Implemented by

OCCUPATIONAL HEALTH AND SAFETY FRAMEWORK UNDER FISHERY HARBOUR REHABILITATION AND VALUE CHAIN DEVELOPMENT IN ADEN PROJECT

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Purpose of the OHS Framework

The Occupation Health and Safety Framework (the OHS Framework) has been developed to:

- Encourage and facilitate a cohesive arrangement between all involved stakeholders of the Aden Fishery Harbour **AFH** project, with OHS expectations clearly outlined and understood.
- Provide guidance and principles for development of policies, procedures and instructions which aim to ensure that a healthy and safe workplace is maintained.
- Provide reference/best practice for Implementing Agency (UNDP) and the Contractors to ensure all 'workers' are adequately trained and understand their obligations and responsibilities to be able to safely perform their job.
- Provide reference/best practice for all stakeholders to measure, monitor and evaluate OHS performance commensurate with their responsibilities under the AFH.
- ensure that Implementing Agency (UNDP) and the Contractors are regularly reviewed and continually improved with the objective of improving overall OHS performance.

1. Introduction

Support from BMZ through KfW , UNDP is currently implementing the Fishery Harbour Rehabilitation and Value Chain Development in Aden Project to improving food security, generating new possibilities for economic recovery and empowerment in Yemen as this is aligned with the overall goal of the United Nations Sustainable Development Cooperation Framework 2022-2024 in particular by supporting its Outcome 1: “by 2024, people in Yemen, especially women, adolescents and girls and those in the most vulnerable and marginalized communities benefit from better, equal and inclusive access to nutritious food, sustainable and resilient livelihoods and environmental stability” and its Outcome 3: “by 2024, people in Yemen, especially women, adolescents, girls and those at risk of being left behind, become more resilient to economic shocks by increasing their income security and access to decent work”.

The project aims to rehabilitate the fish harbour at Hajif, to restore the minimum requirements for re-launching operations, productivity and establishing effective management of the harbour.
UNDP is responsible for the rehabilitate/reconstruct of Aden Fishery Harbour (AFH) through local contractors.

The fishing harbour is located in Al-Tawahi district in Aden city, Yemen. The Coordinate of harbour is latitude 12°47'39.77"N longitude 44°59'42.13"E.

2. Regulatory and other requirements

The regulatory and other requirements set the measures to be in place in order to confirm the measures to national regulations, international codes and best practices etc. These also include sector specific requirements that relate to construction work, a hazardous sector in present project. These cover the international guidance and recommendations e.g. ILO convention, recommendations and codes of practice in Construction, German Development Bank (KfW) guidelines, World Bank group EHS standards, UNDP Social and environmental standards etc. Being implemented by UNDP, the UNDP SES standards have to be complied with. The SES in standard 3, covers community health, safety and working conditions. In addition, the Contractors have to be fully compliant with national and local applicable regulations e.g. Labour Code, Act No.5 of 1995, Republic of Yemen that includes OHS requirements for workplaces. The proposed framework for actions on OHS also incorporates examples of best practices on OHS e.g. The World Bank Group General EHS Guidelines that include construction activities also.

Safety and health in construction Convention, 1988 (No.167) of International Labour Organisation (ILO) is the key convention concerning safety and health in construction. The convention defines activities under

Construction and specifies preventive and protective provisions to be in place for the construction sites. Safety and Health in Construction Recommendation, 1988 (No. 175) of ILO, recommends preventive and protective measures for the provisions as specified under the Convention C167. Republic of Yemen has not yet ratified the Convention 167.

Safety and health in construction: An ILO code of practice, International Labour Office, 1992 provides practical guidance on provides guidance in the implementation of the provisions of the Safety and Health in Construction Convention, 1988 (No. 167), and the Safety and Health in Construction Recommendation, 1988 (No. 175). The code provides guidance for a legal, administrative, technical and educational framework for safety and health in construction.

United Nations Development Program (UNDP) Safety and Environmental Standards (SES) includes provisions related to community health, safety and working conditions (Standard 3), including the need to respect and promote workers' rights and that project workers have safe and healthy working conditions to prevent accidents, injuries, and diseases.

3. Hazard identification, risk assessment and determining controls

In order to achieve sustainable improvements in health and safety, UNDP and its contractors need to manage risks using recognised risk management or assessment techniques. Information gained through hazard identification and risk assessment will provide a firm foundation for the inclusion of OHS Risk Register. When used correctly, accident (injury) and incident (near miss, damage) records will highlight problems which may require a review of the Risk Register, for example, if records indicate that a specific sub-contractor task gives rise to a workplace hazard or previous incident, then improvements may be identified in the way the hazard is addressed on site. The Risk Register needs to identify all these factors, including the persons who are allocated primary responsibility for ensuring that each risk is managed and what parameters will be acceptable as an indication that the risk is controlled. With regard to sub-contractors, UNDP shall ensure sub-contractors are provided with or develop Safe Work Method Statements (SWMS) for High Risk Construction Work, and where necessary they develop OHS Risk Registers and Hazardous Chemical Registers.

The key hazards associated with construction works currently being assessed by UNDP include but not limited to injuries and diseases due to following-

- Fall from heights
- Slip, trip and falls
- Transportation including traffic injuries
- Material and equipment handling and transfer
- Excavation work
- Pollution
- **Asbestos (See Annex 1)**
- Sewage discharges
- **Hazardous waste handling (See Annex 2)**
- Exposure hazards includes things like dangerous chemicals.
- Fire Hazards
- Electrical Hazards
- Repetitive Motion Injury

- Falling Objects
- Working in a confined space
- Others e.g. weather elements, physical exertion, etc.

UNDP shall implement and maintain procedures for the ongoing hazard identification, risk assessment, and determination of necessary controls. KfW, the World Bank and UNDP EHS guidelines, provide useful information on Hazards identification and risk assessment method.

The procedures shall include routine and non-routine activities, activities of workers, contractors and visitors, materials, and equipment, change in processes and regulations and other requirements, etc.

Environmental and Social Management Plan (ESMPs) that includes occupational health and safety measures: safety of workers and other persons, noise, maintenance of equipment, prevention of spread of diseases, debris, cleanliness, ease of movement, any social disputes etc.

Contractor Environmental and Social Management Plan (C-ESMP)
The Contractor shall:

- Prepare and submit to UNDP for approval a Contractor Environmental and Social plan and Social Management Plan (C-ESMP)
- Include in the C-ESMP a detailed explanation of how the Contractor's performance will meet the ESHS requirements
- Ensure that sufficient funds are budgeted to meet the ESHS requirements, and that sufficient capacity is in place to oversee, monitor and report on C-ESMP performance
- Put in place controls and procedures to manage their ESHS performance
- Get prior written approval from UNDP before it can start its activities

The C-ESMP will be a contractual document that will serve as a reference during the monitoring and evaluation of the environmental and social performance of the Contractor.

4. Training, and awareness

UNDP

To sustain the OHS management by UNDP in its project activities and to monitor the progress on OHS management, it is essential that under the framework, the capacity of the project team is enhanced through procedures and programs for training and awareness on sustained basis.

The objectives of the training program on capacity building of project level team on OHS tools and their application in field shall be to create awareness on specific OHS hazards and risks and measures for their control as applicable to the project activities and to build their capacity to carry out monitoring and supervision activities in the field through use of OHS tools.

Contractor

The Contractor shall

- Determine ESHS training needs in collaboration with UNDP
- Maintain records of all ESHS training, orientation, and induction.
- Ensure, through appropriate contract specifications and monitoring that service providers, as well as contracted and subcontracted labor, are trained adequately before assignments begin.
- Demonstrate that its employees are competent to carry out their activities and duties safely. For this purpose, the Contractor shall issue a Competence Certificate for every person working on site (relative to trade and aspect of work assignment) that specifies which tasks can be undertaken by which key personnel.

Orientation Training

The Contractor shall:

- Provide ESHS orientation training to all employees, including management, supervisors, and workers, as well as to subcontractors, so that they are apprised of the basic site rules of work at/on the site and of personal protection and preventing injury to fellow employees.
- Training should consist of basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site-specific hazard or color coding in use should be thoroughly reviewed as part of orientation training.

New Task Employee and Contractor Training

The Contractor shall:

- Ensure that all workers and subcontractors, prior to commencement of new assignments, have received adequate training and information enabling them to understand work hazards and to protect their health from hazardous ambient factors that may be present. The training should adequately cover the step-by-

step process that is needed for Project activities to be undertaken safely, with minimum harm to the environment, including:

- Knowledge of materials, equipment, and tools
- Known hazards in the operations and how they are controlled
- Potential risks to health
- Precautions to prevent exposure
- Hygiene requirements
- Wearing and use of protective equipment and clothing
- Appropriate response to operation extremes, incidents and accidents

5. Emergency preparedness and response

UNDP shall, implement and maintain procedures: to identify the potential for emergency situations and to respond to such emergency situations. UNDP shall respond to actual emergency situations and prevent or mitigate associated adverse OH&S consequences. In planning its emergency response, UNDP shall take account of the needs of relevant interested parties, e.g. emergency services and communities near work sites.

The Contractor shall:

Establish and maintain an emergency preparedness and response system, in collaboration with appropriate and relevant third parties including to cover: (i) the contingencies that could affect personnel and facilities of the project to be financed; (ii) the need to protect the health and safety of project workers; (iii) the need to protect the health and safety of the Affected Communities.

The emergency preparedness and response system shall include:

- Identification of the emergency scenarios
- Specific emergency response procedures
- Training of emergency response teams
- Emergency contacts and communication systems/protocols (including communication with Affected Communities when necessary)

- Procedures for interaction with government authorities (emergency, health, environmental authorities)
- Permanently stationed emergency equipment and facilities (e.g., first aid stations, firefighting equipment, spill response equipment, personal protection equipment for the emergency response teams)
- Protocols for the use of the emergency equipment and facilities
- Clear identification of evacuation routes and muster points
- Emergency drills and their periodicity based on assigned emergency levels or tiers
- Decontamination procedures and means to proceed with urgent remedial measures to contain, limit and reduce pollution within the physical boundaries of the project property and assets to the extent possible.

6. OHS Monitoring and evaluation

For construction activities, contracted engineers and site manager (contractors) and the contractor's SES officer will be responsible for daily inspections (e.g. environmental inspections, Occupational Health & Safety) of the construction site. They will be responsible for the day-to-day compliance of the OHS requirements at the specific project site. The contractor's SES officer will maintain and keep all OHS records which would include a log of non-conformities and incidents together with records of any measures taken to mitigate the cause of the incidents. The contractor's SES officer will prepare a monthly report that includes (training, GRM, Accidents, working hours, field visits, and other highlights) and will be submitted to UNDP. A quarterly report that summaries the safeguard highlights will also be prepared by TPMA and submitted to UNDP. The TPMA is expected to provide an independent perspective and extend the reach of UNDP in the field. The TPMA will monitor activities in the AFH. The TPMA is expected to visit project sites quarterly based on a sampling methodology. Monitoring of OHS risks and implementation of management measures will be included in Third Party Monitoring templates and reports.

Monitoring and evaluation are an integral part of OHS management. Systematic monitoring and evaluation require attention to different aspects at all stages of implementation and includes proactive and reactive monitoring. Proactive monitoring involves assessing presence of key elements of systems, procedures and protocols for controls in place. Examples include presence and implementation of OHS policy, hazards identification and risk assessment procedures, emergency response procedures etc. In contrast, reactive monitoring involves monitoring of incidents and accidents. Regular reporting of incidents and accidents and their investigations on day to day continuous basis is essential for learning the lessons to prevent fatalities and serious disabilities.

6.1 Performance measurement and monitoring

UNDP shall implement and maintain procedures to monitor and measure OH&S performance on a regular basis. These procedures shall provide for: both qualitative and quantitative measures, proactive and reactive measures of performance.

Incident investigation

Any incidents, including non-conformances to the procedures of the ESMF, are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or significant social and/or environmental harm, the site supervisor/designated officer shall notify the AFH Project Manager as soon as possible and no later than 24 hours. UNDP will also ensure significant incidents are reported to the KfW within 48 hours. The Contractor must cease work until remediation has been completed as per the approval of Project Manager. All accidents are also kept in the register log at subproject site.

UNDP shall implement and maintain procedures to record, investigate and analyse incidents in order to:

- determine underlying OH&S deficiencies and other factors that might be causing or contributing to the occurrence of incidents.
- identify the need for corrective action; identify opportunities for preventive action
- identify opportunities for continual improvement; communicate the results of such investigations

The investigations shall be performed in a timely manner. The results of incident investigations shall be documented and maintained.

The following should be recorded:

- Date and time of incident - Event description
- Incident consequences,
- Location of human injury (head, eyes, limbs etc.),
- Type of event (fall, collision/struck by, contact, caught by/between, drowning etc.),
- Subproject name and location - Nature of ongoing project or activities,
- All data related to the incident and the victim itself. - Immediate actions taken

Nonconformity, corrective action and preventive action

UNDP shall implement and maintain procedures for dealing with actual and potential nonconformities and for taking corrective action and preventive action. The procedures shall define requirements for identifying and correcting nonconformities and taking actions to mitigate their OH&S consequences.

6.2 Key monitoring indicators on OHS

Indicators serve key role to monitor the OHS performance of the implementing activities. The indicators shall include qualitative indicators as well as quantitative ones.

Qualitative Indicators

The qualitative indicators denote the presence or absence of a mechanism.
Key indicators needed for monitoring OHS may include following

- Percentage of workers with adequate OSH training
- Percentage of workers reporting to have an improved understanding of their rights and duties related to OSH issues
- Presence and implementation of procedures on hazards identification and risk assessment
- OHS assessment reports by Third Party Monitoring Agency

Quantitative Indicators

The quantitative indicators need to be assessed through collection of data, its compilation for coverage and expression as percentage of total as statistics or as rates, on periodic basis, preferably on quarterly basis.

Example of some of such indicators include-

- Number of falls from height incidents out of total incidents reported in last three months
- Number of training for Toolbox Talks and induction training for workers
- Number of Non-conformities reported and their corrective and preventive actions

- Number of OSH audits performed;
- Number of Incidents and accidents reports and their management
- Number of Safety Drills Conducted
- Number of recruited Workers by contractors
- Number of community workers
- Number of workers with special needs
- Number of workers under 18 years old
- Numbers of Working hours (W.H)
- Number of incidents occurred
- Lost Time injury
- Restricted time injury
- Total Recordable Injury Rate

Annexes

Annex 1. ASBESTOS ABATEMENT REMEDIAL MANAGEMENT PLAN For AFH Facilities

1. Introduction and Background

This Asbestos Abatement Remedial Management Plan (AARMP) is developed to ensure safe removal, handling, temporary storage, transport and disposal of all hazardous asbestos materials during the Fishery Harbour Rehabilitation and Value Chain Development in Aden financed under the KfW. This AARMP is on the basis of the Environmental and Social Management Framework (ESMF) that is being developed for AFH project.

The ESMF is being developed and has clearly presented the risk of asbestos exposure for the renovation activities of some Harbour facilities and has recommended the development of an AARMP to be used as a reference for the management of these hazardous materials.

UNDP is the implementing agency for the project. This document has been produced by a team from the AFH project.

2. Objective of the Asbestos Abatement Remedial Management Plan

The objective of this AARMP is to mitigate negative environment and social (E&S) risks and impacts of the hazardous asbestos materials to be removed in the Fishery Harbour Rehabilitation facilities in line with national regulations and guidelines, the Environmental and Social Standards (ESSs) of the WB Environmental and Social Framework (ESF) as required in the ESMF and also aligned with the Environmental and Social Commitment Plan (ESCP), and the Stakeholder Engagement Plan (SEP) and other specific plans (such as Labor Management Procedures [LMP]; that have been prepared for the Project.

3. A detailed survey of AFH facilities should be Conducted.

As part of the new activities of Fishery Harbour Rehabilitation facilities, a detailed assessment survey and inventory of the selected harbour facilities to determine the amount of asbestos in the harbour facilities is going to be conducted, a rapid assessment has been conducted to the AFH facilities which indicated the presence of asbestos in some AFH Facilities. The detailed survey should provide the locations, conditions and should reveal where asbestos are present in various locations in the buildings of the AFH facilities such as roofs, floor tiles, drainage pipes, walls and fencing (see Annex 1).

The rapid assessment found a significant number of Harbour facilities where asbestos is found, and they are in a very poor state, badly damaged. In AFH, the asbestos fibers in the roofing are exposed. all the roofing sheets in the Cold Store had holes and cracks with exposure to fibres.

Figure 1. Asbestos in Cold Store Roof

Figure 2. Asbestos Cement Sheets

1. Policy, Legal and Regulatory Framework

The relevant national legislation, policies, legal and institutional frameworks, as well as the WB's Environment Safeguards Framework requirements that will govern the implementation of this project are summarized below:

In Yemen, there is no clear policy or regulation on the asbestos use or disposal, however the UNDP will be engaging stakeholders and awareness is going to be raised on the hazardous effects of asbestos.

Table 1. International policies and treaties that are most relevant to this project.

Agreement/Convention	Relevance to Project

Stockholm Convention on Persistent Organic Pollutants (POPs)	Protects human health and the environment from POPs that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

2. Applicable World Bank Environmental and Social Standards

In some of the AFH facilities, the asbestos containing material are in existing compounds, and project activities will not directly alter or cause destruction to any critical or sensitive natural habitats. However, all activities will be guided by the WB's ESF mandates defined in the ESMF. Five of the ten ESSs of the WB's ESF have been screened as relevant in the project.

In addition, all activities financed through the project are subject to the WB Environmental, Health and Safety (EHS) Guidelines including those on "AFH facilities", "waste and hazardous materials management". All appropriate current World Health Organization (WHO) Guidance is also being adhered to by the UNDP and its contractors. The required environmental and social standards, measures and actions for the safe removal and disposal of asbestos is highlighted below:

Table 2. Required Environmental and Social Standards Measures and Actions for Asbestos Remediation

Relevant Environmental & Social Standard (ESS)	Required Measures and Actions
ESS1 Assessment and Management of Environmental and Social Risks and Impacts	The EMSF has made provisions for an AARMP for the safe removal of asbestos to serve as a guide. UNDP will assign national environment institutions with qualified staff and resources to support the management of ESHS risks and impacts anticipated in the asbestos removal.
ESS2 Labor and Working Conditions	The LMPs were established in the ESMF and are being followed that includes how project workers will be managed in accordance with the requirements of national laws and legislation as well as terms and conditions of employment, nondiscrimination and equal opportunity, and establishing/managing worker's organizations for construction companies. Restrictions on child labor and forced labor are to be followed. The Occupational Health and Safety (OHS) measures to ensure the health and safety of workers, especially women, are in line with the ESMF, LMP, IPC & WMP. The Grievance Mechanism for workers and the roles and responsibilities for monitoring such workers has been incorporated into the contract requirements. Provisions to prevent Seah Portable Car Vacuum Cleaner SEAH/VC, including specific Codes of Conduct for contracted workers in line with relevant national laws and legislation are observed.
ESS3 Resource Efficiency and Pollution Prevention and Management	The IPC & WMP measures in the ESMF are incorporated in this AARMP which provides further details on how asbestos will be safely removed, handled, transported and disposed of to avoid or minimize adverse impacts on human health and the environment.

ESS4 Community Health and Safety	During the process of asbestos removal, measures will be taken to restrict movement and access to work areas to mitigate risk to workers and communities. The transportation of the asbestos waste to the designated site will be defined later on will follow the guidelines and protocols established by the AARMP. These measures will be incorporated into the contractors ToR.
ESS10 Stakeholder Engagement and Information Disclosure	The UNDP will undertake appropriate stakeholder outreach for the safe removal of asbestos following the SEP.

3. Impacts of asbestos on health

Studies have shown that the exposure to asbestos over a long duration can lead to health effects such as asbestosis, lung cancer, mesothelioma and other related diseases. Asbestos has been recognized as a leading cause of various pulmonary diseases and considered a health hazard if inhaled (World Bank Group, 2009). There is also evidence that asbestos is linked to other cancers (WHO, 2018). Tiny traces of asbestos fibers can be trapped in the human body through inhalation or swallowed and whereas the body may get rid of some fibers, many remain permanently stuck in the body's digestive or respiratory tissue leading to deadly diseases such as cancer. No level of asbestos exposure is proven to be safe and recent studies (ILO, 1990) indicate that the longer-term exposure can be a hazard.

Where hazardous materials (such as asbestos) are parts of existing project infrastructure or components, the WB's ESF recommends exercising due care in construction and implementation of the project to avoid exposure to the workers and the community. The use of Good international industry practice (GIIP) is recommended to ensure a safe management and disposal of hazardous materials where national legislation and regulations are absent.

The WHO (2014) strongly recommends public health actions for the elimination of asbestos-related diseases: stopping the use of asbestos, replacing it with safer substitutes, taking adequate measures to prevent exposure to asbestos in place and during asbestos removal, and improving early diagnosis and treatment amongst others.

Given the structures surveyed are mainly Harbour facilities, it is imperative that urgent action be taken to remedy this situation. Some of the sites are Harbour facilities potential risks and impacts on the health of the workers are high. The deteriorated structures may imperatively pose serious health implications to workers and community.

4. Details of the AARMP

The removal and disposal exercise will be undertaken with due regard to minimizing any potential effects to the health of the people as well as the environment. A removal control Plan that complies with WB guidelines.

The Plan documents appropriate procedures for removal and disposal of asbestos and the required capabilities of contractors.

It is scientifically proven that asbestos has effects when it is in motion or has cracks. As such, only qualified personnel should be engaged to conduct the removal, transportation and disposal of asbestos and should be equipped with specialized gears, and respiratory equipment should be provided to prevent exposure. The International Labor Office (ILO) guidelines specify some measures for asbestos removal and disposal.

Below are considerations and procedures to be applied:

4.1 Asbestos identification and facility inventory

The rapid survey has clearly identified the locations of asbestos in all the Harbour facilities. The site where the asbestos is found will have proper control measures during the removal process to avoid further contamination that may pose a human health risk.

The key considerations below need to be fully adhered to in preparing the sites for the removal process by the approved contractors and their workers:

- **Personnel safety on site** - Site workers or site users should be protected with the right PPE (personal protective equipment) and RPE (respiratory protective equipment) at all times to protect them from exposure to airborne fibers during activities.
- **Limiting access -** Restrictions on use and entrance should also be placed and agreed by all parties. A strict permit to only workers and inspectors. Where there are no fences, access can be limited by installing barricades around the site.
- **Barricades -** The use of barricades is recommended; the location will depend on the physical environment and the level of risk. A prior assessment of the asbestos removal work site by the contractor should determine the appropriate placement of barricades and the type of barrier used, the distance between barriers and the activity around the area.
- **Warning signs -** Adequate warning signs should be displayed at the entry points at sites during the exercise. These should be clearly visible, weatherproof and properly secured in noticeable locations. In addition, pictures and posters showing that SEA/SH are prohibited should also be displayed in the area.

4.2 Asbestos Removal and Handling

As asbestos cement sheets age they become brittle, so any removal work on roofs should address possible risks of them falling. The asbestos cement roofing sheets have been present in the surveyed AFH facilities especially the Cold Store for decades, and as a result, the removal must be performed in accordance with the WB Guideline for the removal, transportation and disposal of asbestos . It is recommended for the contractor to also prepare a waste disposal plan in advance before starting the removal so that fiber release at the source will be minimized. Listed

below are the removal measures to be considered:

- **Wet Spraying -** Spraying the entire roof with a water based PVA solution (if available) or use wet cloths, rags, or mops to pick up asbestos fibers. This practice of wetting will cause asbestos fibers to be significantly suppressed. Note that wetting does not entirely eliminate the risks so the use of proper RPE is essential. They should not be allowed to dry out, because the collected fibers might be released at some later time when disturbed. All wet mops, rags or clothes should be properly discarded as asbestos waste while still wet.

- **The use of special vacuum cleaners** – commonly referred to as High Efficiency Particulate Air (HEPA) vacuums, is preferable to wet cleaning in certain situations. These vacuums are equipped with HEPA filters designed to remove very small asbestos fibers by filtering them from the air passing through the vacuum. Clean the existing ceiling and roof space, rafters, purlins, and ceiling joists with the vacuum cleaners.

- **Removal** – carefully remove the roof sheeting by unscrewing (not breaking) the roof sheets. All roof sheets are to be stacked onto plastic sheeting sitting on bearers for ease of removal. As much as possible, the asbestos cement sheets should be removed as a whole. If some sections have been damaged prior to removal, these may be strengthened by applying duct tape. The contractor should identify the most suitable method to ensure that the cement product is held in place, then use a method that would minimize airborne dust generation in removing the product.

- **Use of scaffolding** – As all the asbestos-containing material (ACM) found in the surveyed AFH facilities are present in the roof, a scaffolding to both sides of the building should be used to assist in removal of roof sheeting and to remove asbestos guttering from the building. These must be subjected to daily checks to avoid any risks of fall in height.

- **Protection of Floors** – Floors and other workplace surfaces should be adequately cleaned to prevent the escape of asbestos dust to the environment.

- **Handling of Asbestos** – the asbestos sheets should be fully wrapped in plastic and taped. The recommended minimum thickness of 200 µm polythene sheeting bags should be used. To avoid manual injuries, the waste bags should not be more than 900x1200mm in size and should be sealed with adhesive tape and labeled. Controlled wet spraying is to be done to prevent escape of dust particles escaping during the process.

Other considerations to be made are controls to identify hazards and prevent or minimize their occurrences. Where they cannot be prevented, there should be a safe system for working in confined spaces and under heat stress. The use of proper PPEs for all personnel engaged in the safe removal of asbestos is a key prerequisite.

Personal Protective Equipment

Anyone involved in the asbestos removal will need to use PPE and RPE in combination with other effective controls to minimize exposure to airborne asbestos fibers.

The following PPEs should be provided:

- **Coveralls** - personnel should wear full-body protective coveralls (including hood) preferably disposable ones and the quality of material should be able to prevent tearing or penetration of asbestos fibers. Used coveralls should

not be taken home but disposed of after the removal.

- **Respiratory Protective Equipment** - It is recommended to use Class 2 respirators or N95 which have filters that can protect against the tiny fibers. However, note that they should not be worn for a long period of time.
- **Gloves** - It is recommended to use powder free latex gloves, but also single-use disposable gloves can be worn.
- **Safety boots** - Use of safety boots preferably without laces are recommended and should be properly cleaned after use. Safety boots should be cleaned and decontaminated and sealed in bags after the asbestos removal work and each time the worker leaves the asbestos removal area.
- **Protective glasses** - The use of protective glasses to prevent dust particles from entering the eyes. Used glasses should be cleaned and decontaminated for reuse on site and treated as asbestos waste after exercise.

All disposable PPEs should be treated as asbestos waste.

4.3 Storage and Transportation

Once the asbestos has been removed from the work area, a waste skip should be made available for temporal storage on site and should be completely sealed with the plastic sheeting. A waste disposal truck should be available for the transportation to the disposal site. While being transported, the containers or vehicle should be clearly marked with a health warning as containing asbestos.

Vehicles used in the transportation of asbestos should be properly cleaned after they have been unloaded (where there is no vacuum cleaner it is recommended that surfaces should be thoroughly wetted before being swept).

4.4 Disposal

Disposal of asbestos waste is the final step in the process of asbestos removal. However, it can be where the most exposure to risks of asbestos is likely to occur. Asbestos wastes are hazardous and must be disposed of properly. The asbestos waste must be disposed of as soon as possible to the designated asbestos disposal site.

Site for disposal

The designated dumpsite for asbestos disposal will be defined later. This is not open to the public. In order to protect the environment and to prevent the community from scavenging and reuse of the removed ACM it is recommended for a proper disposal and for the ACM to be transported to the disposal site in leak-tight containers (WB, 2009).

The disposal site will be clearly marked and secured with fencing or barbed wire fencing to prevent unauthorized access by animals and people, especially children.

Methods of disposal

In reference to the guideline of the WB, the following procedures and recommendations for disposal are required:

- The disposal site must have all weather access to the separate area or the dedicated trench for asbestos disposal. It is not recommended to handle asbestos waste in windy conditions.
- The bagged asbestos from the sites should be buried immediately upon arrival. Asbestos waste shall not be stockpiled at the dumpsite for burial at a later date.
- The contractor or their assigned hauler must ensure that equipment for burying asbestos is available before any asbestos waste is hauled to the dumpsite.

- An initial layer of cover material or fill must be placed over the asbestos waste before heavy equipment passes over the asbestos waste.
- A minimum of two meters of compacted fill is required by the end of the working day. If asbestos waste is deposited in the active area, up to 50% of the fill may consist of sand.
- Caution should be exercised to ensure that bags or containers are not broken open before they are covered. If an asbestos container is ruptured, it should be re-packed by trained personnel prior to burial.
- Detailed location and maps must be recorded and maintained to minimize the risk of exposing asbestos waste during future activities at the dumpsite.

- Any environmental emergency or a release of a pollutant or contaminant to the environment must be reported immediately to the UNDP Safeguarding team.

4.5 Decontamination

Decontamination is essential when working on asbestos removal work. It is important to highlight the decontamination of the work area, PPE, workers, tools and equipment used in asbestos removal work will eliminate or minimize exposure to airborne asbestos fibers. It is recommended to set up special areas for decontamination near the work area. The decontamination area should be marked with a “no entry” sign to ensure no unauthorized entry to the site.

Work area

- Wet decontamination which involves the use of damp rags to wipe down contaminated areas. If a bucket of water is used, the rags should not be re-wetted in the bucket as this will contaminate the water.

- Dry decontamination involves carefully folding and sealing plastic sheeting and vacuuming the asbestos removal area with an asbestos vacuum cleaner. However, this method should only be used if the wet method poses a risk due to other hazards such as slipping or electricity.

- All contaminated clothing, PPEs, tools and equipment must be decontaminated before removal from the work area or contained (sealed polythene bags) for disposal as the asbestos waste.

Self-decontamination

- It is important that self-decontamination be done each time a worker leaves the work area to avoid transporting the asbestos fibers. This should be done by ensuring coveralls and footwear and other PPEs are vacuumed thoroughly or wet wiping down with damp rags.
- Careful removal of all disposable clothing in polythene bags while still wearing the RPE is important to avoid exposure.

- All the protective clothing used during the removal and decontamination should be considered hazardous materials and thus should be properly disposed of in an environmentally sound way.
- Personal hygiene should also be practiced.

Tools

All tools used in the removal process should be dismantled and decontaminated using the dry or wet methods prior to them being removed from the work area. Tools that are intended for use in another removal should be laced in polythene bags and sealed. Asbestos equipment include: Scaffolding, temporary storage bins, waste skip, PPEs, cleaning rags, bucket of water, misting spray bottle, sealant, barricades, sign posts, etc.

4.6 Training

Any person/contractor involved in the Asbestos removal and disposal exercise should be adequately trained on the nature of risks associated with asbestos and also be aware on the Code of Conduct the SEA/SH GRM.
It is recommended to have training before the exercise commences and further Toolbox talk done daily, **prior to the start of each removal** and should be made mandatory for all personnel.

These training should include the following topics:

- the purpose of training,
- nature of hazards and health risks associated to asbestos,
- the identification of asbestos,
- use of equipment, safe handling and removal,
- site control and management plan
- correct use of PPEs,
- control measures for the safe removal
- handling and waste disposal procedures
- decontamination
- emergency response plan (what to do in case of exposure) etc.

4.7 Monitoring & Reporting

In order to establish a good implementation of the asbestos removal, the UNDP shall be responsible for overall monitoring and reporting.
It is important therefore that the baseline information is established. An incident report log is maintained as well as the GRM log. A daily monitoring report is filled out at the end of each exercise.

Figure 3. Asbestos Identification, Removal, Storage, Transport, Disposal, Monitoring and Reporting Actions

Asbestos Identification	Asbestos Removal and Handling	Storage and Transportation	Disposal	Monitoring and Reporting

✓ Identify the specific locations of asbestos in AFH ✓ Ensure space is evacuated and safe For the removal operation ✓ Confirm areas for temporal waste storage ✓ Estimate waste volume and the duration to complete the asbestos removal ✓ Identify the personnel and complete training. ✓ Identify decontamination areas	✓ Establish safety procedures and protocol (PPEs, tools, etc.) to manage, control and monitor E&S risk ✓ Ensure adequate PPEs for all personnel engage ✓ Establish removal and handling schedule ✓ Create operation schedule and prevention procedures ✓ Maintain log book	✓ Confirm mode of transport to be used for transporting asbestos waste from the AFH ✓ Ensure adequate PPEs for all personnel ✓ Confirm bagging system for temporary storage in bags. ✓ Confirm labeling and storage for the asbestos waste ✓ Waste transportation routes. ✓ Create a schedule for pick up and transportation of asbestos waste to the designated disposal site in LRR. ✓ Maintain waste log at each AFH facilities	✓ Ensure adequate PPEs for all personnel ✓ Ensure time is adequate for asbestos disposal ✓ Ensure prior notice to LA is issued ✓ Method of disposal to follow control measures and safety protocols ✓ Decontamination after disposal	✓ Establish baseline information for the AARMP monitoring form ✓ Keep incident report log ✓ Log any grievances or ✓ Call in any malfunctions or breakdowns ✓ Maintain GRM log book ✓ Have incinerator operators and Facility manager present during monitoring visit ✓ Fill out Monitoring Report

5. Community Health and Safety

All transport of asbestos materials will follow the same protocols established ESMP (will be developed later). These measures will be followed by all private transport contractors as part of the contract for AFH rehabilitation and asbestos transport and disposal (see ESCOP Checklist 2 in the annex).

The full ESMF describes under ESS 10, the provisions for widespread engagement with communities to disseminate information related to community health and safety associated with AFH rehabilitation. These measures are applicable to this AARMP.

The project's LMP also includes provisions to prevent SEAH and/or VAC. Training on safe community interaction and SEAH/VAC key concepts will be provided for all renovation workers involved for the collection of asbestos removal, transport and disposal by the contractor.

The overall project Grievance Mechanism applies to this AARMP and all aspects of removal, storage, transport and disposal.

6. Labor Management Procedures

The potential risks under this topic cover AFH rehabilitation already presented in the main ESMF and will be

presented in the ESMPs. These risks are considered moderate and will be mitigated in accordance with national labor and OHS policies as well adhering to appropriate ESCOP actions listed at the end of this document. However, the Labour Act is silent on working hours and the LMP in the full ESMF proposes a 40-hour work week (eight hours per day). The employees will have an additional break of one hour each workday for prayers and lunch. The duration of rest between working days shall not be less than 12 hours. Restrictions on child labor and forced labor are to follow the ESMF requirements.

UNDP will inform the KfW about any significant labor issues in relation to the AFH rehabilitation and especially asbestos removal as soon as reasonably practicable, but no later than five calendar days after the incident. UNDP will prepare an incident report and the corrective action and submit it to the KfW within 30 calendar days of the event.

Any grievances and complaints arising out of these activities can be addressed through the project's grievance mechanism (described in the full ESMF). UNDP will register and deal with any labor-related complaint under AFH rehabilitation and asbestos handling and removal through its grievance mechanism. If there is not a satisfactory solution in using the grievance mechanism, alternative informal or formal labor dispute resolution procedures will be considered following national legislation.

7. Implementation Arrangements and Responsibilities Contractors

The Contractors shall be responsible for the day-to-day installation and operation of the incinerators.

In addition, the UNDP Environmental, OHS and Social Safeguards focal points are designated to monitor the project activities. This team will oversee the Environmental and Social Commitment Plan and ensure the project is carried out in accordance with the WB ESSs.

Other stakeholders

The implementation of this AARMP will be the overall responsibility of the Contractors, with the support of the UNDP safeguarding team. However, other stakeholders will also play important technical advisory and regulatory roles. The MoAIFW, GAF also to ensure removal, transportation and disposal of the asbestos is carried out effectively.

Annex 1. Summary of the survey report

Facility name	Date Visit	Buildings with asbestos at AHF & Condition of asbestos products (Good, Fair, Bad)	Location of the asbestos in the facility	Condition of the asbestos found (Extent of damage)	Recommendation/ Comments (priority level)

Annex 2. AARMP Matrix for Asbestos Identification, Removal and Handling, Storage and Transportation and Disposal

Potential E&S Impacts	Mitigation Measures	Responsibility	Monitoring Frequency	Reporting Actions
Asbestos Identification				
Occupants present in AFH facilities at risk of infections	AFH to be evacuated prior to works	MoAIFW, GAF	Before works commences	MoAIFW, GAF to notify occupants
Lack of knowledge on asbestos could pose higher risk to works	Ensure all workers/personnel identified for the removal are trained and aware of health issues of asbestos	Contractor	Before works and daily during works through toolbox talks	Only workers/personnel trained are allowed to work.
Asbestos Removal and Handling				
Access to the sites during works could lead to expose of asbestos	Restrictions on access to the site and the use of barricades and warning signs	Contractor's Site foreman	During works	UNDP Safeguarding officers to ensure compliance
Exposure of workers to asbestos dust particles to workers	Ensure adequate PPEs for all workers and a decontamination point set up	Contractor	During works	Use only qualified contractors. Keep a reporting log of any incidents and report to UNDP
Risk exposures to workers during the operations	Establish safety procedures and protocol (PPEs, tools etc) to manage, control and monitor E&S risk	Contractor	During works	Keep a reporting log of any incidents and report to UNDP
Storage and Transportation				
Risk of exposure during transportation through airborne asbestos	Ensure all asbestos wastes are tight-sealed containers and properly secured. Drivers follow traffic rules and observe speed limits.	Contractor	During transportation	Travel and work log for all vehicles and drivers
Disposal				
High risk of contamination during disposal.	Method of disposal to follow control measures and safety protocols. Ensure decontamination is done	Contractor, Local Authorities Representative	During disposal	
Potential risk of exposure to stray animals and scavengers	Disposal site adequately secured with warning signs	Contractor	After the disposal	report any signs of trespass to UNDP for action.

Annex 3. ESCOPs

CHECKLIST 1: ASBESTOS REMOVAL

Target: Collection and Transport of Asbestos: Construction Workers/Drivers/Disposal Site Workers

General Infection Prevention and Control

✓ Provide adequate facilities for hand washing – this may mean setting up additional facilities throughout AFH facilities and supply warehouses/stores.

✓ Provide soap and/or alcohol-based hand sanitizer (60-95% alcohol), tissues and facemasks to warehouse workers and drivers

✓ Establish procedures for delivery truck arrival and unloading at all facilities

✓ Prohibit entry into AFH facilities

Worker Health and Safety

✓ Ensure all workers engaged in removal are trained and aware of health issues

✓ Construction supervisor must maintain asbestos removal log for each AFH facilities

✓ Designated site with containment prepared at AFH facilities

✓ All PPE always used

Hauling Vehicles

✓ Only use qualified and approved contractors

✓ Log all activities regarding content, weights, types of waste, time of pick up, transport route, time delivery

✓ Keep signed Chain of Custody Form for each trip

Vehicle Maintenance and Safety

✓ Keep travel and work log for all vehicles and drivers

✓ Report on all vehicle accidents or mishaps

Safe Vehicle Operation

✓ Operation of vehicles is only by licensed drivers

✓ Drivers must obey all traffic laws, speed zones and other conditions

Driver Occupational Health and Safety

✓ Ensure transfer, loading and delivery actions by driver and staff adhere to supply/equipment weight and size conditions

✓ Loads need to be properly secured

✓ Delivery personnel must wear standard back and hand safety measures (back straps, gloves, etc.)

✓ Normal working hours adhere to 8-hour day with proper break time and meals

CHECKLIST 2: Environmental and Social Codes of Practice – COVID 19 SMALL SCALE CONSTRUCTION, UPGRADES, REHAB, EXPANSION

Target: Construction Workers OHS/Project Supervisor/Facility Manager

Worker Safety

- ✓ The local construction and environment inspectorates and communities have been notified of upcoming activities
- ✓ The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works)
- ✓ All legally required permits have been acquired for construction and/or rehabilitation
- ✓ The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.
- ✓ Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots)
- ✓ Appropriate signposting of the sites will inform workers of key rules and regulations to follow.

General Rehabilitation and/or Construction

- ✓ During interior demolition debris-chutes shall be used above the first floor
- ✓ Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust
- ✓ During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site
- ✓ The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust
- ✓ There will be no open burning of construction / waste material at the site
- ✓ There will be no excessive idling of construction vehicles at sites
- ✓ Construction noise will be limited to restricted times agreed to in the permit
- ✓ During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible
- ✓ The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers.

Waste Management

- ✓ Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.
- ✓ Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.
- ✓ Construction waste will be collected and disposed properly by licensed collectors
- ✓ The records of waste disposal will be maintained as proof for proper management as designed.
- ✓ Whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos)

Wastewater Treatment

- ✓ The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities
- ✓ Before being discharged into receiving waters, effluents from individual wastewater systems must be treated in order to meet the minimal quality criteria set out by national guidelines on effluent quality and wastewater treatment
- ✓ Monitoring of new wastewater systems (before/after) will be carried out
- ✓ Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.

CHECKLIST 3 Environmental and Social Codes of Practice –CODES OF CONDUCT

Target: Contractors/Subcontractors /Project Personnel

Contractors Code of Conduct Obligations

- ✓ Bidder shall submit its Code of Conduct that will apply to Contractor's Personnel to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract.
- ✓ The Bidder shall use for this purpose an approved Code of Conduct form
- ✓ No substantial modifications shall be made to this form, except that the Bidder may introduce additional requirements, including as necessary to take into account specific Contract issues/risks.
- ✓ This Code of Conduct is part of overall ESCOP measures to deal with environmental and social risks related to the Construction Works.
- ✓ The Code of Conduct applies to all staff, laborer and other employees at the Works Site or other places where the Works are being carried out.
- ✓ The Code of Conduct also applies to the personnel of each subcontractor and any other personnel assisting in the execution of the Works.
- ✓ All such persons are referred to as "Contractor's Personnel" and are subject to this Code of Conduct.
- ✓ The Code of Conduct has explicit requirements, language and subsequent actions to ensure that the workplace is an environment where unsafe, offensive, abusive or violent behavior will not be tolerated and where all persons should feel comfortable raising issues or concerns without fear of retaliation

Required Conduct for all Employees and Staff in Individual Contracts

- ✓ carry out his/her duties competently and diligently;
- ✓ comply with this Code of Conduct and all applicable laws, regulations, and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
- ✓ ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
- ✓ wearing required personal protective equipment;
- ✓ using appropriate measures relating to chemical, physical and biological substances and agents; and
- ✓ following applicable emergency operating procedures.
- ✓ report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
- ✓ treat other people with respect, and not discriminate against specific groups such as women, the elderly, people with disabilities, migrant workers or children;
- ✓ not engage in any violence against children, including physical or psychological abuse;
- ✓ not engage in Sexual Harassment, which means unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature with another Contractor's or Employer's Personnel;
- ✓ not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another;
- ✓ not engage in Sexual Abuse, which means the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions;
- ✓ not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
- ✓ complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, SEA/SH;
- ✓ report violations of this Code of Conduct; and
- ✓ not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the grievance mechanism for Contractor's Personnel or the project's Grievance Redress Mechanism.

Raising Concerns

✓ Persons that observe behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly by:

✓ The person's identity will be kept confidential, unless reporting of allegations is mandated by the country law.

✓ Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration.

✓ All reports of possible misconduct will be investigated, and appropriate action taken.

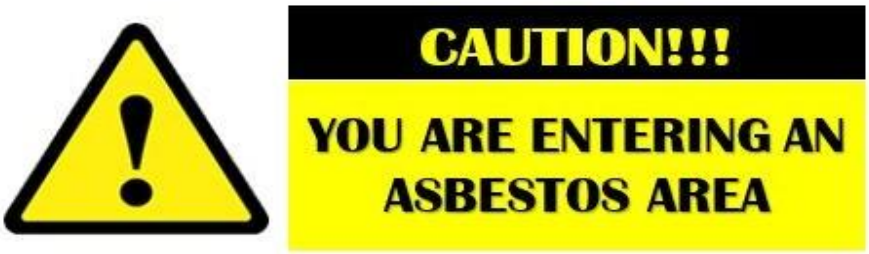
✓ Referral to service providers are required for support to the person who experienced the alleged incident.

✓ There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct.

Consequences of Violating the Code of Conduct

✓ All personnel will be notified and acknowledge that any violation of this Code of Conduct may result in serious consequences, up to and including termination.

Annex 4. Examples of safety signs



Annex 2. WASTE MANAGEMENT PLAN

Introduction

The purpose of the Waste Management Plan is to describe the principles, procedures and management of the waste generated by the Contractor. Aden Fishery Harbor (AFH) safeguarding team has developed this Plan to ensure wastes are reduced, reused and recycled wherever possible. The Waste Management Plan outlines measures to manage and mitigate waste generation and resource consumption during the operation of rehabilitate/reconstruct Aden Fishery Harbor (AFH). The Plan includes details on the following: The types and quantities of waste generated during operation; Procedures to collect and dispose of waste; Measures that will be implemented to minimise waste generation associated with the rehabilitate/reconstruct of AFH; and a program for monitoring the effectiveness of these measures. The Waste Management Plan is designed to support an ecological based management approach underpinned by adaptive management principles. Surplus or waste materials arise from either the materials imported to the site or from those generated on the site. Imported materials are those which are brought to the site for inclusion in the operations. Generated materials are those that occur during the daily operations of the site i.e. damaged stock and waste water. This Plan also considers other aspects to waste management such as waste reduction, segregation of waste, disposal of waste, financial impacts of waste disposal and recording, monitoring, education and reviewing. This Plan outlines the waste management procedures that have been put in place and demonstrate the benefits to the environment, how we can measure the effects and how these procedures and practices are sustainable.

A.1 CLEAN-UP AND DISPOSAL OF WASTE MATERIALS

A.1.1 Clean – Up

The Contractor shall, at all times keep the construction area, including storage areas used free from accumulation of waste material or rubbish. All waste water and sewerage from office, residential and mobile camps shall be piped to soak pits or other disposal areas constructed in accordance with Yemen government regulations, and where and when regulations require it the Contractor shall obtain a permit or other appropriate documentation approving the disposal methods used. All used fuels, oils, other plant or vehicle fluids, and old tyres and tubes shall be collected to a central disposal area on a daily basis and disposed of in a manner approved by the Project Engineer and Environmental and OHS officer.

Servicing of plant equipment and vehicles shall whenever possible be carried out at a workshop area. This workshop area shall be equipped with secure storage areas for fuels, oils and other fluids and constructed in such a way as to contain any spillage, which may occur, and similar storage where fluids can be stored securely prior to their disposal. When servicing of plant, equipment and vehicles is carried

out away from the workshop area it shall be done at locations and in such a manner as to avoid spillage and contamination of streams and other drainage courses. Any spillage shall be cleaned up by either burning in place or collecting the contaminated soils and burning them at the central disposal area, all to the satisfaction of the Project Engineer and Environmental and OHS officer.

Prior to the completion of the work, the Contractor shall remove from the vicinity of the work all facilities, buildings, rubbish, unused materials, concrete forms and other like material, belonging to him or used under his directions during construction. All work areas shall be graded and left in a neat manner conforming to the natural appearance of the landscape as it was before disturbance. Any residue deposited on the ground from washing out truck mixers, agitating trucks or any other similar concrete operations shall be buried or cleaned up in a manner acceptable to the Project Engineer and Environmental and OHS officer.

In the event of the Contractor's failure to perform the above work, the work may be performed by the Employer at the expense of the Contractor, and his surety or sureties shall be liable therefore.

A.1.2 Disposal of Waste Material

(i) General

Waste materials including, but not restricted to refuse, garbage, sanitary wastes industrial wastes and oil and other petroleum products, shall be disposed of by the Contractor. Disposal of combustible materials shall be by burying, where burial of such materials is approved by the Project Engineer and Environmental and OHS officer by burning, where burning of approved materials is permitted; or by removal from the construction area. Disposal of non-combustible materials shall be by burying where burial of such materials is approved by the Project Engineer or by removal from the construction area. Waste materials removed from the construction area shall be dumped at an approved dump.

ii. Disposal of Material by Burying

Only materials approved by the Project Engineer and Environmental and OHS officer may be buried. Burial shall be in pits and the location, size and depth of which shall be approved by the Project Engineer and Environmental and OHS officer. The pits shall be covered by at least 0.6 metre of earth material prior to abandonment.

ii. Disposal of Material by Burning

All materials to be burned shall be piled in designated burning areas in such a manner as will cause the least fire hazards. Burning shall be through and complete and all charred pieces remaining after burning, except for scattered small pieces, shall be removed from the construction area and disposed of as otherwise provided in this Clause.

The Contractor shall at all times, take special precautions to prevent fire from spreading beyond the piles being burned and shall be liable for any damage caused by this burning operations. The Contractor shall have available, at all times, suitable equipment and supplies for use in preventing and suppressing fires and shall be subject to all laws and regulations locally applicable for pre-suppression, suppression and prevention of fires.

iii. Disposal of Material by Removal

Material to be disposed of by removal from the construction area shall be removed from the area prior to the completion of the work under these specifications. All materials removed shall become the property of the Contractor.

Materials to be disposed of by dumping shall be hauled to an approved dump. It shall be the responsibility of the Contractor to make any arrangements of such dumping. Any fees for charges required to be paid for dumping of materials shall be paid by the Contractor and shall be included in the prices tendered in the Bill of Quantities for other work.

A.1.1 Water Pollution

The Contractor shall observe the requirements to avoid the pollution of watercourses and ground water. Sanitary facilities for all site workers convenient to the working sites shall be provided to enable environmentally sensitive disposal of the waste. The storage of fuel and oil for the works operations shall be arranged in working sites, refuelling of all plant and equipment and servicing practices shall be arranged to prevent the uncontrolled spilling of any oil based products.

Mitigation measures shall include drip trays, working on paved surfaces with waste collection arrangements and the provision of oil absorbing material for spills that can be subsequently disposed safely by burning.

1. The Purpose of this Site Waste Management Plan

- ✓To encourage sustainable use of materials
- ✓To protection the environment and society
- ✓To reduce waste and disposal costs
- ✓To be more efficient and cost-effective with materials
- ✓Improved workplace and public safety
- ✓Reduced legal and financial liability
- ✓Improved community trust and relations

2. Applicable Site Waste Management Hierarchy

Site waste management practices to be prioritised in the following order:

- ✓Reduction
- ✓Re-use
- ✓Recycling
- ✓Recovery (use as fuel source)
- ✓Residual Disposal (Clean-fill/Landfill/Hazardous Waste)

3. Estimated Types and Amounts of Waste Generated

(Enter approximations as applicable)

Type of Waste Material	Estimated Volume (m^3)	% Volume	Estimated Weight (kg)	% Weight
Plasterboard				
Timber – Treated or Engineered				
Timber – Untreated				
Packaging				
Insulation				
Metals				
Concrete & Masonry				
Hazardous				
Other				
TOTAL				

Notes:

4. Preferred Waste Disposal and Recycling Operations

Name	Address	Phone	Contact Name
Waste Collection Container (Skip Bin) Companies			
Material Recovery Facilities (MRF's)			
Local Recycling Depots/Transfer Stations			