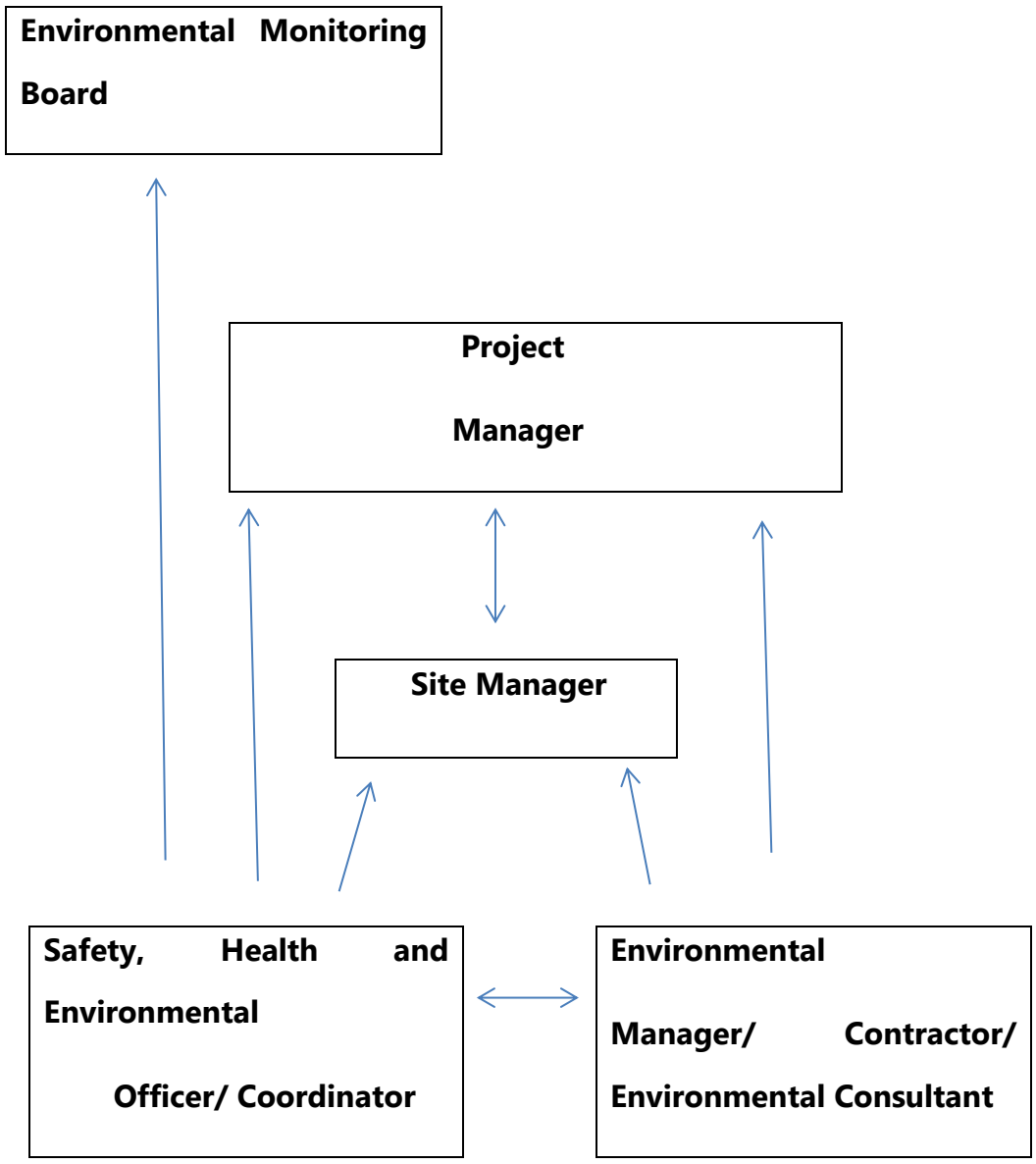
Table 9: Impacts associated with the Operation Phase

Impact	Description	Effects	Responsibility	Action	Phase
Solid waste pollution	Solid waste emanating from food wastes, packaging materials, containers, household waste, glass, wood, etc	- Can result health issues and some waste can be highly hazardous and toxic to the environment.	**Environmental Control Officer** **Project Proponent** **Site Manager**	-An initial waste audits -When it is appropriate, materials will be reused, recycled and reduce the amount of waste generated. -Biodegradable waste will be composted and used on lawns and flowers on and around the site as part of environmental responsibility of the company.	Project Life time
Traffic movement	Visitors to the site will have interests in moving around the area and maybe nearby communities	- This can also result in vehicle vibrations which maybe a nuisance to some people in the surrounding area.	**- Operations manager** **Site Manager**	-Come up with a social contact policy guiding the movement of visitors around the area	Project Life time
Water quality	Storm water from the fuel dispensation hub roof and vehicle parking paved bay.	-Ground and surface water contamination: Both chemical and physical contamination	**Environmental Control Officer** **DEA / Namwater**	Frequently monitor effluent waste quality -Use of ambient monitoring boreholes	Project life time

Impact	Description	Effects	Responsibility	Action	Phase
Occupational Hazards / Work place accidents	Exposed to hazardous substances without adequate PPE; Operating of equipment such as cell phones, stoves, boilers etc can cause workplace injuries or fire since the work place should be flame free	-Potential accidents and illnesses.	**Safety officer** **Site Manager**	--Health and safety regulations should be enforced on all the workers. -Safety regulations include life and health insurance, first aid kits; protective clothing such as uniforms and gloves. -Proper storage of highly flammable products such as gas etc, and installation of fire extinguishers sand buckets. Workers should not be allowed to exceed working hours.	Project life time
	Transportation or delivery accidents	Over speeding, overloading may lead to accidents	**Safety officer** **Site Manager**	BBS Couching Driver checklist Assistant drivers	Operations

Impact	Description	Effects	Responsibility	Action	Phase
Immoral Behaviour Illicit dealings	Increased inflow of people into the area may result in immoral behaviour and increased sexual activities.	Increased infection of HIV/AIDS and other sexual diseases. -Increased unwanted and teenage pregnancies -Increase in thieving incidences, assaults and robberies. -Increased incidences of drugs and alcohol abuse.	**Project Proponent** **Local neighbourhood watch** **NAMPOL**	- Conduct awareness campaigns on promiscuity and HIV/AIDS issues. -Conduct awareness programmes on the effect of alcohol and drug abuse. - Support a nearby police post. -Use of cameras on site	Project life time

9.2.2. EMP reporting chart



9.2.3. Responsibilities of the Site Manager

- ✓ Familiarize with the Environmental Management Plan

- ✓ Be familiar with all applicable environmental legislation and Safety, Health and Environmental policies
- ✓ Ensure that audits are conducted to ensure compliance to the EMP
- ✓ Liaise with the Project Manager, the Safety, Health and Environmental Officer and the Contactor on matters concerning the environment.
- ✓ Avoid actions that are likely to have detrimental results to the environment
- ✓ Prevent land, air, surface and ground water pollution on the site.
- ✓ Have overall responsibility for the implementation of the EMP on site

9.2.4. Responsibilities of the Project Manager

- ✓ Ensure that the project proponent and the Contractor are aware of all specifications, legal requirements procedures pertaining to the project specifically with regards to the environment
- ✓ Familiarize him or herself with the Environmental Assessment perspective
- ✓ Ensure that all requirements within this EMP are communicated and adhered to by the proponent and his/her Contractor(s)
- ✓ Monitor the implementation of the EMP throughout the project by means of site

9.2.5. The responsibilities Safety, Health and Environmental Officer/ coordinator

- ✓ Familiarization with Environmental Impact Assessment Report
- ✓ Be familiar with all applicable environmental legislation
- ✓ Be fully familiar with the Environmental Management Plan.
- ✓ Implement Occupational Safety, Health and the Environment standards
- ✓ Ensure that intermittent environmental routine audits are undertaken on the project execution
- ✓ Maintain a daily site register, a public complaint register, a register of audits
- ✓ Be fully acquainted with the conditions of the Record of Decision

- ✓ Available on daily basis during the construction phase
- ✓ Reporting to project manager
- ✓ Undertake regular and comprehensive inspections on site and surrounding areas in order to monitor compliance with the EMP
- ✓ Take applicable action following noncompliance with the EMP
- ✓ Convey the contents of this document to the site staff and discuss the contents in detail with the Project Manager and Contractor
- ✓ Monitor and authenticate that environmental impacts are moderated
- ✓ Compile progress reports on a regular basis, with input from the Site Manager, for
- ✓ Submission a final post-construction audit carried out by an independent auditor/consultant to the Project Manager
- ✓ Submit an environmental compliance report on a quarterly basis, in writing, to the Ministry of Environment and Tourism (MET)

9.2.6. The responsibilities of Environmental Manager/ Contractor/ Consultant

- ✓ Ensure daily inspections to determine compliance, using checklists
- ✓ Simplify reporting system, recording, investigation and follow-up of environmental related Incidents as per Risk Management process
- ✓ Proactively interpret and objectively analyze environmental data and initiate programs to mitigate against the environmental and related risks
- ✓ Undertake principal responsibilities on performing environmental audits and employee guidance on issues related to safeguarding this EMP
- ✓ Compile and submit monthly reports to project proponent/External Auditor/ Project Management
- ✓ Facilitate and integrate relevant environmental training programs for employees
- ✓ Ensure compliance with this EMP

- ✓ Review construction methods, techniques and procedures, identify environmental risk, draw conclusions and recommend possible solutions
- ✓ Cultivate, implement and manage the necessary Environmental Management Systems

9.2.7. Occupational Health and Safety Monitoring Program

The occupational health and safety monitoring program should include:

- ❖ Surveillance of the working environment:

Project proponent should document compliance using a suitable combination of portable and stationary sampling and monitoring instruments. Monitoring and analyses should be conducted according to internationally recognized methods and standards. Monitoring methodology, locations, frequencies, and parameters should be established individually for each task following a review of the hazards. An example of popularly used methods is the use of CCTV cameras.

10.0. CONCLUSIONS AND RECOMMENDATION

10.1. Conclusion

Arising from the analysis by the consultants, the proposed project is not going have any adverse environmental, health and safety impacts if the contents of the Impact Management plan are implemented; however, there are positive social impacts from the project interpreting that the proposed project beneficial. Hence such honest sources of income and revenue generation can be strongly supported.

10.2. Recommendations

In order to sack negative impacts that may emanate from the construction and operation phases of the land development and its affiliations, relevant and cost-effective management and mitigation measures should be put into practical. The project proponent should therefore be able to lead on issues related to the social wellbeing as well as women empowerment initiatives

11.0 SITE ENVIRONMENTAL, HEALTH AND SAFETY RULES AND GUIDANCE

11.1. General Rules on Site

1) All Site-based personnel and visitors to Site must ensure that suitable PPE is worn at all times whilst on the construction site. The wearing of Safety Footwear and High Visibility Jackets is compulsory. Additional PPE must be worn appropriate to the location and task being performed.

2) Smoking and eating is prohibited throughout the workplace except in designated areas

3) No alcohol is to be taken onto or consumed on site. Any person found in possession of or under the influence of controlled substances (except where prescribed by a doctor for medical reasons) or alcohol will be immediately removed from site.

4) Consider start and finish times when in close proximity to residential areas.

5) Adequate internal and external lighting shall be provided for all workspaces.

6) All portable electrical equipment shall not exceed 240 volts excluding portable welding sets

7) Instructions given on safety signs must be adhered to at all times

8) Open fires on Site are prohibited

9) Where required, any person working on or near operational plant or equipment must first be competent and trained in such work.

11.2. Housekeeping

10) OPHP Supervisor shall conduct housekeeping inspections of their respective work, storage or lay down areas frequently (minimum twice daily) taking corrective action immediately where necessary.

The following rules for housekeeping shall apply on Site:

11) All scrap, construction waste and packing material shall be brought to specially designated areas. This waste will be collected from these areas for disposal on a daily basis.

12) The accumulation of waste is prohibited.

13) Individual work sites shall be reasonably clean at all times.

14) Tools, timber and other building materials shall be kept out of the way so not to cause tripping hazards.

15) Timber with protruding nails and other similar hazardous conditions must be dealt with promptly and removed from site.

11.3. Personal Protective Equipment (PPE)

It is the responsibility of each employee on site to provide adequate and well-maintained PPE it is also the responsibility of each Contractor to ensure sufficient training is provided to ensure correct and proper use of such equipment. The following PPE is mandatory on this site at all times, failure to comply with the below rules may result in disciplinary action:

16) Protective footwear

17) High visibility clothing or Vest

18) In addition to the above the following will also apply: Workers involved in hot works such as, welding, burning and grinding will also be required to wear appropriate eye/face/hand/head/body protection and gloves/gauntlets where necessary.

19) Workers working under noisy conditions must also be provided with and required to wear appropriate ear protection.

20) Workers at heights with insufficient barrier protection must be provided with and required to use harnesses and lifelines. Failure to do so may result in disciplinary action.

21) When working with toxic gases and liquids, ceramic fibers etc. or when working with dangerous formation of dust, appropriate protective clothing and respiratory equipment must be provided and worn in accordance with the regulations that apply for this kind of work.

11.4. Fire Prevention and Protection

OPHP recognize a system of fire prevention and a fire protection is needed that will minimize the risk of a fire starting and then minimize injury and illness should a fire occur. Routine checks and maintenance shall be conducted on all fire suppression /protection systems and equipment as per the regulatory standards. Registers shall be kept of all such maintenance and inspections.

11.5. Ladders and Steps

The following are minimum guidelines in relation to the safe use of ladders:

22) Only ladders that are whole and in a safe, undamaged condition and of approved construction shall be used on site.

23) Checks shall be conducted at a minimum every three months to ensure hinges; steps, restraining cords, ropes and stays are in good condition.

24) An appropriately colored tag complying with the Project color coding guidelines shall be applied in a conspicuous location.

25) Metal ladders and steps shall not be used in connection with electrical work or where contact may potentially be made with live current.

26) Ladders and steps shall be used on a firm level surface free from obstructions and with clear access/egress.

27) All ladders must be fitted with safety feet.

28) Once elevated, all ladders shall be secured with lashing. An assistant shall hold the ladder steady until secured.

29) Ladders shall extend at least one meter beyond the edge or landing point.

30) Ladders shall be positioned or reared at the correct angle – 300mm out for every 1200mm rise (ratio of 4:1).

31) Wherever possible, steps shall be used in the fully opened position.

32) Workers shall not overstretch from a ladder or step. Shift the ladder to a more convenient position

33) Both feet and one handhold should be on the ladder at all times when conducting work.

16.6. Barricading

34) All barriers or barricading used on the project shall be of a suitable material, strength and height sufficient to perform the task required of it. Where there is a risk of fall of over 1.2 meters then rigid barriers must be used.

35) Floor openings, stairwells, platforms and walkways, and trenching where a person can fall any distance shall be adequately barricaded and where necessary, well lit.

36) Barricades may also be used to prevent personnel entering an area where risk of injury is high e.g., during overhead work activity or electrical testing etc. Such barricading must provide clear visual warning and be of contrasting colors. The reason for the barrier shall be attached by means of a tag or label.

37) Where possible barriers shall be placed at least one meter from the edge of an open trench or excavation.

12.0. ENVIRONMENTAL MANAGEMENT

12.1. Main Contractor Obligations

All aspects of environmental management associated with the construction works shall be the responsibility of SHMCH. This encompasses all stages of construction from pre-construction planning through to the construction works, commissioning and final hand-over to the client. This includes ensuring that all necessary licenses and/or consents are obtained for the construction works from the relevant authorities, including those for temporary activities and discharges.

12.2. Aspects and Impacts

Aspects and impacts for the project have been defined; these shall be reviewed at the Site EHS Committee meeting.

12.3. Environmental Control and Monitoring

There are a number of specific environmental issues to be considered during the Project:

- Noise and Vibrations
- Pollution
- Emissions and Discharges
- Waste Management
- Control of potential spills
- Ecology

12.4. Construction Noise and Vibrations

The general objective for the management of potential impacts in respect of noise and vibration shall be to control and limit noise and vibration levels from construction activities at source, by the use of Best Practicable Means (BPM) (e.g. by careful selection of plant, maintenance and location of plant, construction Methods and programming, use of noise barriers/screening), ensuring compliance with relevant legislation.

12.5. Atmospheric Pollution

During construction activities the principal considerations in respect of atmospheric pollution involve potential dust nuisance and the release of other air pollutants associated with aerial emissions. The general objective for the management of potential impacts in respect of atmospheric pollution shall be to carry out the works, so far as is reasonably

practicable, to minimize emissions to air of dust and other pollutants, including odor, in accordance with appropriate legislation and guidelines.

Employees shall take all reasonable steps to avoid the creation of dust nuisance by making provision for;

- ✓ The screening, enclosure and spraying of stockpiles of soil, rubble and construction materials, especially in dry, windy conditions
- ✓ Damping down soil/other materials before depositing
- ✓ Ensuring that adequate sheeting is provided on each spoil load to prevent spoil falling from HGV's
- ✓ Employing dust controls for "special operations" for example, when using crushing or
- ✓ screening plant, demolition activities and concrete mixing operations
- ✓ Sealing and /or vegetating completed earthworks as soon as possible after completion Liaise with the relevant authorities, as necessary

12.6. Waste Management

All waste on site shall be managed in accordance with local regulations and the MSDS requirements.

Carry out investigation of waste control routes to ensure that it is being disposed of in a correct and appropriate manner.

12.7. Control of Medical Waste

SHMCH is entitled to manage its medical waste, and where required quantify such waste throughout the project. The regulatory measures should be carefully adhered to and

audited periodically. Any thermal incineration activities to done in compliance with the EMA OF 2007.

12.8. Ecology

SHMCH recognizes and takes seriously, its legal and moral obligations to nature conservation. The specific areas for consideration on this Project are as follows: Fauna and Flora (no damage of trees or where it's necessary replace trees).

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