

Thilawa Special Economic
Zone (Zone B) Development

Environmental Monitoring Report Phase-4 [Pre- Construction Phase]



Myanmar Japan Thilawa
Development Limited

March 2016

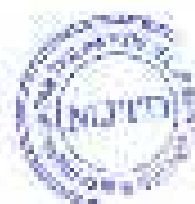
Executive Summary

The environmental inspection and compliance monitoring program will be implemented under the direction of Ministry of Natural Resources and Environmental Conservation (MONRE) and managed by Thilawa SEZ Management Committee.

The Environmental Monitoring Plan is submitted in conformity with the provision of Chapter 10.2.4.3 of an EIA Report of Thilawa SEZ Development Project (Zone B).

Monitoring Reports

- a) Documentation of compliance with all Conditions:
Attached herewith the Notification Letter reference TSEZ/EL/0001 from the Ministry of Natural Resources and Environmental Conservation regarding the Environmental Impact Assessment Report for Thilawa SEZ the Industrial Area Zone B from Thilawa SEZ Management Committee.
- b) Progress made to date on the implementation of EMP against the submitted implementation schedule:
This EMP is submitted for the Pre-Construction Phase and will be further updated for quarterly basis in Construction Phase and on bi-monthly basis in Operation Phase of TSEZ Zone B Development Project.
- c) Difficulties encountered in implementing of the EMP and recommendations for remedying these difficulties and steps proposed to prevent or avoid similar future difficulties:
Not applicable for Pre-Construction Phase.
- d) Number and type of non-compliance with the EMP and proposed remedial measures and timeline for completion of remediation:
Not applicable for Pre-Construction Phase.
- e) Accidents or incidents relating to the occupational and community health and safety, and the environment:
Neither accidents nor incidents happened at Pre-Construction Phase.
- f) Monitoring data on environmental parameters and conditions as recommended in the EMP or otherwise required:
Attached herewith the Environmental Monitoring Form for Construction Phase.



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(၁၅) သုတေသနပြုရာတွင် ယေဘုယျအားဖြင့် အချိန်အကန့်အသတ်ရှိသည့် အချိန်ကာလအတွက် အခြေခံချက်အားလုံးကို ရရှိသည့်အခါတွင်သာ ပြုလုပ်ရမည်။ အချိန်အကန့်အသတ်မရှိသည့် အချိန်ကာလတွင်မူ ယေဘုယျအားဖြင့် အချိန်အကန့်အသတ်မရှိသည့် အချိန်ကာလအတွက် အခြေခံချက်အားလုံးကို ရရှိသည့်အခါတွင်သာ ပြုလုပ်ရမည်။



Republic of the Union of Myanmar
Ministry of Natural Resources and Environmental Conservation
Union Minister's Office

Ref No: (Min Nat Res) 1/36/Co Wy (27/12/2016)

Date: 12th December 2016

To: Thilawa Special Economic Zone Management Committee

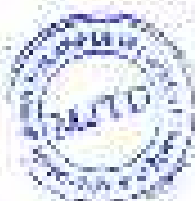
Subject: Approval letter for Environmental Impact Assessment (EIA) report of Industrial Area, Thilawa Special Economic Zone (Zone-B)

Reference letter:

- a. Myanmar Special Thilawa Development Co. Ltd - Date: 23-7-2016, Ref No: To US 247
- b. Thilawa Special Economic Zone Management Committee - Date: 17-8-2016, Ref No: 003
- c. Myanmar Special Thilawa Development Co. Ltd - Date: 27-8-2016, Ref No: 1-08-003
- d. Thilawa Special Economic Zone Management Committee - Date: 15-9-2016, Ref No: 04-003
2. Mobile Review Team reviewed and met with the letter (d) of Thilawa Special Economic Zone Management Committee (EMC) for Approval of Industrial Area Development Co. Ltd EIA Report is small business impact assessment (S-B) (Ref) Report for Industrial Area of Zone-B as per reference letter (d)
3. Approval of Commencement of business development has been issued from TADA with the letter (a) for the industrial area of EIA report of EIA with reference (d).
4. According to the letter (d), Environmental Impact Assessment (EIA) - EIA (Ref) report was awarded to the Mobile Review Team as follows:
 - a. Therefore, the committee of Environmental Impact Assessment (EIA) for Industrial Area of Zone-B by MTC was approved and to proceed according to the report and to award the to review to conduct an early on the following information:
 - a) EIA is sponsored by the Ministry of Government to establish the Facilitation Work Unit (FWU) which includes the income settlement program (IS) for Project Affected Households (PAHs). For these programs, the developer will provide the income replacement support to PAHs through ISM after signing of the land lease Agreement. Therefore, the developer can commence the construction work according to the agreement of income replacement support between PAHs and Myanmar Government.
 - b) In EIA report the following items are to be considered:
 - health impact of the residents
 - type of land, source and use of water, land and Redundancy
 - detail of pollution measures

Therefore, after conducting work, to submit the above documents

- a. Although the developer formed environmental and safety health committee, implement the environmental measures, also in the industrial area of Thilawa Special Economic Zone (B) and to there is no restriction and responsibility of the team members. Therefore, the

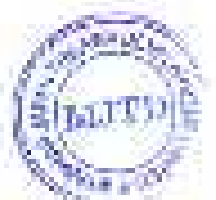


developer should submit the above requirement for Environmental and Social Impact studies in initial before construction phase

- d) Currently, type of natural and beauty of location, which is listed in the Public Service Strategy and Transformation, Transformation Plan (TSP) only consider based on the basic infrastructure and TSP should update and resolution to TSAC and Ministry of Natural Resources and Environmental Conservation (MKNRE) because TSP can impact upon on the type of activities.
- e) Each of the investor who invest in Turkey SET Zone (II) should update the Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE) or EIMP based on such type of business to TSAC and MKNRE.
- f) In the final EIA report of Turkey Special Economic Zone (II), describe the industrial waste management system work and there is no solution for the waste water management system. Therefore, the developer need to show be in EIMP for action plan and management to control waste water and heavy waste chemical and annually to announce, monitor and to control the EIA studies and respective responsible contractors in line with TSAC requirements.
- g) In the final EIA Report, there is no describe the deter program for fire safety, chemical safety, flooding and earthquake as natural disaster and emergency response plan need to submit before start of construction to TSAC and MKNRE to avoid if the said cases happened.
- h) In the final EIA Report, there is no describe the purpose and implementation of community support programs. Therefore, the developer need to submit monitoring report for the result of the implementation progress of community support programs including public health care program, electricity and water according to the community and community safety of construction periods, operation address and project closing period to TSAC and MKNRE.
- i) There is not clearly refer be how to provide for the citizens requested in the Public Consultation Meeting. Therefore, to inform the region for the involvement and maintain the environmental and social relation in the Turkey Special Economic Zone (Zone II) area continuous meeting and consult with the public and negotiation with the public in planning and implemented in view to TSAC and MKNRE.
- j) The developer need to discuss in EIMP according to the institutions monitor in the EIA and also environmental and social issues to monitor and report to respected departments in Pre-construction stage, construction stage, operation stage and closing stage. And report in EIMP for continuous negotiation and monitoring the negotiation result relating with the environmental and social issues between the developer and community for the transparency of both side.
- k) The developer shall follow and comply the Environmental Conservation Law, Environmental Impact Assessment Procedure of Environmental Impact Assessment and related environmental conservation law, policy and instruments, rules and regulations of the TSAC from MKNRE.

Ünvanlı Kurulu (Planlama) Dairesi Başkanlığı
Çevre ve İklim Bakanlığı

CC-0
Ünvanlı Kurulu
Department of Environment and Urbanization



Thilawa Special Economic Zone (Zone B)
Development Project -Phase 4

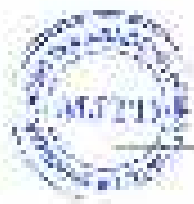
Environment Monitoring Plan

Category	Task	Function	Frequency	Responsible Organization
Education Food Bank Volunteer Coordi- nation Recruitment Storage/Clean-up Etc.	- Develop and deliver annual FDB calendar schedule marketing support material	Annual Project Mgt	Continual	Project Producers
Regional Strategic Planning JFSB/SDP	- Develop and deliver JFSB/SDP	Food, Finance and Marketing	Quarterly	Chairman
Community Health and Safety	- Develop and deliver JFSB/SDP	Food, Finance and Marketing	Quarterly	Chairman
Community Health and Safety	- Develop and deliver JFSB/SDP	Food, Finance and Marketing	Quarterly	Chairman
	- Develop and deliver JFSB/SDP	Food, Finance and Marketing	Quarterly	Chairman

COMMITMENT FTS

Note: The priority, including the number of members, was decided by a vote of the members and is a group commitment.

1. The group will be working on the project for at least three years in the community, project is a long-term project of the community.



**Thilawa Special Economic Zone (Zone B)
Development Project -Phase 4
Environment Monitoring Form**



MYANMAR JAPAN THAISEA DEVELOPMENT LIMITED

Environment Monitoring Form

The latest results of the below monitoring items shall be submitted to JTD/contractor once at the Construction Phase and an quarterly basis at Construction Phase, and on bi-annually basis at Operation Phase. The items standards to be applied, measurement number and frequency for each monitoring parameter are established based on the EIA Report for Thailand Special Economic Zone Development Project (Industrial zone at Zone B). Should there be any changes to the original plan, such change shall be reviewed and evaluated by environmental expert.

(1) General

1) Phase of the Project

- Please mark the current phase.

☒ Pre-Construction Phase

☐ Construction Phase

☐ Operation Phase

2) Obtainment of Environmental Permits

Name of permit	Expected completion date	Actual completion date	Competent authority	Remarks (Conditions, etc.)
Approval letter for Environmental Impact Assessment of EIA; Report of Indemnity for Project (Industrial Zone) Zone B		20 December 2016	Ministry of Environmental Conservation	
All other approved letter/requirements to be submitted to JTD/contractor once at the Construction Phase (and bi-annually at Operation Phase)				



3) Response: A. Items to A. comments and findings from Government Authorities and the Public:-

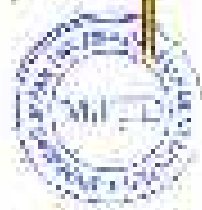
Monitoring Item	Monitoring frequency during Report Period	Duration of Report Period	Frequency
Soil and groundwater contamination by toxic chemicals and heavy metals from construction			Quarterly (every 3 months)

4) Monitoring Results

4.1 Ambient Air Quality
SO₂, CO, NO₂, PM₁₀, PM_{2.5}

Location	Item	Unit	Measured Value (Min)	Measured Value (Max)	Country's Standard	Target value to be applied	Reference International Standard	Frequency	Result	Scope (Status of the process of the standard)
Shwepyithar	SO ₂	ppm			0.05 mg/m ³ 2.0 mg/m ³	0.05 mg/m ³ 1.0 mg/m ³				
	PM ₁₀	ppm			500 µg/m ³ 240 µg/m ³	1.0 mg/m ³ 240 µg/m ³				
	CO	ppm				30.0 mg/m ³ 25.0 mg/m ³	Index			
	PM _{2.5}	ppm			100 µg/m ³ 24.0 µg/m ³	1.0 mg/m ³ 24.0 µg/m ³				
	NO ₂	ppm			100 µg/m ³ 24.0 µg/m ³	1.0 mg/m ³ 24.0 µg/m ³				
	PM _{2.5}	ppm			100 µg/m ³ 24.0 µg/m ³	1.0 mg/m ³ 24.0 µg/m ³				





MJTD

MANUSUK JAPAN THAILAND DEVELOPMENT LIMITED

Complaints from Residents

Have there any complaints from residents regarding air quality in this monitoring period?
If yes, please describe the contents of complaint and its counter measures to fill in below the table.

Yes ☐ No ☒

Contents of Complaints from Residents	Counter measures

2) Water Quality

Measurement Point: Effluent of Wastewater

Are there any standards to water body in this monitoring period?

Yes ☐ No ☒

If yes, please attach "Analysis Record" and fill in the items not to comply with Reference International Standard

Location	Date	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standard	Target value to be applied	Frequency	Method	Note (Reason of exceed of the standard)
					Guideline Standard Japan Guideline	Reference Guideline Japan			



3) Soil Contamination (in daily operation should)

Situations environmental report from benches

- Are there any activities that require soil contamination in this monitoring period?

If yes please describe the contents of compliance and its counter measures to fill in below table.

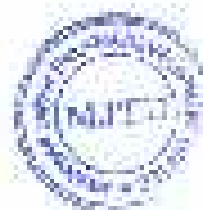
Yes ☒ No ☐

Content of Issues on Soil Contamination	Comments

At Site

Make Level

Location	Date	Unit	Measured Value		Country's Standard	Organ collected by	Refined International Standard	Frequency	Method	Note (Reason of increase of the standard)
			Value	Unit						
Residential Area	12/12/2014	mg/m ³								
	12/12/2014	mg/m ³								
Along the road	12/12/2014	mg/m ³								
	12/12/2014	mg/m ³								





MINAMU JAPAN THILARA DEVELOPMENT LIMITED

Complaints from Residents

-Are there any complaints from residents regarding noise in this monitoring period?
If yes, please describe the contents of complaints and the countermeasures to fill in below the table.

No Yes No

Contents of Complaints from Residents	Countermeasures

5) Solid Waste

Measure to prevent fly and construction waste (fly and construction waste, storage for sludge management period)

- Are there any wastes of sludge in this monitoring period?

No Yes No

If yes, please report the amount of sludge and fill in the results of solid waste management activities.

Item	Characteristics	Unit	Value	Solid Waste Management Activities
Amount of sludge				
Amount of sludge				

6) Ground Subsidence Hydrology

Location (Block)	Water Consumption		Ground Level		Note
	Quantity	Unit	Quantity	Unit	
		m ³ /week		m	
		m ³ /week		m	
		m ³ /week		m	
		m ³ /week		m	



MYANMAR JAPANESE TRADING DEVELOPMENT LIMITED

7) Offensive Odor (only residential phase)

Complaints from Residents

Are there any complaints from residents regarding offensive odor in this monitoring period?
If yes, please describe the contents of complaints and its countermeasures to fill in below the table.

Yes ☐ No ☒

Contents of Complaints from Residents	Countermeasures

Situation and countermeasures from incidents

Are there any serious issues regarding offensive odor in this monitoring period?
If yes, please describe the contents of complaints and its countermeasures to fill in below the table.

Yes ☐ No ☒

Contents of Issues on Soil Contamination	Countermeasures

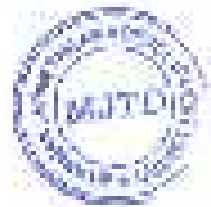
8) Infectious disease, Working Environment, Accident

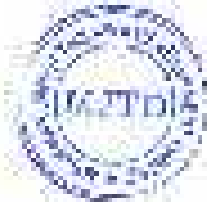
Information from contractor (concerning phase) in rental agreement has phase

Are there any incidents regarding infectious disease, Working Environment, Accident in the monitoring period? Yes ☐ No ☒

Contents of Incidents	Countermeasures

Note: If necessary method such as survey, the information shall be reported to the relevant companies and institutions in reality.





MNRE

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENTAL CONSERVATION

3) Resettlement Works for Project Affected Persons (PAPs) and Common Assets
 informed for from ESMP.
 - Please describe the progress and countermeasures (if any) to fill in below the table.

Resettlement Works	Progress in Narrative	Remarkable Issues
Land Acquisition and Relocation	1) The number of PAP who received land compensation is as follows	
	2) The number of PAP who received compensation and relocated is as follows	
	3) The number of PAP who received land compensation is as follows	
	4) The number of PAP who received compensation and relocated is as follows	
	5) The number of PAP who received only crop compensation is as follows	
Internal Relocation Program	6) The number of PAP who received compensation and relocated is as follows	
	7) The number of PAP who received compensation and relocated is as follows	
	8) The number of PAP who received compensation and relocated is as follows	
	9) The number of PAP who received compensation and relocated is as follows	
	10) The number of PAP who received compensation and relocated is as follows	



MJTD

MEAKURA JAPAN TRADING ORGANIZATION LIMITED

Correction Activity	Relevant	was delivered in home from 2020.6.19 (same local school) or not
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- Are there any grievances submitted, solved and pending regarding recruitment worked types, please describe the contents of grievances the fill in below the table.

Yes ☒ No ☐

Contents of Grievance	Response/Countermeasures
There are 9 grievances concerning school fees. Please describe the time, have been reached communication process. These complaints are kind "Campus-visit" and "Environment" topics	

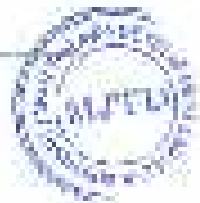
Are there any grievances concerning the community support program

- Are there any CSR activities implemented in this monitoring period?

Yes ☒ No ☐

If yes, please describe the outline of CSR activities implemented to fill in below the table.

Date	Activities	Description (Based on Participant del
February	Monthly scholarship payment (educational support) class for school students	15 high school students in Kyushu, Fukuoka and Chikuzen Partnership Area (Mya Thida School)
	Faculty visit program for university students (Faculty Technology University)	Visited to MPT (MPT, SPP, Alidat Healthcare, Rubenka, Suzuki (K-Land, Myanmar). Vacant and total number of students visited are 300 (100 students and 20 teachers)





MJTD

MEMORANDUM THILAWA DEVELOPMENT LETTER

March	Monthly Scholarship Support Funding at Thilawa Kame Tin	Including 13 students from neighboring community BAPS No.1 Thilawa Kame Tin, Shwe Pyi in Yaw Village
End of Document		

Thilawa Special Economic Zone (Zone B)**Development Project - Phase 4****Land Use Plan Map of Zone B Phase 4**

**Thilawa Special Economic Zone (Zone B)
Development Project - Phase 4**

**Environmental Management Plan and
Monitoring plan from Contractor**



ПЕНТА ОЦЕАН
ПЕНТА ОЦЕАН
2011

PENTA-OCEAN CONSTRUCTION CO., LTD
THILAVA SPECIAL ECONOMIC ZONE II
DEVELOPMENT PROJECT

Document Ref:
Drawing No.: 00
Date of Issue: 06.05.16

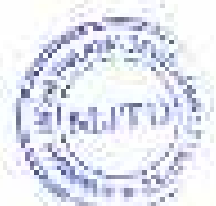
PROJECT HEALTH, SAFETY AND ENVIRONMENTAL (HSE) MANAGEMENT PLAN



PENTA-OCEAN CONSTRUCTION CO., LTD

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1. INTRODUCTION

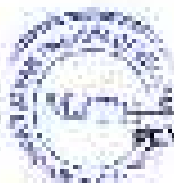
Petra Ocean Construction Co., Ltd. (POC) has developed its environment, social and efficiency, health, safety & environmental (HSE) Management System.

- 1.1 The HSE Management System for this project will take into consideration the Thilawa HSE Specifications. It shall also comply with all applicable regulations of the Myanmar (open Thilawa Development) (MTE) and Thilawa SEZ Industrial Zone Regulations respectively on health, safety and environment in the execution of the works.
- 1.2 POC shall observe these Requirements with respect to logistics, health, safety and environmental issues in this project.
- 1.3 To ensure the successful implementation of the HSE Management System, adequate resources will be appointed to ensure the safe conduct of work on site.

2. PURPOSE

The purpose of this Site HSE Management System or HSE Plan is to provide a framework of POC's HSE Management System that will be implemented during the work operations throughout the project.

- 2.1 It is the intention of POC to manage health, safety and environment of the project with minimum risk, and to prevent injury and impairment of health to all persons and minimize significant impact to the environment affected by the operations.
- 2.2 POC shall comply with all applicable regulations of MTE, Thilawa SEZ Class A Industrial Zone and the requirements of the client respectively on health, safety and environment in the execution of the works and any amendments or requirements to current and other new regulations which may be enacted during the contract period.
- 2.3 This Site HSE Management System or HSE Plan provides guidelines and instructions on a wide range of health, safety and environmental related procedures which shall be implemented throughout the work operations.
- 2.4 Implementation of the procedures contained within this Site HSE Management System or HSE Plan shall be in accordance with the principles of reasonable practicability.
- 2.5 POC shall be responsible for ensuring that Subcontractors and all persons entitled to be on site comply with all relevant HSE requirements.



3. SCOPE

- 3.1 This Site HSE Management System is prepared for this Project in accordance with the relevant Penta-Ocean's HSE Management Systems practiced globally, in line with international standards OHSAS 18001 : 2007 for Occupational Health and Safety Management System and ISO 14001 : 2004 for Environmental Management System.
- 3.2 The formula of the HSE Management System for this project will consist of health, safety, security and environmental Elements as follows:
- (1) HSE Policy & HSE Organisation.
 - (2) Safe Work Practices.
 - (3) HSE Training.
 - (4) Group Meetings.
 - (5) Incident Investigation and Analysis.
 - (6) In-House HSE Rules and Regulations.
 - (7) HSE Promotion.
 - (8) Evaluation, Selection & Control of Subcontractors.
 - (9) HSE Inspection.
 - (10) Maintenance Regime for All Machinery and Equipment.
 - (11) Risk Assessment.
 - (12) The Control of Movement and Use Of Hazardous Substances And Chemicals.
 - (13) Emergency Preparedness.
 - (14) Occupational Health Programmes.
 - (15) Site Environmental Control.
 - (16) Site Security Control.
 - (17) Systems Verification and Review.

Element (1): HSE POLICY & HSE ORGANISATION

- (1.1) A written HSE Policy is in place and endorsed by the General Manager (Myanmar Branch) to reflect the management approach and commitment to health, safety and environment. – See attached ANNEX 1.
- (1.2) The HSE Policy will be communicated by posting at site and issued to contractors at the HSE meeting.
- (1.3) POC shall be responsible for the safety of all operations in connection with this Contract and shall take all necessary actions to ensure the safety of all persons who may be in, on or adjacent to the Site.

- (1.4) The responsibility for HSE of the following activities personnel from management to site area shall be defined and documented clearly under the responsibility set out in the established HSE Management System manual.

- 1) Project Manager
- 2) All Engineers
- 3) Construction PM and safety personnel
- 4) Workers
- 5) Lifting Team
- 6) Machinery Operators

- (1.5) The HSE Organization is established which includes members from POC's Senior Management and site level. – See attached GNMEX.2

(1.6) Safety Resources

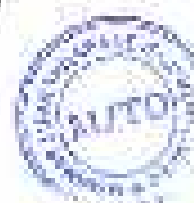
Designation	HSE Role and Responsibility
Project Manager	- Overall responsible for the Health, Safety and Environmental implementation on site. - Chairman of the Project's HSE Committee and heads the Monthly Safety Meeting and Safety Patrol - Ensures the safety and health of the persons employed on the Project is not compromised - Ensures environmental pollution control is implemented and effective on site. - Investigates Incidents / Accidents / Near Misses / Dangerous Occurrences and implement corrective and effective Preventive Measures - Maintain HSE Records and Incident/Accident Statistics
All Engineers	- Assists the Project Manager to supervise and promote HSE implementation on site. - Inspect and rectify any unsafe practice on site.



	• Correct any unsafe work practices on site. • Ensures all HSE regulations are being complied on site.
Contractor PM and Safety Personnel	• Co-ordinate the PM team representing their respective trade / scope of work. • Ensures that their respective workers engaged the work in compliance with HSE regulations and safe Work Practices.
Workers	• Abide with MDC/EEI regulations and carry out work safely according to Safe Work Practices. • Reports to their immediate supervisor when unsafe conditions are found on site.
Crane Operator	• POC shall maintain a list of crane operators with their names, identification card or passport numbers, qualifications and years of experience before the lifting operations commences. the list shall be updated and kept on the Site at all times.
Authorized Operators for Machinery And Vehicles	• POC shall ensure only trained operators are allowed to operate the machinery to be used on site. The operators for machinery shall be trained and competent to operate the machinery. • In the case of vehicles, which are to be operated within the contract boundary, the authorized operators shall possess a valid Myanmar driving license.

(1.7) Health, Safety and Environment Programme for this project consists of 11 activities have been prepared. - See attached ANNEX 3

(1.8) POC shall carry out monthly HSE review on the measures contained within the HSE programs to demonstrate that the required level of HSE are being achieved and reports maintained. The POC General Manager will review the safe program from time to time and will advise the HSE Committee on any matter which he is not satisfied and the HSE Committee shall take such steps



as are necessary to verify the POC CM. The POC CM will carry out such HSE audits as he considers necessary.

- (1.9) POC shall ensure that the requirements of the MCH and Thilawa SEZ Class 4 Industrial Zone Technical Regulations and the requirements specified in Thilwa HSE Specifications are strictly complied with at all times. Any amendment to the regulations by the authority or client, shall take precedence over the contract.

Clause 10: SAFETY PRACTICES

- (2.1) POC shall establish and maintain procedures for safe execution of works. These procedures shall be documented as work procedures, method statements or permit-to-work system.
- (2.2) The safe work practices are established to ensure that the various construction works are carried out in a safe manner.
- (2.3) Permit-to-work (PTW) system established shall be implemented for high risk construction work where the risk (either in safety & / or,) can cause bodily injury such as:
- a) Excavation and Trenching Work > 1.5m Depth
 - b) Work at Height (> 2m).
 - c) Lifting Works
 - d) Work in Confined Space;
 - e) Lifting Operation by Tower, Crawler and Mobile Crane &
 - f) Hot Works.
- (2.4) Persons on site will be regularly checked on the use of Personal Protective Equipment (PPE) and other safety devices with records maintained.
- (2.5) Every person in the construction site is to be provided with the following, who must wear them at all times.
- a) Safety shoes;
 - b) Safety helmets with chin strap according to the following schedule:

Personnel	Colour of Safety Helmet
POC's staff including engineers	White
Subcontractor/supervisory staff	White
Subcontractor's Safety Personnel	Blue
All other workers	Yellow



(f) High-voltage work/duties:

(2.8) Other PPE includes:

- a) Goggles – protection against eye injury;
 - b) Gloves – protection against hand injury;
 - c) Respiratory/Oral Masks – for activities generating dust or fumes;
 - d) Ear Protection – protection against hearing loss; and
 - e) Safety Harness – protection against falling from height.
- f) Face shields compatible with safety helmets.
- g) Sufficient portable screens for Arc welding, etc.

(2.7) All site personnel and substructures are in comply with the provisions and ensure that all related Site Work Practices are implemented accordingly.

(2.8) Following is the safety Work Practices are attached:

- (2.8.1) Machinery and Mechanical Equipment
- (2.8.2) Earth Moving Plant
- (2.8.3) Motor Access Scaffold and Working Platforms
- (2.8.4) Scaffolding
- (2.8.5) Lock out / Tag out Procedures
- (2.8.6) Ladders and Step ladders
- (2.8.7) Lifting Devices
- (2.8.8) Confined / Enclosed Space
- (2.8.9) Excavation
- (2.8.10) Piling Work
- (2.8.11) Concreting Work
- (2.8.12) Hot Work and Prevention of Fire
- (2.8.13) Storage / Lease for Petroleum and Flammable Materials
- (2.8.14) Crane and Lifting Equipment
- (2.8.15) Material Lifting
- (2.8.16) Hand and Portable Power Tools
- (2.8.17) Explosion Protected Tools
- (2.8.18) Electrical Requirements
- (2.8.19) Traffic Management
- (2.8.20) Lighting Protection System
- (2.8.21) Loading / Unloading of Design Load
- (2.8.22) Excavation Operations
- (2.8.23) Other (filling in later)



2.4.1. Machinery and Mechanical Equipment

- (i) Start up or any machinery or operation of any mechanical equipment must be carried out by trained personnel.
- (ii) Ensure that no one is in danger before starting and operating any machinery.
- (iii) Contractors to ensure that machinery / vehicle operators have sufficient training and are competent to operate the machinery / vehicle.
- (iv) Machinery and tool guards are provided for protection against crushing or reciprocating parts. These guards are to be in place before the machine or tool is used and are removed or tampered with.

2.4.2. Earth Moving Plant

- (i) All earth moving plant shall be properly maintained to ensure a safe and efficient working condition.
- (ii) Only properly trained and competent persons shall be allowed to operate earth moving plant on the Project Site.
- (iii) All reasonable precautions shall be taken to prevent such plant from tipping over.
- (iv) When necessary, a qualified banker or shall be employed to assist and direct the plant operator during the execution of the earthworks operations.
- (v) No employee is allowed to sit or rest under, in front of or behind any earth moving plant.
- (vi) All power hydraulic shall be securely blocked, while repair work is being accomplished, to prevent the release and subsequent fall.

2.4.3. Metal Access Scaffold and Working Platforms

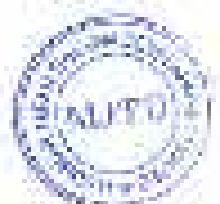
- (i) The metal access scaffold and any components therein shall be of approved type and designed by POC or Contractor's Engineer. The Engineers drawings and calculations shall be reviewed and approved by the Project Manager or Chief Engineer before the erection of the scaffold.
- (ii) The platform shall be complete with at least 75 mm high toe boards and metal guardrails to protect the workers on the platform. The scaffold shall be effectively tied to the building structure by means of tie backs.



- (vi) Scaffolds shall have sufficient strength and rigors to withstand without permanent deformation or failure.
- (vii) The work platform and its supports shall be designed to withstand the required working and dead load. Supports for platform shall be spaced at not more than 1.5m centre to centre unless specified by the Project Manager.
- (viii) Overhead shelters shall be provided for access to, along and egress from the entry/exit points of the building.
- (ix) The access to, along and egress from the entry/exit points shall be kept free from obstructions and accumulation of oil, grease, water and other substances that may cause slipping and tripping.
- (x) Overhead shelters shall also be provided for persons working in falling objects if platform is facing to public.

2.8.4i Scaffolding

- (i) Both POC and the sub contractor(s) shall be responsible for the overall operation of scaffolding works and ensure that the erection team has been instructed to carry out their respective work in accordance with the manufacturer's instruction.
- (ii) POC shall ensure that no scaffold is constructed, erected, installed, re-constructed, altered, maintained, repaired or dismantled in the workplace except under the immediate supervision of a competent supervisor/engineer.
- (iii) POC shall ensure in which a scaffold is, or is being, constructed, erected or installed as to to ensure that the requirements of following paragraphs are complied with, (reference to Attachment a)
 - No scaffold or part thereof which is partially constructed, erected, installed or dismantled shall be allowed to be used unless it is made safe.
 - Where any scaffold referred to in paragraph above is unsafe for use, a prominent warning notice or signs in a form readily understood by all persons indicating that the scaffold or part thereof shall not be used shall be affixed near any point at which the scaffold or part, as the case may be, is liable to be approached for the purpose of use.



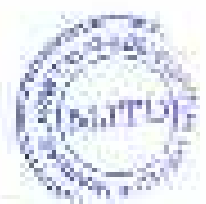
- Every scaffold shall be properly maintained and every part thereof shall be fixed, secured or placed in position so as to prevent, so far as is reasonably practicable, any accidental displacement.
- Any scaffold, and any member or component thereof that has been damaged or weakened, shall be repaired as soon as is reasonably practicable.
- No person shall be permitted on a scaffold that is damaged or weakened except a scaffold erector who is carrying out the repair of the scaffold.
- All reasonably practicable measures shall be taken to ensure the safety of the persons carrying out the repairs referred to in paragraph above.
- Where ties of a scaffold to a permanent structure have to be removed, the portion of the scaffold from which the ties are removed shall not be disturbed unless adequate measures are taken to ensure the stability of the scaffold.

(iv) Engineer's design, calculation and drawings shall be kept available for inspection at worksite.

- (a) The Engineer is to examine construction and installation of scaffold to ensure that it is in accordance to his / her design drawings.
- (b) The Engineer to issue certificate for safe use.
- (c) The Engineer to examine once every month to ensure that it is safe for use.
- (d) The Engineer to inform scaffold erectors of defects if any, to take action to rectify defects before being used.
- (e) The Engineer's design is required for work platform and any of its support:
 - (i) To permit loading for more than 2 persons in each bay; or
 - (ii) To support loads or materials exceeding 25 kN/m² in each bay.
- (f) The Engineer's design is required for metal scaffold used to support 4 persons in any bay.
- (g) The maximum loading for persons and materials on any work platform in any bay of a scaffold shall be -



- (d) in the case of a timber scaffold, 25 kg per square metre;
- (e) in any other case, 200 kg per square metre;
- (c) in the case of a timber scaffold, not more than 2 persons shall work on a work platform in any bay;
- (d) in the case of a metal scaffold, not more than 3 persons shall work on a work platform in any bay;
- (ii) Number of personnel allowed in each bay:
 - (1) in the case of a timber scaffold, not more than 1 person shall be allowed in any bay;
 - (2) in the case of a metal scaffold, not more than 2 persons shall be allowed in any bay;
- (iii) Signboards stating the maximum permissible weight of tools and materials and the maximum number of persons permissible on each bay shall be prominently displayed at suitable locations on the work platform;
- (iv) Every scaffold shall have at least one designated access point. From which a person may gain access onto the scaffold and all designated access points shall be:
 - (a) clearly marked with a sign or label (scaffold tag system); and
 - (b) made safe for use by a competent person;
- (v) Use of cranes or hoisting gear shall be encouraged to use to install any timber or metal scaffold which is erected on the outside of a building except for tower scaffolds;
- (vi) Work Platforms
 - (a) Work platforms shall be provided:
 - (i) at any place of work which does not afford a proper and secure foothold; and



- (e) In the case of a building under construction, around the edge of the building at every uppermost permanent floor which is under construction;
- (f) Work platforms shall be provided at intervals of not less than every alternate lift of any scaffold, except a tower scaffold or a truss scaffold;
- (g) The vertical distance between any 2 work platforms shall not exceed 4 meters;
- (h) Every work platform provided shall cover the lift of a scaffold throughout its entire length;
- (i) Every work platform provided shall be -
 - (i) newly finished planks or decks; and
 - (ii) if it is used to provide footing for more than 3 persons and support tools and materials not exceeding 25 kg per sq. m of a scaffold, at least 100 millimetres wide;
- (j) Boards, Planks And Decking
 - (a) All boards, planks or decking used in the construction of work platforms shall -
 - (i) be of uniform thickness;
 - (ii) be capable of supporting a load of 600 kg/ sq. square meter or with due regard to the spacing of the supports; and
 - (iii) be flushed along their length and secured;
 - (b) Any metal decking which forms part of a work platform shall be provided with non-slip surfaces;
 - (c) Any board or plank which forms part of a work platform shall project beyond its end support to a distance of not less than 50 millimetres and not more than 6 times the thickness of the board or plank unless it is effectively secured in place by a nailing or similar;



(vii) Working Only for Access

There shall be no running in any work platform except for short access to that work platform.

(viii) Stairs and Ladders

- (a) Stairs and ladders shall be provided to enable persons to gain access from one level or one scaffold to another.
- (b) Stairs or ladders provided shall as far as practicable be installed within the scaffold.

(ix) Tiebacks and Guardrails

- (a) Every side of a work platform or workspace from which a person is liable to fall more than 2 metres shall be provided with tiebacks and 2 or more guardrails.
- (b) The tiebacks and guardrails provided shall
 - (i) be of good construction, sound material and adequate strength to withstand the forces during the course of work;
 - (ii) be placed on the inside of the uprights and secured so as to prevent accidental displacement; and
 - (iii) be placed so as to prevent the fall of any person or material.
- (c) The uppermost guardrail shall be least 1.0 metre above the work platform or workspace for which the guardrail is provided.
- (d) The height of tiebacks shall not be less than 75 millimetres.
- (e) The vertical distance between
 - (i) any 2 adjacent guardrails or
 - (ii) any work platform or workspace and the guardrail immediately above it, shall not exceed 650 millimetres.
- (x) All protective measures shall be taken to protect any person working on a scaffold from shock caused by electrical wires or equipment.



- (viii) No scaffold or part thereof which is partly erected or dismantled shall be allowed to remain in such a condition that it is capable of being used unless a prominent warning notice in languages or signs understood by all persons indicating that the scaffold or part thereof is not to be used is affixed near any point at which the scaffold or part, as the case may be, is accessible for the purpose of use.
- (ix) Where ties or a scaffold to a permanent structure have to be removed, the portion from which the ties are removed shall not be dismantled unless adequate measures are taken to ensure the stability of the scaffold.
- (xii) Every alternate lift and every uppermost lift of an independent self-metal scaffold shall be effectively tied to the building or structure by means of ties.
- (xi) A timber scaffold shall be dismantled within a period of 9 months after erection.

(c) **Tower Scaffold**

- (a) The height of a tower scaffold, other than a tower scaffold referred to and measured 5 times the lesser of the base dimensions of the scaffold.
- (b) Where the height of a tower scaffold, excluding the handrails and their supports or the uppermost lift of the scaffold, exceeds 3 times the lesser of the base dimensions of the scaffold, the scaffold shall be effectively tied to the building or a fixed structure so as to prevent toppling.
- (c) No more than 2 work platforms shall be used on a tower scaffold at any time.
- (d) Any tower scaffold which carries heavy loads shall be
 - (i) constructed with due regard to its stability and, if necessary, adequately weighted at the base;
 - (ii) used only on a firm and even surface; and
 - (iii) provided with casters having a positive locking device to hold the scaffold in position.



- (e) No tower scaffold shall be moved except by applying force at or near the base.
 - (f) No person shall remain on a tower scaffold when it is being moved.
- (ix) Scaffold and Work Platform - Erected On A Cantilever Or Its Support
- (a) No cantilever or its support shall be used unless -
 - (i) the scaffold is adequately supported, fixed and anchored on the support to prevent over-rotation; and
 - (ii) the cantilever or its support -
 - has outriggers of adequate length and cross section; and
 - is constructed in accordance with the design and drawings of the engineer;
 - (b) No work platform existing between two walls at one end and which does not have either support shall be used unless the barriers go through the wall and are of adequate strength and securely fastened on the other side of the wall.
- (x) Hang-on Scaffold
- (a) A hanging scaffold shall be -
 - (i) erected before being hung into position;
 - (ii) securely anchored to prevent lateral movement in any way;
 - (iii) constructed so that the work platform is a horizontal slab; and
 - (iv) provided with safe means of access to and egress from the platform by means of stairs and ladders and placed in such a manner as to prevent any person from falling; and shall not rise to a vertical distance of more than 3 metres between landings.
 - (b) A hanging scaffold from which a person may fall more than 2 metres shall be constructed and installed in accordance with the design and drawings of the engineer.
 - (c) A person working on a hanging scaffold shall be provided with
 - (i) a safety harness; and



- (ii) sufficient and secured anchorage by the line or other means.

(c) Tower Scaffold

- (a) The tower scaffold constructed with more than 3 tiers or used if it has a work platform more than 2 metres above the ground or floor or other surfaces upon which the scaffold is erected shall be in accordance with the design and drawings of the engineer.
- (b) No tower scaffold shall be erected on a scaffold platform unless -
 - (i) the width of the platform is such as to leave sufficient clear space for the transport of materials; and
 - (ii) the bristles or ladders are firmly attached to the platform and adequately braced to prevent displacement.
- (c) No tower scaffold shall be erected on a suspended scaffold.

(2.8.5) Lock-out / Tag-out Procedures

- (i) Identify all sources of hazardous energy, movement, or toxic substances. Also locate all isolation points and disconnects which deactivate the equipment or system.
- (ii) Physically isolate, disconnect, or eliminate all hazards by logging / lockout of control switches, motor control switches, and removal of lines, conduits and latching relays, neutralising relays, etc.
- (iii) Immobilise and Lockout all isolation points and disconnects and then try the system to ensure the system is properly disconnected. Locks shall not be combination key type.
- (iv) Tag all isolation points and identify persons installing a tag.
- (v) Reconnect the system only through a set, published procedure, which prevents injury or equipment damage when performed properly. This includes removal of all personnel and equipment from the danger zone, the assurance that the equipment is in operating condition, the removal of all locks and tags only by those who placed them, and the penalty, (disbarred), for those deviating from the procedure without approval of the engineer in charge of the works.



- (v) Every person carrying out work shall receive instruction procedures shall be fully instructed on the procedures for that work before commencing the work.

2.8.6) Ladders And Step-Ladders

- (i) Only ladders and step-ladders constructed in accordance with approved design are to be used. Portable aluminium ladders are allowed for access and low level work of short duration only.
- (ii) Ladders are to be placed at a safe angle, level and firm footing and secured to prevent displacement. If the ladders cannot be secured fully, then shall be firmly held by a person stationed at the foot of the ladder.
- (iii) The top of any ladder which provides access to work area or platform is to extend at least 60cm above the work area's platform level.
- (iv) The opening in the floor or a landing stage where a ladder passes through shall be as small as is reasonably practicable.
- (v) Ladders with missing or defective rungs, bearings which are safely supported on rails, spikes or other similar fixing shall not be used.
- (vi) Ladder inspection record prior to use recording a ladder number, including company name, ladder number, inspector's name and inspection notes.

2.8.7) Felling Hazards

FOC shall barricade all lift openings, internal voids, open sides of buildings and excavations where a person is liable to fall. The barricade shall be at least 1.1m high with mid rail & guard rail and shall have sufficient strength and rigidity to resist any foreseeable fall. Different types of barricade:

2.8.7.1) Floor Openings And Holes

- (i) All floor openings in work area building floor are big enough to step / trip through and small enough to cause trip and fall hazards need to be fully guarded or covered with guard rail and secured.
- (ii) If covers are used, they shall be secured to prevent accidental displacement and no load shall be allowed to be placed on the covers unless they are designed to support the loads to be placed upon them.



- (iii) Only authorized personnel shall be permitted to remove hole covers.
- (iv) All floor opening covers shall be stenciled or painted with "Danger, Do Not Remove".

(2.8.7.2) Open Sides

- (i) Every open side through which a person is liable to fall more than 2 meters shall be covered or guarded by effective guard-rails, barriers or other equally effective means to prevent fall.
- (ii) Edges of the open sides are to be barricaded with effective barriers to prevent workers from falling.
- (iii) Exposed areas where there is danger of falling objects are to be barricaded off and warning signs "Danger, Do Not Enter" displayed for barriers and barricades erected.
- (iv) Where traffic flow is to be maintained over temporary road opening or crossing, suitable designed chequered steel cover / decking shall be placed over it. The Engineer shall design and submit the cover / decking proposal to the PM for acceptance prior to commencement of the excavation.

(2.8.7.3) Safety Belts/Harnesses, Life Lines And Anchorage Point

- (i) Safety belts/harnesses, life lines and all devices for the attachment of life lines shall be of adequate strength.
- (ii) A person shall use the safety belt/harness that is given to him in the performance of his work.
- (iii) Adequate and suitable means of anchorage for the anchoring of the safety belt/harness shall be provided for a person's safety. Life lines securely attached to sufficient anchorage shall be provided if direct anchorage is impracticable.
- (iv) At all times during use, the safety belt/harness shall be attached to an anchorage or to a lifeline securely attached to one or more points of an anchorage.
- (v) The life line shall not be longer than is required to permit a worker to perform his work and the points of anchorage of the life line shall not be lower than the level of his working position.

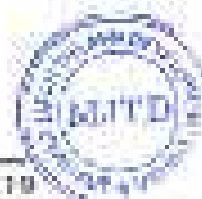
- (iv) Every employee who is provided with a safety belt/harness shall be instructed in the proper method of wearing, using it and attaching it to the lifeline or anchorage.
- (v) A competent EPC shall make an inspection in respect every safety belt/harness and lifeline and record his findings.

12.8.3.4. Safety Nets

- (i) Safety nets shall be used in conjunction with other fall protection methods or when other fall protection methods are impracticable.
- (ii) Safety net or combination of safety nets shall be of sufficient size and strength to catch a person for whose protection it is used and it shall be located so to cover the area of possible fall.
- (iii) Safety nets shall be attached to sufficient anchorage or supports outside and beyond the area of possible fall and supported at a height sufficient to prevent sagging to any surface or object beneath when cushioning the fall of a person.
- (iv) A sample test on the safety net system comprising the net and its supporting structure, shall be carried out before it is installed. Subsequent tests shall be carried out when directed by the Project Manager.

12.8.5. Confined / Enclosed Space

- (i) Confined or enclosed space shall include storage tanks, reactors, tanks of vessels, process vessels with limited access, deep tanks, pits, vaults, silos, dics, tunnels, shafts, or other confined spaces including manholes, enclosed formwork, culvert drains, excavations more than 4 meters deep, partially enclosed excavations with only one side open to the air and ventilation or exhaust ducts, sewers, underground utility tunnels or pipelines with limited ventilation.
- (ii) It shall be considered that confined spaces contain flammable materials and vapors, asphyxiating gases, corrosive or radioactive materials, and risk of oxygen.
- (iii) Prior to the start of work, risk assessment shall be carried out to review the necessity of workers to enter the confined spaces and if it is confirmed a plan for safe entry shall be developed.

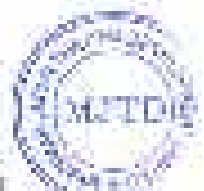


- (v) The safe entry plan shall include safe conditions when working in confined spaces. A Tag system for entry into confined space shall be implemented.
- (vi) Local exhaust ventilation shall be provided to minimize contaminants generated by welding and other operations within confined or enclosed spaces.
- (vii) Only gas proof lighting shall be used in confined or enclosed spaces unless the atmosphere has been proven to be non-flammable.
- (viii) Only approved types of breathing apparatus as specified in the relevant statutory regulations shall be used.
- (ix) A trained confined space Supervisor shall ensure persons working in confined or enclosed spaces are trained to perform assigned duties where the atmosphere has oxygen deficiency or contamination sufficient to require respiratory protection. The workers shall be required to use safety harness and the line end shall be continuously attended whilst working in such spaces. The Supervisor shall regularly check, maintain continuous communication and monitor the condition of the workers in such spaces and shall not be assigned any other duties.
- (x) Workers' exposure to airborne contaminations in any form or form should not exceed the Permissible Exposure Limits (PEL) of the contaminations. The HSE Committee shall identify the type of toxic substances at the work site and set Permissible Exposure Limits of these toxic substances.
- (xi) Testing for airborne contaminations should be conducted before the commencement of any work for the day and thereafter at least once in 8 hours. If workers' exposure levels exceed the PEL, they should be removed from the work area and effective measures to reduce the contaminations should be taken.
- (xii) Provide a man-lifting cage capable of taking a stretcher and two persons, together with an identified crane equipped with rescue equipment, on standby at all times whilst work is carried out in the confined space. Where this is not reasonably practicable a container which is capable of being brought manually out of the confined space shall be located at a convenient point.



2.1.6. Excavation

- (ii) Excavation and trenching of 1.5 metres or more in depth are to be properly shored or sloped in an approved manner.
- (iii) Safe access must be provided into all excavations which exceed 1.2 metres by means of ladders, stairs or ramps.
- (iv) Ladders must be spaced so that workers cannot travel more than 1.5 metres. Such ladders must extend at least 1 metre above grade level.
- (v) Excavated or other materials are to be stored at least 1 metre away from the edge of the excavation.
- (vi) Loose rocks and other materials shall be removed from the bank.
- (vii) Sufficient number of workmen to coordinate excavation activities at the pit and the haulage activities from the pit to the bank. The banian can shall be appointed in writing and should have been trained as a signaller. The banian can shall be properly identified on site, stationed at-grade level and have overall control of the excavation works.
- (viii) Excavations and trenches are to be inspected daily or after every rain storm or other adverse weathering conditions by a competent person. If there is any evidence of movement or slough, work is to cease until necessary precautions have been taken.
- (ix) Shoring provisions for trenches exceeding 2 metres in depth are to be designed by a competent Engineer.
- (x) Open sides of excavations where a person may fall from a height of more than 2 metres are to be guarded by adequate toe boards and suitable warning signs placed where they can be readily seen.
- (xi) PSC shall provide and maintain guards, fences or barriers around excavations for site or other safety potential areas of danger to prevent accidents. The guards, fences and barriers shall be of sound material, good construction and possess adequate strength.
- (xii) During the hours of darkness, any excavation, opening or obstruction that is in a roadway or walkway must be indicated by a sufficient number of warning lights.



(vi) Deep Excavation (10 meters in depth)

- a) Appoint at least one bankman within 10 meters length of excavation, if deemed necessary by PM, additional bankman shall be appointed for excavation 10 meters in depth. One bankman should be appointed for every one long arm or telescopic extension at the bank.
- b) Proper means of communication, in the form of walkie-talkie sets shall be established between the bankman and the excavator operators. The sets shall be within any excavator's swing radius.
- c) An adequate source of power and emergency lighting system shall be provided to allow emergency working operations and evacuation safely in the event of primary power failure. An adequate number of lamps shall be located at key points underground.
- d) Instrumentation for risk has to be established to monitor instrumentation, monitor readings and implement necessary preventive measures to safeguard persons working in the deep excavation area.
- e) At least two escape routes shall be provided for smooth evacuation of persons from the deep excavation during outbreak of an emergency situation such as fire or collapse of deep excavation shoring system.

(2.5.10) Sheet Piling Work

- (i) Sheet pile driving equipment shall be inspected daily by a designated person before the start of work and every defect shall be immediately corrected before pile driving commences. Every piling frame and its attachments shall be thoroughly examined by an authorized examiner at least once in every period of 12 months.
- (ii) The operator of every pile driver shall be protected from falling objects, steam, cinders and water by a substantial casing.
- (iii) Each member of the pile driving crew shall be properly instructed in the work he has to do and the operation shall be in the charge of a designated person, who shall personally direct the work and give the operating signals.
- (iv) The preparation of the pile shall be done at a safe distance from the driving operation. During the driving of piles, all persons not actually engaged in operating the equipment and handling the piles shall be kept out of the area.



- (iv) Where a pile driver is not in use the form shall be removed or placed in the water or lowered in the ground.
- (v) The crane operator shall remain at his controls at all times while a boat is still suspended.
- (vi) Tag lines shall be used to control all boats, where necessary.
- (vii) Any worker climbing the pile form shall be issued with and shall properly use and secure a safety belt or suitable harness.
- (viii) The works, warning signs or other practicable measures shall be adopted to warn and prevent other persons from entering the test pile area.
- (ix) Ground condition shall be checked before starting or advancing a pile driver. After starting or advancing a pile driver, inspection and correction of the footing shall be made periodically to maintain stability.
- (x) Permit to work for piling work shall be implemented.

12.8.10) Concrete Work

- (i) Formwork and shoring shall be structurally safe and shall be properly braced or tied together as is to maintain position and shape.
- (ii) Where the formwork structure is of two or more tiers, it shall have sufficient catwalks and other means access for inspection purposes.
- (iii) A charge Engineer or superintendent shall supervise the erection of the formwork, round up the shores, bracing and other supports.
- (iv) Upon the erection of the formwork, the Engineer in charge or supervisor shall make a thorough inspection to ensure that the formwork is safe.
- (v) The Engineer in charge or superintendent shall regularly inspect the formwork, shores, braces and other supports during the placing of concrete.
- (vi) Any unsafe condition discovered during the inspection mentioned in paragraphs (i) and (v) shall be remedied immediately.
- (vii) Longitudinal and diagonal bracing shall be provided in both longitudinal and transverse directions, as may be necessary to provide structural stability. Shores shall be properly braced too and inflated and shall be secured in place.



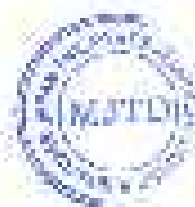
- (viii) Where shores rest upon the ground, base plates shall be provided.
- (ix) Where the formwork structure is designed by a competent engineer, he shall be responsible for the supervision of the construction until the stability of the structure.
- (x) Stripping shall not commence until the concrete is fully set.
- (xi) Stripped forms shall be removed or stock-piled securely after stripping from all areas in which persons are required to work or pass.
- (xii) Primaries rods, wire ties and other form of fastenings not necessary to subsequent work shall be pulled out or otherwise made safe.

(2.3.12) Hot Work And Prevention Of Fire

- (i) No hot work is to be attempted near any inflammable, volatile, or any enclosed space where inflammable vapours may be present, unless a test has been made with an approved oxygen and hydrocarbon vapour detector and such test indicates that the area is safe for hot work.
- (ii) At facilities similar to the ones above where toxic matter may be present, similar test with an approved toxic gas detector is to be made.
- (iii) No work is to be performed UNLESS such test indicates that toxic gas concentrations are lower than the maximum permissible for that gas or until approved protective measures have been taken.
- (iv) Oxygen or acetylene cylinders taken underground shall be transported back above ground at the end of each working shift and stored in the designated storage area.
- (v) If transported by crane or hoist, gas cylinders are to be secured in a suitable manner in skips or bins and not by wire, rope, chain, web or chain sling. Gas cylinders are not to be dragged.
- (vi) Oxygen cylinders are not to be stored near highly combustible materials, such as oil and grease or near fuel gas cylinders.
- (vii) Gas cylinders shall be stored vertically in well-ventilated cages at ground level, with oxygen cylinders being kept separately from acetylene cylinders. When cylinders are used from a pallet, then a safety distance of 5 meters shall be maintained between pallets.



- (vii) Caps are to be placed on cylinders that are empty and such cylinders marked "Empty". Empty cylinders shall not be used for storage purposes, as if they were full of gases.
- (viii) A "Hot Spillage and Flame Times" notice is to be placed at the storage location with appropriate numbers & type of charged fire extinguishers kept on standby at the location.
- (ix) All gas cylinders are to be fitted with the correct pressure-reducing regulators and approved flashback arrestors and non-return valves at the regulators and cutting torches respectively.
- (x) Any gas cylinders with obvious pitting or other corrosion, including corrosion in the valve stems shall not be accepted on site.
- (xi) All 'Hot Work' equipment for welding, brazing including the acetylene gas hoses are to be checked before it is showed at the work site. 'Leakage' test shall not be used as a dumping order for the hose.
- (xii) Soap solution must be available to check for leakage regularly.
- (xiii) Only special gas is to be used for lighting the cutting torch.
- (xiv) At least two approved type of extinguishers in good working condition and a pail of water must be available at the Hot Work location within 3 metres.
- (xv) As much as is to be left burning, unattended.
- (xvi) Liquid petroleum gas (LPG) shall not be used below ground under any circumstances.
- (xvii) Combustible materials such as oil, paper, wood, etc. are to be kept away from the range of the resulting Hot Work sparks.
- (xviii) Where necessary, proper fire resistant materials such as fire resistant blankets shall be provided to shield off / contain the sparks from electrical cables / other combustible materials. Also always ensure that no welding is going to passers by / fellow workers.
- (xix) Fire watchers are to be deployed at the hot work location.
- (xx) The location where the Hot Work was carried out is to be inspected to see that there are no marks of an ignition fire. (To check after Hot Work had stopped completely or completely).



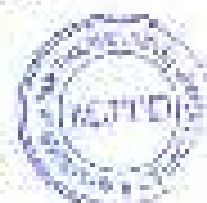
- (jdd) Flexible hoses must never be over which edges of hot piping.
- (jdd) All valves of the system shall be properly closed after work is during lunch and tea break.
- (jdd) All gas cylinders & all work equipment used at the site must be properly labeled with the company's identification.
- (jdd) Oil, greasy rags and greasy hands are not to come in contact with the clothes or organs or sensitive customers as an explosion or fire may result.
- (jdd) The site have the fire extinguishers in combustible gases and also for oxygen and be careful to see that they are never tampered.
- (jdd) Inspect rubber hose periodically to see that it is free from cuts, cracks, leaks and worn out places and arrange it in such a manner that it cannot be cut by contact with sharp edges or corners, trailing metals, spaces or the live wire flame.
- (jdd) Keep equipment clean and in good condition so that it is safe to use. Leaks of gas are dangerous. Check if gas leaks regularly. Faulty or defective equipment should be replaced/repared without delay.
- (jdd) DO NOT use welding equipment unless you have been trained to use it. Workers carrying out welding shall be provided with face shields compatible with safety helmets so that both can be worn at the same time.
- (jdd) Combustion (diesel/petrol) engine driven generator shall not be refueled while running.
- (jdd) Cables, connectors, electrode holders and clamps shall be of an approved type. Cables shall be of adequate current capacity for the work performed.
- (jdd) Cables shall not be placed where they create a tripping hazard, or where they can be damaged by vehicle movement. Cables shall be kept out of water.
- (jdd) Good housekeeping shall be maintained at all times. Used welding rods shall be placed in a suitable container.
- (jdd) Working guard shall be directly attached to the work piece when applicable. Otherwise, the shield be attached as near to the working point as possible.
- (jdd) All powered welding equipment is to be fitted with low voltage short circuiting and the equipment shielded.



- (xxvii) Hot work permit is required for hot cutting, welding and grinding work activities but not site

(2.8.13) Storage of Petroleum And Flammable Materials

- (i) Site may store petrol up to a fixed drum volume of 20 drums provided that it is kept in a suitable constructed store
- (ii) A diesel stored in site shall be kept in drums or in bulk tanks which in either case shall be located at a designated place away from any sources of ignition or open drain which does not lead to an interceptor, and shall be properly labeled. A "No Smoking and Naked Flames" sign shall be displayed at the storage location and charged fire extinguisher of correct type kept in a nearby
- (iii) All fuel diesel tanks shall be properly vapourised in an elevated position to facilitate gravity discharge. They shall stand within a bund constructed to contain a maximum of 118% of the volume of the tank.
- (iv) There shall be no breaches in the bund wall, no material shall be stored within the bund and rain water collecting in the bund shall be regularly removed to prevent build-up. The inner base of the bund wall shall be coated with a chemical resistant material. A chemical resistant valve, which shall be closed all times, except for releasing rainwater into a storm water drain via an oil intercepting system, shall be installed at the outlet channel outside the bund.
- (v) All drums of diesel on site shall be in good condition and shall be kept closed with a cap when not being used. They shall be stored on and with the top cap upmost and kept within a tiny drum cabinet volume to contain the contents of the largest drum in the case of accidental rupture, taking in account the presence of other drums within the bay.
- (vi) Drums of diesel shall not be rolled along the ground. They shall be transported via, code marked on a trailer, on be a fork lift fitted with a drum handling device and not standing unsupported on the forks or on a roller, or be towed using a safe stringing technique
- (vii) Diesel shall be transferred from the storage drum to another container or to the tank of plant/machinery using a hand pump wherever practicable and if at times a siphon must be provided. Where the diesel container is light enough to be lifted by one person it can be pumped out by hand, using a funnel to guide the flow.

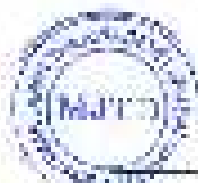


- (vi) Any spillages of diesel that might occur be absorbed using sand or other absorbent material, which shall be disposed of as contaminated waste. On no occasion should diesel be allowed to enter the site drainage system unless this is connected to an interception prior to the site waste being discharged into the public sewer system.

2.8.14) Crane And Lifting Equipment

(2.8.14.1) Crane Operations

- (i) No crane is to be used or operated unless it is inspected by Engineer or Safety Personnel.
- (ii) Every crane is to be provided with safe working load indicator visible to the operator showing the safe working load corresponding to the radius of operation. Every crane is to have a device warning overloading of the crane capacity.
- (iii) Cranes are to be operated / driven by only trained operators. All crane lifting operations are to be supervised by a trained supervisor.
- (iv) Crane operators must check all safety features and complete the crane operation checklist before use every day. They must report immediately if any unsafe condition is discovered and the machine must not be used until the problem has been rectified.
- (v) No part of any crane is to be operated within 3 metres of any overhead power line.
- (vi) Outriggers are to be used at all times except when travelling. Outriggers are to be fully extended and ensure that the wheels are off the ground. Level the crane to make sure that it is horizontal. Turn the steering table 360° as a final check of self stability.
- (vii) Hand signals to crane and hoist operator and rigger are to be given by a trained signaller.
- (viii) Only approved lifting shackle with stamped "Safe Work Load" thereon is to be used.
- (ix) Crane shall not travel with a suspended load except upon a rail runway.



- (k) No tandem lift is allowed until it is approved by POC. A technical statement must be submitted to POC that includes a sketch of the tandem lift, lifting trials, and a wear-and-tear report.
- (ll) Only approved crane contractor is to install, repair, alter or dismantle a crane on site.
- (mm) All contractors who need a crane for his nature of work MUST submit a set of lifting procedures with lifting plan and any lifting operation by a crane.
- (nn) For heavy lifts such as for heavy equipment, risk assessment shall be carried out.

2.8.14.3) Lifting Appliances And Gears

- (i) Lifting appliances and gears shall be properly marked with an identification number and the safe working load.
- (ii) Lifting appliances include a pulley block, gin wheel, chain block or set of chain blocks.
- (iii) Lifting gear includes any chain, rope, chain sling, rope sling, ring, hook, shackle, swivel, eyebolt and any frame or work platform used for carrying persons while it is suspended from the load line of a crane.
- (iv) All lifting gears must be in good condition, free of rust, cracks, frayed hooker wire and any defective pins and bolts.
- (v) Padding shall be used when lifting sharp edged materials.

2.8.14.3) Access For The Use Of Mobile Crane And Piling Machines Near To Restricted Area

- (i) Where POC, accessible cranes and piling machines on the site that is next to existing buildings or public roads, the access for the mobile cranes and piling machines shall be of steel plates or reinforced concrete or equivalent pavement. All such access shall be provided with adequate temporary hardware steel.
- (ii) POC shall provide full access for the movement of the cranes and piling machines, and for their lifting or pile driving operations. The access shall be



able to distribute the load so as not to exceed the bearing capacity of the underlying materials.

- (ii) The design and calculations endorsed by an Engineer shall be submitted to the PEA before the construction of the access. The access shall be constructed according to the approved Drawings and maintained in a good condition at all times until the scheduled completion date. The access shall be inspected by POC's Engineer prior to its use and weekly inspections shall be carried out.

(2.5.15) Lifting (Manual)

- (i) During manual lifting, place hands 5' or more from the load away from sharp edges.
- (ii) When lifting, get down close to the load.
- (iii) Keep back straight and flexing the legs. Avoid back strain.
- (iv) Seek help for all heavy or awkward loads, or use an approved lifting device.
- (v) Suitable gloves shall be used where there is a potential for contact with splinters, thermal hazards (hot or cold), rough or sharp edges, abrasive and corrosives.

(2.5.16) Hand And Portable Power Tools

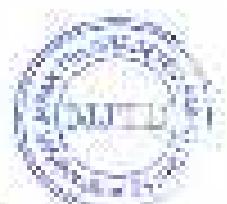
- (i) Tools are to be used only for their intended purpose. Unauthorised attachments are not allowed to be used.
- (ii) All tools used in and used by employees in their work are to be inspected monthly to ensure that they are in a safe condition. Any tool which does not meet this standard is to be repaired or replaced.
- (iii) Electrical tools and equipment are to be earthed at all times.
- (iv) Electrical tools are only to be used via an approved Residual Current Circuit Breaker.
- (v) All repairs are to be carried out by trained personnel. (Repair damages cables or damaged fittings and any defective tools immediately to the Engineer.)
- (vi) Keep all tools properly stored when not in use so that they will not fail or be damaged.



- (vii) Air Containment: hose connections are to be secured to prevent accidental separation.
- (viii) Grinding wheel speeds are to conform to manufacturer's recommended speeds.
- (ix) Safety goggles are to be worn during grinding operations.
- (x) Power tools shall be pushed or pulled by a hand line, never by the cord or hose.

2.8.7. Explosive Powered Tools

- (i) All explosive powered tools must be accompanied by the manufacturer's specification and instructions for use.
- (ii) No explosive powered tools shall be used unless it has been inspected and tested by a recognized testing body at least once in every 3 years.
- (iii) Only authorized and trained employees are allowed to use explosive powered tools. All such tools are to be used in accordance with manufacturer's instructions.
- (iv) Explosive cartridges and nails are to be removed from tools when not in use.
- (v) The operator of the explosive powered tools and his assistant must wear safety helmets and safety goggles and hearing protection while operating the tools.
- (vi) The loaded or empty tools to be carried at any person at any time.
- (vii) In the event of a misfire, the tool must not be removed from the work surface for at least 10 seconds. If the charge does not explode within that time, the user shall unload the tool or place it in such a position so as to minimize the possibility of a person being injured in the event of the charge subsequently exploding.
- (viii) Tools shall not be used in an explosive or flammable atmosphere. Tools must not be used in the vicinity of heated oil, motor oils.
- (ix) A register of explosive powered tools and authorized operators is to be kept on site.



7.3.3.6 Electrical Requirements

- (i) Electrical equipment means any machine, appliance, apparatus or lighting fitting which consumes or utilizes electricity in its operation or use and includes any cable, wire and other device necessary in order for it to be connected to a source of electric supply.
- (ii) Electrical installation means any cable, wire, fitting, apparatus, apparatus or other device used for or for purposes incidental to the conveyance, control or use of electricity.
- (iii) All electrical power outlets are to be connected with an approved Residual Current Circuit Breaker.
- (iv) All temporary electrical installations shall be installed and checked in the presence of a Qualified Electrician.
- (v) Temporary electrical installations to be provided with RCCB breaker of 30mA tripping sensitivity and cables sheathed and supported, or mechanically protected.
- (vi) Only approved electrical fittings such as socket outlets and plug tops are allowed at the site.
- (vii) PCC Appointed Electrician shall carry out monthly checks and when any repairs of such temporary installation. A copy of the inspection report shall be kept available at site. The results of inspection will be brought to the attention of the Project Manager and E&S Engineer in charge. The Appointed Electrician shall provide a sticker on the equipment and tools indicating the date of inspection and is safe for use.
- (viii) Connections for temporary lighting and power are to be terminated in approved type plug tops and connected to the designated temporary distribution board outlet points provided for such purposes. A current production of the Appointed Electrician(s) and the contact numbers, shall be displayed on the outside of all boxes containing electrical DBs for ease of contact.
- (ix) PCC shall provide, install and maintain the socket-outlet assembly – Socket Outlet Assembly (SOA) for all temporary electrical installations. It shall be designed for wall mounting or fitted with castors so that it can be moved around on the site. Every electrical equipment used on site shall be plugged directly into the industrial SOA.



- (xi) All electrical plugs / sockets and in-line extension cord connections forming part of the temporary supply on site shall be of the industrial type.
- (xii) All wiring shall be supported on proper insulators and not loosely strung on it, blocks, or any other metal object.
- (xiii) All electrical hand tools to have working protection or double insulated. A cut or frayed electrical cord is to be replaced immediately.
- (xiv) All generators and welding sets in use on site are to be adequately and effectively earthed at all times during operation.
- (xv) Damaged electrical tools or accessories are to be replaced immediately.
- (xvi) All electrical work, including the removal of a device, alteration and equipment installation, shall be performed by an authorized electrician.
- (xvii) All practical steps are to be taken to prevent danger from live electrical cables or equipment. Compliance to this safe work procedure for electrical work on site should be strictly adhered.

(7.8.19) Traffic Management

- (i) Traffic Controllers shall be appointed for on-site traffic management and vehicles entering and leaving the site.
- (ii) All drivers of motor vehicles, including equipment, shall be in possession of the appropriate licence or license for the class of vehicle and shall be required to have valid license or permit when driving or operating on the site.
- (iii) All operators of construction equipment (forklift, tele loader etc.) are to be operated or guided by the contractor's site management, after they have determined that the operator has the necessary knowledge and experience (competence). In addition, whenever it becomes necessary, signmen / forkliftmen shall be employed to assist and direct the operator during the execution of earth works.
- (iv) All vehicles brought into the site must be trustworthy and conform to all legal requirements.
- (v) The parking brake must be set whenever the vehicle is parked. Equipment parked on an incline must have chocks "choked".



- (vi) The alarm is to be audible above the surrounding noise. The alarm must be actuated through either the equipment's lighting circuit or through the vehicle transmission mechanism. Any other type of reversing alarm, actuated by any other means, requires approval from POC.
- (vii) All windows of vehicles and mobile equipment are to have unrestricted view. Pasted newspapers on windows or curtains are not allowed. The driver or operator is also responsible for ensuring that windows are kept clean.
- (viii) No mobile vehicle or equipment is to be left running and unattended at any time. The operator must turn off the ignition and secure the vehicle / equipment before leaving the cabin.
- (ix) POC shall provide traffic controllers and all necessary traffic and directional signs, barriers, warning lamps, rubber cones and the like to guide and inform the public that the working area is closed or partially closed to all traffic (vehicular as well as pedestrians) during the Contract Period.

(2.8.20) Lightning Protection System

- (i) POC shall provide an efficient temporary lightning protection system for the structure during construction and for all the hoists and cranes. The lightning protection system must be one which conveys any lightning discharge safely to the ground without danger to the building, machinery or occupants.
- (ii) All temporary lightning protection system must be removed from the Site upon Completion and all works disturbed by such removal shall be made good by POC.

(2.8.21) Loading In Excess Of Design Load

- (i) POC will be responsible for the stability and structural integrity of the Works, plant, equipment, cranes, scaffolding, props and the like during construction and shall provide such support as necessary and in particular, to avoid overloading.
- (ii) No loading in excess of the design loading shall be placed on any portion of the structure without the written permission of the PM. If such permission is granted, structure to be subject to overloading shall be strengthened and supported to the satisfaction of the PM. All additional expenditure, including making good any damage caused to the permanent structure shall be borne by the proposer.

(2.8.32) Forklift Operation

- (i) Only authorized personnel are allowed to operate forklift.
- (ii) Do not carry passengers on the forklift.
- (iii) Fork forklift at designated places when not in use with handbrakes "ON" and forks fully lowered.
- (iv) Do not overload your forklift. Always make sure that you can see ahead of you.
- (v) Keep the forks in the lowest position when the forklift is travelling.
- (vi) Do not rest the load with the forklift mast tilted forward.
- (vii) Do not tilt elevated mast forward during unloading until it is positioned over the loading place.
- (viii) Drive for lift in reverse when carrying load down a slope.
- (ix) Give warnings when approaching blind corners.
- (x) Ensure working lights are visible when working at night.

(2.8.33) Stairs (Building Indicators)

For building project more than 5 stories, POC shall provide and maintain safety number indicator of size 400mm x 400mm clearly marked area and Storey number indicator of size 400mm x 400mm at the main staircase entrance per floor Commercial Unit. The indicators shall be displayed at alternate storey starting from the second storey.

Clause (3): HSE TRAINING

- (3-1) POC shall develop procedures to identify training needs and provide adequate safety training including refresher training to management, supervisors, workers and site personnel in order to provide them with comprehensive training of the rules and regulations, M.T.U / Thilawa SEZ requirements, procedures and instructions relevant to their particular duties.
- (3-2) POC shall familiarize with the relevant training requirements and ensure all personnel have relevant training qualifications in performing the respective work.



- (3.3) In-house HSE Education Training will be provided for all persons entitled to be working on site or at its core work place. New employees and workers for each contract (170 days on site shall be clearly identified and assigned with a more experienced locally worker)
- (3.4) POC shall ensure qualified operators are employed for all the machinery to be used on site even if it is not required by Myanmar's legislation. POC shall implement an identification system on site to clearly identify all qualified personnel and operators.
- (3.5) POC will document and maintain a HSE training record on site.
- (3.6) Persons who oversee or supervise any work (including any process) in the workplace shall receive adequate HSE training to ensure that the work which he oversees or supervises can be carried out safely with minimal effect to health and environment.
- (3.7) Persons carrying out manual work in the workplace shall receive adequate HSE training for the purpose of familiarizing the person with the hazards associated with such work and the precautions to be observed.

Element (4): GROUP MEETINGS

- (4.1) Various forms of group meetings will be conducted at each hierarchy of the organization to provide avenue for information to be transferred:

- (a) Top Down (Disseminate)
- (b) Bottom-Up (Feedback)
- (c) Lateral (Sharing)

It is creatively helps to promote health, safety and environmental issues, integrate participation at all levels and promote group cohesiveness and commitment.

- (4.2) Following group meetings will be conducted on site:

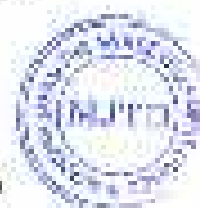
Site HSE Management Review Meeting	Once a week	Site	GM, PM, CM, HSE
Monthly HSE Committee Meeting	Once a month		HSE Committee members including Sub- GM/ PM
Weekly Clean Day & Safety Forum	Once a week		POC HSE Committee & Representatives of Subcontractors



Tool Box Meeting	Daily before start of work	Engineers, Site Supervisor & Workers
Job Safety Instruction (JSSI)	Daily before start of work	Work Supervisor & workers
Daily Coordination Meeting (JSS) Every site up to 20 site (as actual)	Daily (3:00)	Engineers & Sub-contractor Supervisors

Annex (5): INCIDENT INVESTIGATION AND ANALYSIS

- (5.1) POC will investigate and analyze all accidents, dangerous occurrences, near misses and other incidents with the objective of identifying the root cause and formulating/confirming control actions to prevent recurrence.
- (5.2) Incident refers to any event, which occurs in the premises of the employer and which results in:
 - death
 - disabling injury
 - medical treatment
 - the loss or damage of property
 - a potential to cause death, injury, damage or loss
 - dangerous occurrence
 - occupational diseases
 - The incident is
- (5.3) In the case of an accident or a dangerous occurrence, the Area in Charge Engineer shall notify the Project Manager in person or by telephone within one hour of such accident or dangerous occurrence.
- (5.4) Upon receipt of information of an accident or dangerous occurrence, the Project Manager shall at its discretion make a preliminary investigation, initial circumstances and record its findings upon such investigation.
- (5.5) The Area in Charge Engineer and the Subcontractor involved shall together carry out a more detailed investigation, prepare the investigation report and submit it to the Project Manager within 7 working days of the accident or dangerous occurrence.
- (5.6) The Subcontractor involved shall arrange for the injured workmen, witnesses and an interpreter, if necessary, to report to the Project Manager to furnish evidence relating to the accident or dangerous occurrence.



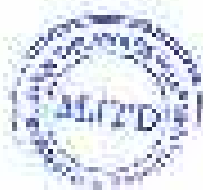
- (5.7) If the Subcontractor is found to fail to give any detailed investigation report or fail to furnish evidence of the accident or dangerous occurrence, the Project Manager may at his absolute discretion exercise his rights to impose charges against the Subcontractor.
- (5.8) Incident Investigation would be carried out and data analysed to identify and address critical areas for enhancing safe conduct of work. Accident Statistics Report will be updated and kept available at site.
- (5.9) The Subcontractor/ Employer shall propose immediate measures to prevent recurrence of the accidents to the satisfaction of the Project Manager.
- (5.10) Photos, sketches and documents related to the incident or accident in soft copy and hard copies as deemed necessary by the Project Manager shall be maintained.

Element (6): IN-HOUSE HSE RULES AND REGULATIONS

- (6.1) Procedures shall be established before commencement of each work to ensure in-house HSE rules and regulations are implemented and enforced diligently at work site.
- (6.2) In-house HSE rules and regulations in English and translated to Burmese shall be communicated to all levels of the organisation through 4th meeting, HSE promotion, training or other means.
- (6.3) A register shall be maintained for violation of HSE rules which will be analysed to the critical areas or sub standard conditions to site can be identified and addressed.
- (6.4) POC will establish safety signs and colour coding to draw attention and provide information on potential hazards.

(6.5) Disciplinary Conduct

1. POC shall at all times take all reasonable precautions to prevent any unlawful or disciplinary conduct by or amongst its workmen and preserve the peace in the Site and all other areas where work is carried out by POC for the Project.
2. POC shall be responsible for restricting its workmen only to the site of the Works and shall prevent trespassing into adjoining properties. All workmen shall carry security passes on them at all times.



(c.8) Suspension of Work

The Project Manager may suspend the progress of work on any part or parts of the works for the safety of the works or if risk of the works. But the working environment or opportunity is unsafe for the works to continue.

Clause 178: HSE PROMOTION

- (7.1) POC shall develop a Health, Safety & Environment (HSE) promotional programme to demonstrate our commitment to developing the HSE culture at the worksite and reinforcing the message that HSE and sustainability are inseparable. The programme shall enhance personal HSE awareness and influence attitudes and behaviour of all concerned on HSE matters.
- (7.2) The programme shall consist of general promotional activities which are carried out as part of a day-to-day activity and high impact promotional activities which are carried out as a campaign to reinforce a particular HSE point at the site. The HSE promotional programme shall be revised and updated at least once a year.
- (7.3) POC shall ensure that all personnel participate in the HSE promotional activities. POC will organise at least two HSE campaigns per year to reinforce a particular HSE point or idea.
- (7.4) Visual signs & posters, pamphlets, displays and HSE literature in English and Burmese understood by all workers will be made available at the site to enhance safety & health.
- (7.5) POC shall erect and maintain a HSE Information Signboard and Assembly Stage. The signboard shall be built a 1.2m wide of timber plywood and fixed at a safe frame. The signboard shall consist of HSE posters, pictures, news, photos of good HSE practices. The HSE posters, news and photos shall be protected from weather.
- (7.6) The stage shall be constructed in front of the signboard and made of steel and/or concrete. The stage shall consist of a raised platform with at least one step.



Element (2): EVALUATION, SELECTION & CONTROL OF SUBCONTRACTORS

- (8.1) A system will be set up to evaluate the HSE performance of prospective subcontractors who intend to undertake the works. Only competent subcontractors who meet the HSE requirements and expectations shall be selected for the works.
- (8.2) Subcontractors will be provided with a full understanding of all HSE requirements and expectations at all times.
- (8.3) POC has an effective on-going program to evaluate HSE performance of subcontractors with a register updated regularly.
- (8.4) The evaluation of subcontractors HSE performance shall include the following:
 - (a) Company's HSE policy and HSE management system;
 - (b) HSE plan, safe work procedures and method statements;
 - (c) Listing of construction plant, machinery and equipment;
 - (d) HSE track records; and
 - (e) Training records of managers, supervisors and workers.
- (8.5) POC shall ensure that the HSE requirements in the contract agreement are implemented effectively and safely during the work activities.
- (8.6) Use Of Common And Surrounding Areas by Contractors
 - (i) POC shall confine his works including his subcontractors within the designated work boundary. No processing is allowed on surrounding property.
 - (ii) POC shall ensure that the workpeople (defined in item above) take their meals and rest within the approved rest area and that they do not make use of the existing buildings/structures, open spaces or other areas whether within or outside the contract boundary as rest areas or for any other use at any time for the duration of the Project and bearing defects liability and maintenance costs.
 - (iii) Stacking materials shall only be stored in POC pre-approved areas.



Element 17: HSE INSPECTION

- (17.1) Documented procedures for HSE inspections and safety inspections will be established to ensure that unsafe conditions and practices at the worksite are identified and corrective measures are implemented promptly and effectively.
- (17.2) HSE inspections are carried out by the Project's HSE committee. Procedures will be established to carry out internal HSE inspections at least once per year.
- (17.3) A written record shall be kept for the daily inspection findings and the results of inspection shall be brought to the Area Manager having responsibility in the area concerned, together with the necessary immediate action and due date of completion. Any corrective action shall be immediately implemented by the Area Manager, and followed up by the HSE personnel. POC shall maintain records of inspection report on site.
- (17.4) Inspection of shoring or formwork, side supports of excavations and benches, cranes and scaffolds should be carried out after any episode of inclement weather which may affect their stability / integrity.
- (17.5) Daily checking of lifting equipment will be carried out and shortcomings rectified before work begins.
- (17.6) Regular checking of critical parts of machineries, such as safety devices, holding cables, braking system for hoist will be carried out on weekly basis by approved crane operators / mechanics.
- (17.7) POC's Senior Management (Myanmar HQ or overseas) may visit the Site to conduct inspections and examinations for the purpose of ensuring compliance with POC's HSE standard requirements.
- (17.8) The frequency of observation and HSE inspection shall depend on the nature of the construction activities, the hazards present, internal and external feedback received and the performance of POC.

Element 18: MAINTENANCE REGIME FOR ALL MACHINERY & EQUIPMENT

- (18.1) Maintenance program will be established to ensure safe and efficient operation of all hand tools, plant, machinery and equipment used at worksite owned by all subcontractors and suppliers.



- (10.2) Maintenance program that includes:
 - listing of hand tools, plant, machinery and equipment;
 - schedule of inspection and maintenance;
 - procedure for breakdown and repairs and
 - record of inspection and maintenance.
- (10.3) Lock out procedures would be established for the inspection, clearing, repair or maintenance of plant, machinery, equipment or electrical installation on site.
- (10.4) PCC shall document and maintain records of all inspection, maintenance, breakdowns and repairs carried out by the trained and competent maintenance personnel.
- (10.5) Modified tools of any kind shall not be used on site.
- (10.6) Equipment, tools, gadgets, devices and the like shall be certified fit for use and shall be regularly inspected and maintained. If in PCC's inspection personnel opinion that the item in question has been subject to wear and tear, damage or compromised safety, he shall have the authority to order the removal of the same from use and be isolated.

Element 111: RISK ASSESSMENT

- (11.1) The objective of this element is to reduce risks at source by taking all reasonably practicable measures to ensure that the workplace is safe and without risks to persons working within its premises.
- (11.2) GENERAL
 - (11.2.1) Risk Management Goals
 - (a) Risk assessment of new work activity or tasks;
 - (b) Control and monitoring of such risks and
 - (c) Communicating these risks to all personnel involved.
 - (11.2.2) Risk Assessment is An Integral Part Of Risk Management.
 - It is the process of:
 - (a) Identifying and analyzing safety and health hazards associated with the specific work;
 - (b) Assessing their risk involved and
 - (c) Prioritizing measures to control the hazards and reduce their risks.
- (11.3) Risk Assessment Part



POC shall implement a risk management plan which shall include the following:

- (i) Formation of Risk Management Committee;
- (ii) Identification of Risk Assessment, from the Contractors;
- (iii) Risk Assessment Method;
- (iv) Risk Assessment Procedure;
- (v) Implementation and monitoring of control measures.

(11.4) POC shall conduct a risk assessment in relation to the safety and health risks posed to any person who may be affected by his undertaking prior to the commencement of work in accordance to the format in ANNEX 4.

Such assessments shall:

- (i) identify the hazards and the groups of people at risk from the identified hazards;
- (ii) evaluate the risks in terms of determining the existing control measures, the severity and likelihood of occurrence of the hazards identified and assessing the risk level based on its severity and likelihood; and
- (iii) identify and determine the appropriate actions for controlling and reducing the risks to an acceptable level.

(11.5) POC shall ensure that all the subcontractors and suppliers work with the risk assessment team to identify the hazards, evaluate and control the risks at the worksite. This includes including all assistance and participating in any risk assessments conducted by the Employer.

(11.6) POC shall engage, designate and appoint a competent person as the team leader to lead the team of persons conducting the risk assessments.

(11.7) POC shall incorporate the time frame required for risk assessment to be developed into the master monthly work program and shall ensure that his employees are informed of the nature of the risk involved, the measures implemented to control the risk and applicable safe work procedures prior to commencement of work.

(11.8) POC shall carry out reviews of the risk assessment every month or earlier whenever new information on the risks is known, the work area changes or following any incident or serious incident.

(11.9) POC has established a Project Risk Assessment for this Contract - see attached ANNEX 5).



Element (12): THE CONTROL OF MOVEMENT AND USE OF HAZARDOUS SUBSTANCES AND CHEMICALS

- (12.1) Procedure shall be established for proper management of all hazardous substances and chemicals which shall include flammable, toxic or corrosive substances such as oxy-acetylene used for gas welding.
- (12.2) The procedure shall include the control of receipt, storage, distribution, use and final disposal of such substances.
- (12.3) A register of hazardous materials compiled from Safety Data Sheets (SDS) will be maintained and updated regularly. Assess the SDS of all the hazardous substances and chemicals prior to entry to site for its suitability in terms of health, safety & environmental hazards and consider safer alternatives.
- (12.4) SDS information will be disseminated to the users with inventory log book introduced.
- (12.5) EOC shall ensure that all hazardous substance and chemical containers are sealed.
- (12.6) Storage of Materials
 - (i) In addition to specific provisions elsewhere in the Contract, all materials shall be stored in tidy and orderly manner. Flammable materials shall not be stored in the building under construction. EOC shall provide suitable storage facilities for such flammable items and materials.
 - (ii) All storage areas shall be checked thoroughly and regularly and especially during any spillage or contamination, leaks or the fire. Upon demolition of these areas shall be checked thoroughly.

Element (13): EMERGENCY PREPAREDNESS

- (13.1) EOC shall employ an emergency preparedness plan to respond effectively to emergency situations on site and ensure that it is implemented, communicated and complied. The plan shall be reviewed or edited regularly to ensure its effectiveness and suitability.
- (13.2) In-house emergency exercise and drills shall be conducted on a quarterly basis. The timing for evacuation of workers and personnel from their work areas shall not be more than 20 minutes.



(14.3) The emergency shut down shall include:
Fire;

- Explosion; and
- Injuries resulting in mass loss.

(14.4) POC shall establish an effective first-aid programme to provide first aid and emergency treatment to victims of an accident. This includes adequate first aid facilities and trained first aiders.

(14.5) Fire Safety Plan

(a) POC shall establish a Fire Safety Plan concerning:

- the role and responsibility of every individual in the workplace in fire safety;
- general site precautions, fire detection and warning alarm systems;
- fire fighting equipment, including types of fire extinguishers;
- fire safety measures for site accommodation;
- fire escape and communication;
- fire brigade access, facilities and co-ordination;
- fire drills and training, including the use of site fire fighting apparatus, machine storage including flammable liquid and gas, and waste handling regime;
- fire safety measures for construction plant and equipment; and
- fire safety measures for material storage.

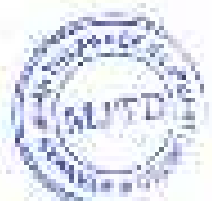
(b) POC shall ensure that all procedures, precautionary measures and safety standards stipulated in the Fire Safety Plan are implemented, communicated and complied with by all workers including subcontractors.

(c) POC shall review and ensure the adequacy of the Fire Safety Plan as the works progress.

(d) POC shall carry out monthly checks of the following equipment and tools: all alarms and detection devices installed on site. Tags/ stickers shall be provided to indicate the monthly checks.

(e) POC shall conduct weekly inspections of escape routes, fire brigade access, fire fighting facilities and waste areas to ensure that the requirements stipulated in the Fire Safety Plan are complied with.

(14.6) Fire Emergency Evacuation Diagram - See attached Annex B



13.7. Fire Safety on Site

- (i) POC shall maintain a high standard of housekeeping and ensure fire safety on Site. POC shall keep the works and the Site including all the external and adjoining areas clear, neat and safe as possible.
- (ii) All materials that are combustible must be properly stored. Fire extinguishers and appropriate fire prevention measures shall be provided and implemented by POC for all temporary buildings and all temporary works on the Site.
- (iii) All rubbish, debris and the the shall be cleaned away from time to time and POC shall not allow a build up of such rubbish and debris. In particular, POC shall, at all times keep all accesses free of rubbish, debris, excavated materials and all other obstructions, which could pose safety and fire hazards.

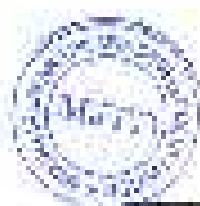
13.8. Fire Prevention and Fire Fighting Facilities

- (i) POC shall implement fire safety measures for fire detection, fire fighting and escape routes and facilities on the Site, which shall comply with the requirements of the relevant authorities.

POC shall:

- a) keep entrances, gangways, staircases, hydrants or other water supply points clear and ensure that access to upper floors does not become impeded by stacked materials;
- b) provide separate metal containers for each form of flammable waste and organize regular collection and disposal;
- c) make daily fire inspection, once in the morning and the other just as work is completed for the day, to ensure stores are locked, windows are closed, no lighted cigarettes are left about in any of the temporary buildings and all gas cylinders and flammable fluids are returned to store;
- d) install a suitable form of fire alarm system where necessary.

- (ii) All fire protection, fire equipment and installations shall remain the property of POC on Site and shall be removed upon satisfactory completion of all and when instructed by the Client subject to all permanent fire protection, fire fighting equipment and installations and services being in place, fully operational and functional.



Element 141. OCCUPATIONAL HEALTH PROGRAMMES

(14.1) Occupational health programs on hearing conservation, respiratory protection and compressed air related disease prevention shall be planned and implemented.

(14.2) POC shall provide education and training as well as access on the relevant health hazards, safe work practices and proper use of personal protective equipment (PPE) and enforce on the usage of PPE.

(14.3) Toilet Facilities

(i) POC's workers and workpeople generally are not permitted to urinate or defecate within the neighboring buildings. A fine will be administered if any of POC's workers or workpeople are caught using the toilets.

(ii) Toilet facilities shall be provided at suitable locations and maintained by POC to an acceptable standard.

(14.4) Cleaning and Maintenance of Roads and Drains

(i) POC shall maintain the cleanliness of public roads and drains used by vehicles for the Works for the duration of the Contract.

(ii) The Contractor shall –

a) conduct a weekly dry-fine cleaning of earth laden vehicles before they leave the Site;

b) clean up all deposits left by the vehicles on the road and employ sufficient workers for this operation every day. Earth droppings shall not be allowed to remain overnight either on the carriageway, pavements or in the drains. Where it is not feasible to remove deposits during normal working hours, carry out the cleaning operation during the hours between midnight and 5:00 am;

c) ensure that the flow of traffic on the roads and drains is maintained at all times during the duration of the Contract;

d) provide such flagmen, approved signs and signs equipment as may be necessary day and night to control the traffic to the satisfaction of the appropriate authority;



- E. to approve closely with the appropriate authority, in the planning and execution of any Temporary or Permanent Works which may affect the traffic flow and/or access to the Site or other properties; and
 - F. whenever required, remove with due compliance, from the site equipment, machinery, storage and other materials which may interfere with traffic and the use of roads, footpaths or open spaces on the Site or adjacent thereto.
- (1) POC shall take every practical precaution to avoid interference with the flow of storm water through the drain, canal, culverts and other side drains etc. Any sand, rubble, timber, rubbish or other materials which may fall into or be brought into the drain, canal, culvert and other side drains etc. by the storm water shall be removed forthwith.
- (2) If necessary water tight pipes, culverts, drains and/or other approved methods of controlling the flow of water shall be adequate for this purpose. Such works shall be constructed in a good workmanlike manner sufficient to withstand water pressure at its highest level.
- (3) If the PM considers that any temporary structure erected is obstructing the flow to an extent more than necessary, making it liable to cause flooding in the event of a rain storm, he may employ other labour and construction equipment to demolish such structures.
- (4) POC shall be liable for any non-compliance or maintenance of roads and drains, flooding, slips, subsidence or other failures resulting from non-compliance by POC with respect to the above.
- (5) POC shall be responsible for paying any fines imposed by any of the relevant authorities.

114.3: Clean up and Reinstatement of Works on Completion

- (i) All and every all parts of the Works in a clean condition, free from loose earth and rubbish and otherwise upon completion of Works.
- (ii) On completion, all temporary structures shall be removed and the area occupied by these structures shall be cleared, reinstated to its original state to the satisfaction of the Client.
- (iii) All land that is disturbed or destroyed by excavation, by the movement of machinery, the building of temporary structures, construction works and the like, shall be reinstated upon completion to the satisfaction of the Client.



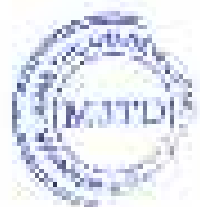
(14.6) Housekeeping Programme

- (i) POC shall establish a detailed housekeeping programme that includes, but not limited to, the following:
 - (a) clearing of debris and refuse;
 - (b) maintenance of site vegetation and existing trees such as grass mowing, tree pruning, etc;
 - (c) maintenance of temporary drainage, wash bay, temporary road access, etc;
- (ii) The Client may disapprove the programme and make changes if the programme is deemed inadequate and ineffective.

Element (15): SITE ENVIRONMENTAL CONTROL

- (15.1) The appointed personnel shall prepare the Site Environmental Control Programme before work commences on site.
- (15.2) The Site Environmental Control Programme contains recommendations on measures to control water usage management, noise and dust pollution, control of vehicles and materials layout plans on drainage works, designated areas for storage of organic and construction wastes and all temporary site structures, such as containers, toilet facilities and workers quarters – see attached KMK/017.
- (15.3) The appointed person will submit a Site Environmental Control Report to Project Manager once every month. Project Manager shall take action to implement the recommendations made by the appointed person – see attached KMK/018.
- (15.4) Liability of Insurance

POC shall be solely responsible during the progress of the Works for any damages, accident, interruption or disturbance that may arise to existing premises, owners or occupants or adjoining properties by any of the operations arising from the carrying out of the Works under this Contract.



15.5) Noise Pollution

The maximum noise level shall not exceed and shall comply with the maximum allowable noise standards or the latest noise regulations imposed by the relevant authorities.

Noise level readings shall be taken as stipulated in the specifications. PCC shall endeavor to achieve noise levels lower than the above limits.

15.6) Noise Control Details

- a) All mechanical plant and equipment used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order.
- b) All machines in intermittent use shall be shut down or throttled down to a minimum in the intervening periods between works. Noise emitting equipment that is required to run continuously shall be housed in a suitable acoustic enclosure.
- c) Construction plants shall be maintained in good working condition so that excessive noises from mechanical vibration and crushing are reduced to a minimum.
- d) The use of barriers (acoustic walls or sound proof partitions) to deflect noise away from neighbouring areas shall be employed wherever possible.
- e) Care shall be taken to reduce noise when loading or unloading site plant, equipment, dismantling scaffolding or moving materials.

15.7) Dust And Air Pollution

- a) PCC shall prepare a method statement demonstrating how he intends to minimize dust generated by the work.
- b) Mechanical plant, equipment and fan like exhausters (exhausts) along, flumes or other down take pipes shall not be allowed to be used untiled.
- c) The PCC shall have absolute discretion to require contractors to take necessary precautions, maintain or repair such plant and equipment in order for removal of the same from the Site.



- d) POC is to provide all necessary construction materials, signs, notices and other temporary protection.

(4.3.8) Vector Control

POC shall implement an effective vector control programme for the Site to include all necessary measures to prevent breeding and harboring of mosquitoes and other types of vector.

Vector control work shall incorporate and comprise the following:

a) MOSQUITO PREVENTION

- i) Weekly checks for mosquito breeding and fortnightly thematic fouling;
- ii) At excavation and construction of Site where water accumulates or stagnates must be kept dry by pumping, baling or other methods;
- iii) POC shall do all that is reasonable and practicable to prevent breeding of mosquitoes and refrain from dumping or depositing rubbish, spoil, unused materials, empty bottles, cans and other containers capable of collecting liquids. POC shall prevent any mosquito nuisance at the Site and surroundings and comply with any measures to eradicate or eliminate mosquito breeding and

b) PEST CONTROL

- i) POC shall undertake fortnightly vector control of other bugs which shall include but not limited to rodents and cockroaches checks as well as weekly bracketing of stagnant water with insecticides;
- ii) POC is also required to prepare a detailed pest control and surveillance programme. The PM may disapprove and/or make changes to the programme should it deemed to be inadequate and ineffective;
- iii) POC shall maintain a pest control inspection and treatment records;
- iv) Any health nuisance caused by the lack of pest control to the Works and the adjoining properties shall be dealt with to the satisfaction of the authorities at POC's own expense.



Element (1.6): SITE SECURITY CONTROL

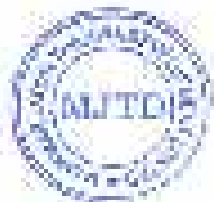
- (1.6.1) While the working hours are generally considered to be from 8.00 am to 5.00 pm (allowing for overtime work) Monday through Saturday, POC shall ensure that security guards are provided on a 24-hour basis, 7 days a week.
- (1.6.2) The main access to the Site shall have a proper security post. All traffic in the Site must be properly controlled and the access controlled when not in use.
- (1.6.3) POC shall implement a return control system for all workmen and personnel (whether or not employed by POC), deliverymen and ordering methods and vehicles entering and exiting from the Construction Site. All such persons will be required to be registered upon entering the Construction Sites. The security guards engaged by POC shall be responsible for maintaining the issue of all access passes.
- (1.6.4) POC shall have a detailed crisis management plan to guide the security work in the event of emergencies such as disruption of services, encounter or detect any security problems, etc.

Element (1.7): SYSTEM VERIFICATION & REVIEW

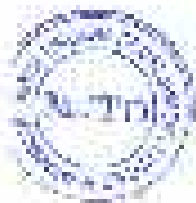
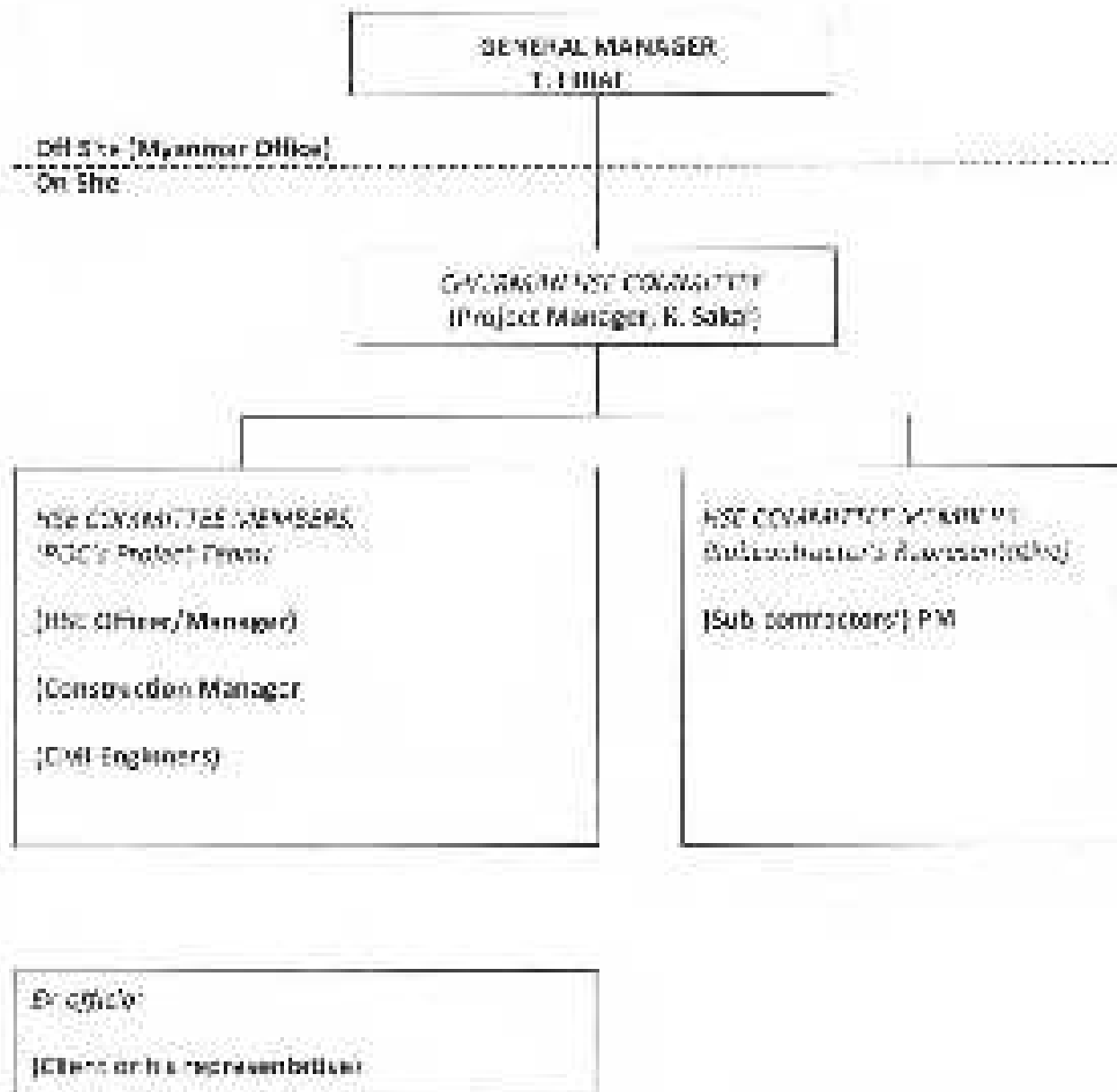
- (1.7.1) An annual review of the site will be carried out by POC Myanmar headquarters. The review will take into consideration:
 - a) All Gate Reports
 - b) Accidents Records
 - c) Investigation Reports
- (1.7.2) Minutes of meeting of such review will be kept. Based on the decision made during the review, the management will proceed to amend the ISM Management System to ensure the review cycle is implemented successfully.
- (1.7.3) If deemed necessary, the client shall be entitled to engage an independent external auditor to audit POC's HSE Management System and POC shall provide all necessary attendance and information to the auditor.
- (1.7.4) POC shall periodically review and evaluate the efficiency of the ISM Management System in place.
- (1.7.5) The audit and possible corrective actions shall be carried out in accordance with the documented procedures.
- (1.7.6) The results of audit and corrective actions shall be documented in the PM and brought to the attention of all sub-contractors.



ANNEXES



ANNEX 2: HSE ORGANISATION CHART



ANNEX B: HEALTH, SAFETY AND ENVIRONMENTAL PROGRAMME

<u>Activities</u>	<u>Responsible / involved</u>	<u>Period</u>
1. Deploy Site HSE Policy Statement	PM	Prior to work
2. Establish site HSE Plan	PM	Prior to work
3. Conduct Risk Assessment with Work Method Statement Production	Engineer Subcontract Engineer	Prior to related work
4. Establishment of HSE Committee	PM	Prior to work
5. HSE Committee Installation & Meeting	HSE Committee	Monthly
6. Clean day and Safety Patrol	HSE Committee	Weekly
7. Accident Investigation Meeting	PM/Engineer/Subcon	(If occurs)
8. Tool Box Meeting	Contractor PM/Engineer	Daily
9. Site HSE Inspections	Engineers/Subcontractors	Daily
10. Oiling to stagnate water	PCC Oiling Team	every 3 days
11. Emergency Drill	All	3 months once





PENTA OCEAN CONSTRUCTION CO., LTD.

TRILAWA SPECIAL ECONOMIC ZONE DEVELOPMENT PROJECT

ANNEX A	Activity-Based Risk Assessment Form	

Page 00
Page 2 of 2
Date

1. Assessment of Severity – with the existing risk controls in consideration, each Risk Assessment Team (RAT) member is to rate the most likely severity outcome of the possible injury or ill health identified (see [Table 1](#) below).

Table 1

Severity (S)	Description
(S) Catastrophic	Death, total disability or multiple major injuries
(M) Major	Significant injury or illness resulting in substantial loss of ability to perform, require hospitalization, multiple medical treatments, occupational cancer, or life threatening.
(C) Considerable	Injury requiring medical treatment or ill health lasting 14 days or disability (including loss of consciousness, burns, fracture, major lacerations, herniation, dislocation, water-related spinal cord disorders)
(L) Minor	Injury or ill health requiring first aid or any medical attention (first aid and first aid only)
(N) Negligible	Not likely to cause injury or ill health

2. Assessment of Likelihood – with the existing risk controls in consideration, each Risk Assessment Team (RAT) member is to rate the likelihood assessed that they would be possible injury or ill health (see [Table 2](#) below).

Table 2

Likelihood (L)	Description
(H) High	Not expected to occur but still possible.
(M) Medium	Not likely to occur under normal circumstances.
(L) Good/low	Possible or known to occur.



Activity-Based Risk Assessment Form

(A) Frequency	Continuous
(B) Annual Return	Continuous (depending on periods)

3. Risk Matrix provides the useful framework to describe risks identified, see Table 3 below.

Table 3

Severity of Consequence	Likelihood of Occurrence	Frequency		Risk Level	Recommended Action
		High	Low		
Very High	Very High	Very High	Very High	Very High	Very High
High	High	High	High	High	High
Medium	Medium	Medium	Medium	Medium	Medium
Low	Low	Low	Low	Low	Low

(Very High = 100, High = 20, Medium = 10, Low = 5, Very Low = 1)

4. Action on Risk Level – the following actions to be implemented based on the current Risk Level as shown in Table 4 below.

Table 4

Risk Level	Risk Acceptability	Recommended Action
Low Risk	Acceptable	Low and limited risk, no further action may be needed. Frequency review is not necessary, if necessary, see required to any or more risk level assigned to activity also assessed to avoid risk time.
Medium Risk	Tolerable	A control level, action of the frequency should be carried out. The action that the risk level is increased to the low risk, tolerability probably a risk level, which a defined time period.





PENTA-OCEAN CONSTRUCTION CO., LTD.
THAILAND SPECIAL ECONOMIC ZONE'S DEVELOPMENT PROJECT

ANNEX 4
Page 17
Sheet 1
Page 3 of 7

Activity-Based Risk Assessment Form

Identify risk control measures, such as administrative controls, PPE, safety signage, and work instructions. Management measures are being implemented.		
Management action is required.		
High Risk	Unacceptable	High Risk Level must be reduced to an acceptable Risk before any construction is undertaken. This is achieved by a series of control measures. Adequate management control measures should be in place.
		Consideration of PPE or engineering.
		Practically, the hazard should be eliminated before any construction.
		Management measures should be in place before work commences.

Risk Control

Measures of Control

The nature of the work and measures of control are determined by reference to the Risk Hierarchy of Control (see page 11). These control measures are not usually mutually exclusive. Generally, it may be more effective to use multiple control measures. For example, engineering controls should be followed with administrative controls. The following are safe work procedures:

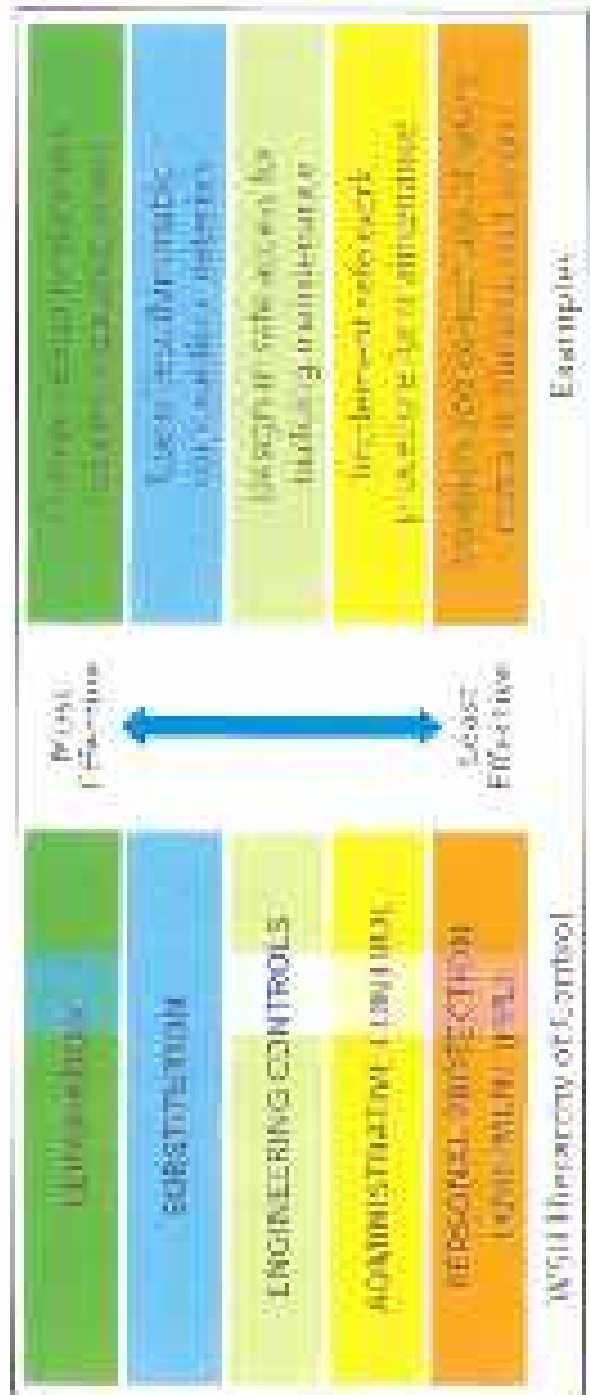


PENTA-OCEAN CONSTRUCTION CO., LTD.
PULAWA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

Sheet No. 01
Date: 05/01/2024

Activity-Based Risk Assessment Form

Fig. 1





PENTA-OCEAN CONSTRUCTION CO., LTD.

7700 AREA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

ANNEX 2

Page 00

Sheet

Page 6 of 7

Total

Activity-Based Risk Assessment Form

Inventory of Work Activities and Hazard Identification for the _____

S.No.	Activity Location	Work Activities
1		
2		
3		
4		
5		
6		
7		
8		

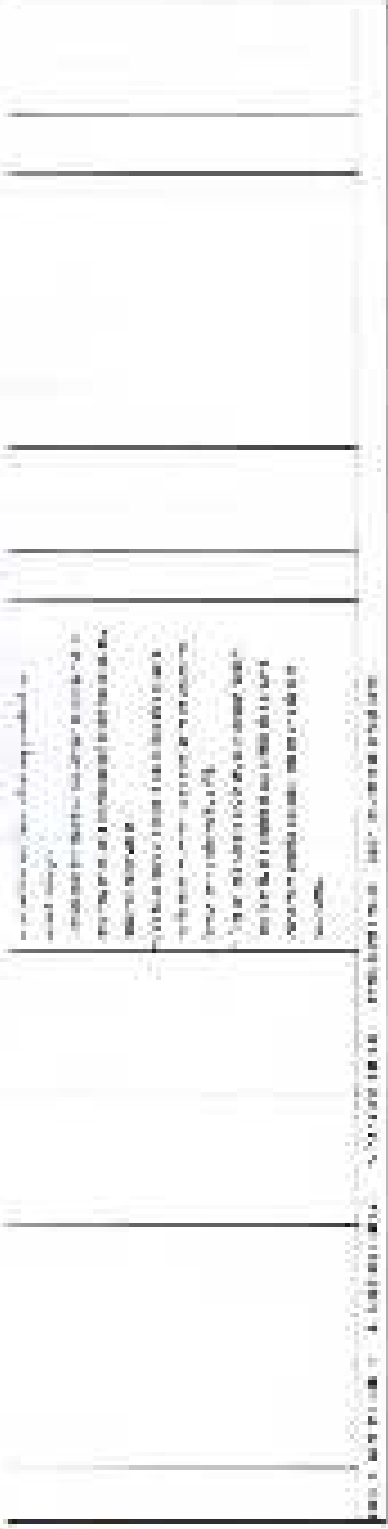


Uttarakhand Special Economic Zone & Development Project

Source	Frequency	Count
Source 1	Frequency 1	Count 1
Source 2	Frequency 2	Count 2
Source 3	Frequency 3	Count 3
Source 4	Frequency 4	Count 4
Source 5	Frequency 5	Count 5
Source 6	Frequency 6	Count 6
Source 7	Frequency 7	Count 7
Source 8	Frequency 8	Count 8
Source 9	Frequency 9	Count 9
Source 10	Frequency 10	Count 10
Source 11	Frequency 11	Count 11
Source 12	Frequency 12	Count 12
Source 13	Frequency 13	Count 13
Source 14	Frequency 14	Count 14
Source 15	Frequency 15	Count 15
Source 16	Frequency 16	Count 16
Source 17	Frequency 17	Count 17
Source 18	Frequency 18	Count 18
Source 19	Frequency 19	Count 19
Source 20	Frequency 20	Count 20
Source 21	Frequency 21	Count 21
Source 22	Frequency 22	Count 22
Source 23	Frequency 23	Count 23
Source 24	Frequency 24	Count 24
Source 25	Frequency 25	Count 25
Source 26	Frequency 26	Count 26
Source 27	Frequency 27	Count 27
Source 28	Frequency 28	Count 28
Source 29	Frequency 29	Count 29
Source 30	Frequency 30	Count 30
Source 31	Frequency 31	Count 31
Source 32	Frequency 32	Count 32
Source 33	Frequency 33	Count 33
Source 34	Frequency 34	Count 34
Source 35	Frequency 35	Count 35
Source 36	Frequency 36	Count 36
Source 37	Frequency 37	Count 37
Source 38	Frequency 38	Count 38
Source 39	Frequency 39	Count 39
Source 40	Frequency 40	Count 40
Source 41	Frequency 41	Count 41
Source 42	Frequency 42	Count 42
Source 43	Frequency 43	Count 43
Source 44	Frequency 44	Count 44
Source 45	Frequency 45	Count 45
Source 46	Frequency 46	Count 46
Source 47	Frequency 47	Count 47
Source 48	Frequency 48	Count 48
Source 49	Frequency 49	Count 49
Source 50	Frequency 50	Count 50
Source 51	Frequency 51	Count 51
Source 52	Frequency 52	Count 52
Source 53	Frequency 53	Count 53
Source 54	Frequency 54	Count 54
Source 55	Frequency 55	Count 55
Source 56	Frequency 56	Count 56
Source 57	Frequency 57	Count 57
Source 58	Frequency 58	Count 58
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Source 69	Frequency 69	Count 69
Source 70	Frequency 70	Count 70
Source 71	Frequency 71	Count 71
Source 72	Frequency 72	Count 72
Source 73	Frequency 73	Count 73
Source 74	Frequency 74	Count 74
Source 75	Frequency 75	Count 75
Source 76	Frequency 76	Count 76
Source 77	Frequency 77	Count 77
Source 78	Frequency 78	Count 78
Source 79	Frequency 79	Count 79
Source 80	Frequency 80	Count 80
Source 81	Frequency 81	Count 81
Source 82	Frequency 82	Count 82
Source 83	Frequency 83	Count 83
Source 84	Frequency 84	Count 84
Source 85	Frequency 85	Count 85
Source 86	Frequency 86	Count 86
Source 87	Frequency 87	Count 87
Source 88	Frequency 88	Count 88
Source 89	Frequency 89	Count 89
Source 90	Frequency 90	Count 90
Source 91	Frequency 91	Count 91
Source 92	Frequency 92	Count 92
Source 93	Frequency 93	Count 93
Source 94	Frequency 94	Count 94
Source 95	Frequency 95	Count 95
Source 96	Frequency 96	Count 96
Source 97	Frequency 97	Count 97
Source 98	Frequency 98	Count 98
Source 99	Frequency 99	Count 99
Source 100	Frequency 100	Count 100

Risk Assessment for the Work Activity

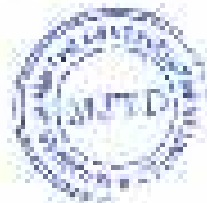
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0.00	1.00	1.00	0.00
0.05	0.95	0.98	0.01
0.10	0.90	0.96	0.02
0.15	0.85	0.94	0.03
0.20	0.80	0.92	0.04
0.25	0.75	0.90	0.05
0.30	0.70	0.88	0.06
0.35	0.65	0.86	0.07
0.40	0.60	0.84	0.08
0.45	0.55	0.82	0.09
0.50	0.50	0.80	0.10
0.55	0.45	0.78	0.11
0.60	0.40	0.76	0.12
0.65	0.35	0.74	0.13
0.70	0.30	0.72	0.14
0.75	0.25	0.70	0.15
0.80	0.20	0.68	0.16
0.85	0.15	0.66	0.17
0.90	0.10	0.64	0.18
0.95	0.05	0.62	0.19
1.00	0.00	0.60	0.20





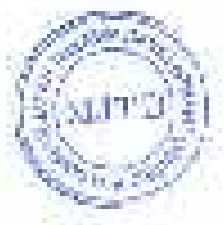
Қазақстан Республикасының Білім және Ғылым Министрлігі Қазақстан Республикасының Білім және Ғылым Министрлігі	Қазақстан Республикасының Білім және Ғылым Министрлігі Қазақстан Республикасының Білім және Ғылым Министрлігі	Қазақстан Республикасының Білім және Ғылым Министрлігі Қазақстан Республикасының Білім және Ғылым Министрлігі	Қазақстан Республикасының Білім және Ғылым Министрлігі Қазақстан Республикасының Білім және Ғылым Министрлігі	Қазақстан Республикасының Білім және Ғылым Министрлігі Қазақстан Республикасының Білім және Ғылым Министрлігі
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Project Information		Project Details		Project Status		Project Budget		Project Risk		Project Notes	
ID	Name	Description	Category	Status	Progress	Amount	Unit	Level	Score	Comments	Actions
1	Project A	Construction of a new building	Construction	On Track	75%	\$1,000,000	USD	Low	85	Project is progressing well. All milestones are being met.	Review progress, update budget.
2	Project B	Renovation of an existing building	Renovation	Delayed	40%	\$500,000	USD	Medium	60	Project is delayed due to material shortages. Need to find alternative materials.	Identify alternative materials, update schedule.
3	Project C	Design and construction of a new bridge	Infrastructure	On Track	90%	\$2,500,000	USD	Low	90	Project is progressing well. All milestones are being met.	Review progress, update budget.
4	Project D	Construction of a new road	Infrastructure	On Track	80%	\$1,200,000	USD	Low	80	Project is progressing well. All milestones are being met.	Review progress, update budget.
5	Project E	Construction of a new school	Education	On Track	60%	\$800,000	USD	Low	70	Project is progressing well. All milestones are being met.	Review progress, update budget.
6	Project F	Construction of a new hospital	Healthcare	On Track	50%	\$3,000,000	USD	Low	65	Project is progressing well. All milestones are being met.	Review progress, update budget.
7	Project G	Construction of a new airport	Transportation	On Track	30%	\$5,000,000	USD	Low	55	Project is progressing well. All milestones are being met.	Review progress, update budget.
8	Project H	Construction of a new stadium	Sports	On Track	20%	\$2,000,000	USD	Low	45	Project is progressing well. All milestones are being met.	Review progress, update budget.
9	Project I	Construction of a new shopping mall	Retail	On Track	10%	\$1,500,000	USD	Low	35	Project is progressing well. All milestones are being met.	Review progress, update budget.
10	Project J	Construction of a new office building	Commercial	On Track	5%	\$1,000,000	USD	Low	25	Project is progressing well. All milestones are being met.	Review progress, update budget.





Task	Description	Status	Priority	Assignee	Due Date	Progress	
						Start	End
1.1	Market research and analysis	In Progress	High	John Doe	2023-12-15	2023-12-01	2023-12-15
1.2	Product design and development	Not Started	Medium	Jane Smith	2024-01-15		
1.3	Production and distribution	Not Started	Low	Mike Johnson	2024-03-15		
1.4	Marketing and sales	Not Started	Low	Sarah Brown	2024-05-15		
1.5	Customer support and feedback	Not Started	Low	David White	2024-07-15		
1.6	Project closure and evaluation	Not Started	Low	Emily Green	2024-09-15		





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Sl. No.	Learning Outcome (LO)	Assessment Method	Assessment Tool	Assessment Frequency	Assessment Weight	Assessment Results	Assessment Comments
1	LO1: Understand the importance of the environment and the role of the individual in protecting it.	Written Exam	Multiple Choice Questions (MCQs)	End of Semester	20%	85%	Good understanding of the environment and the role of the individual in protecting it.
2	LO2: Identify the major environmental issues and their causes.	Written Exam	Short Answer Questions (SAQs)	End of Semester	20%	80%	Good understanding of the major environmental issues and their causes.
3	LO3: Analyze the impact of human activities on the environment.	Written Exam	Essay Questions	End of Semester	20%	75%	Good understanding of the impact of human activities on the environment.
4	LO4: Evaluate the effectiveness of environmental management systems.	Written Exam	Case Study Questions	End of Semester	20%	70%	Good understanding of the effectiveness of environmental management systems.
5	LO5: Develop a plan of action to address environmental issues.	Written Exam	Project Questions	End of Semester	20%	65%	Good understanding of the development of a plan of action to address environmental issues.

THILAWA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

PROJECT RISK ASSESSMENT - ANNEX 5

S/No	Description of Work Activity	Hazard Identified	Proposed Control Measures	Initial Risk Index			Further Control Measures	Residual risk index		
				S	L	R		S	L	R
6)	Concreting	Collapse of formwork structure.	~ Formwork to be designed by suitable qualified person. ~ Formwork to be inspected by formwork supervisor against appropriate checklist before any concreting work is carried out.	Ma	Re	M	Risk Management Committee (RMC) shall be formed by POC person-in-charge, safety personnel and subcontractors to review the risk assessment conducted for all general work activities prior to commence work. Safe work procedures shall be introduced with compliance safety checklist implemented to manage the risk.	Ma	Re	M
			~ Workers to be briefed on potential hazards of working with concrete. ~ Workers to wear appropriate PPE for work being carried out.	Mo	Oc	M		Mo	Re	L
		Skin and eye irritation due to contact with the concrete.	~ Lifting supervisor to be present during lifting operations. ~ Work area to be cleared of personnel not involved with the concreting operations. ~ Concrete skip to be maintained in good working order and inspected for damage and defects on a regular basis.	Ma	Re	M		Ma	Re	M
			Danger from falling concrete.	~ Scaffold supervisor to supervise erection, modification and dismantling of scaffolding. ~ Scaffold supervisor will inspect on a weekly basis and maintain a scaffold register.	Ma	Re		M	Ma	Re

Note: S - Severity (Table 1) L - Likelihood (Table 2) R - Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)

Note: S - Severity (Table 1) L - Likelihood (Table 2) R-Risk Level (Table 3) (Refer to Risk Matrix - Table 4 for Definition of Risk Level)



**PROPOSAL FOR THE SUPPLY OF
TECHNICAL STAFF FOR THE PROJECT**

PROPOSAL NO.:

Table 1: Summary		Table 2: Evaluation	
Sl. No.	Description	Weightage	Remarks
1	Technical Staff for the Project	10	Not Evaluated
2	Technical Staff for the Project	10	Not Evaluated
3	Technical Staff for the Project	10	Not Evaluated
4	Technical Staff for the Project	10	Not Evaluated

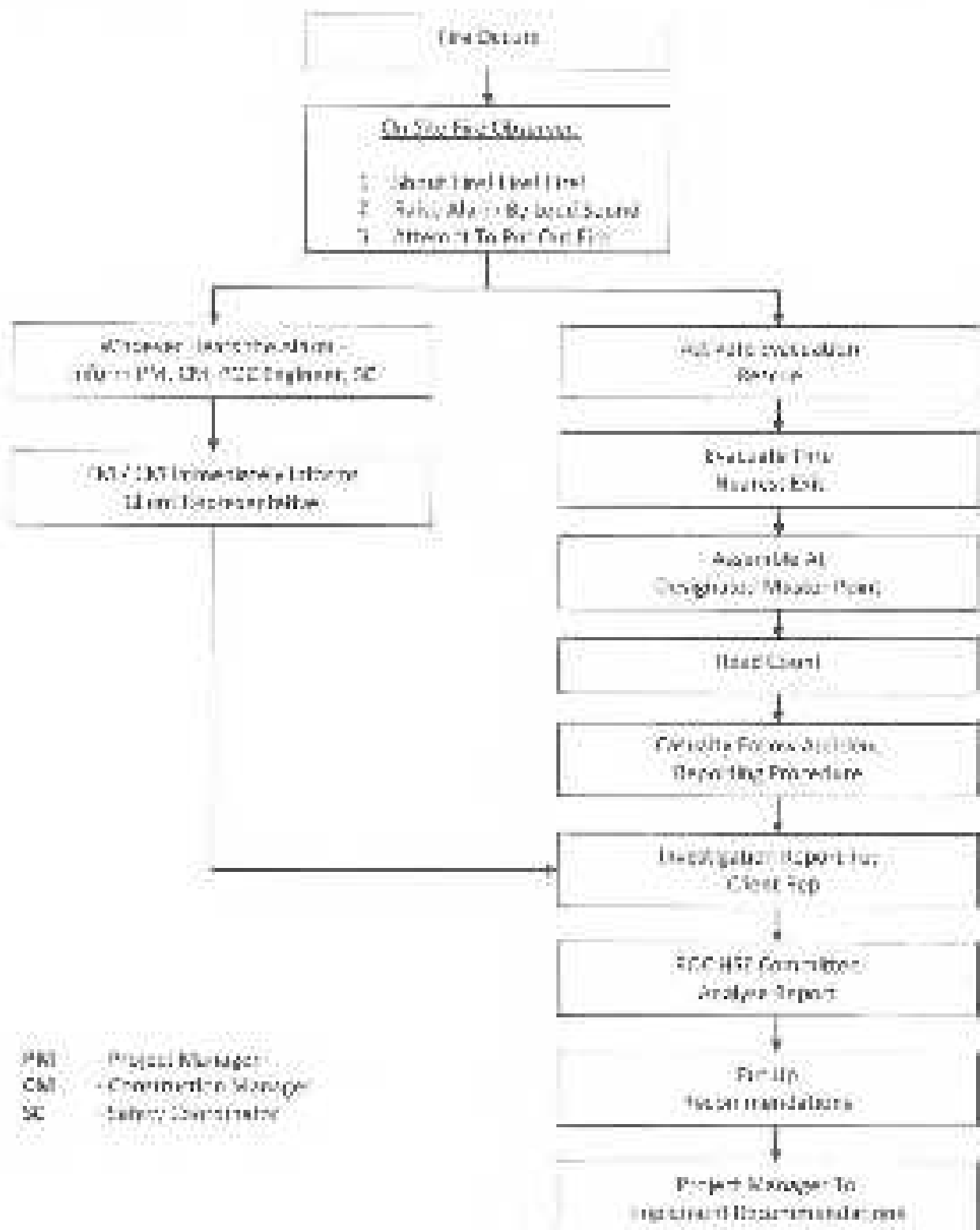
Table 3: Evaluation

Sl. No.	Weightage	Technical Staff	Remarks
1	10	Not Evaluated	Not Evaluated
2	10	Not Evaluated	Not Evaluated
3	10	Not Evaluated	Not Evaluated
4	10	Not Evaluated	Not Evaluated

Table 4: Evaluation of the Project

Sl. No.	Weightage	Technical Staff	Remarks
1	10	Not Evaluated	Not Evaluated
2	10	Not Evaluated	Not Evaluated
3	10	Not Evaluated	Not Evaluated
4	10	Not Evaluated	Not Evaluated

ANNEX G: FIRE EMERGENCY SCHEMATIC DIAGRAM



ANNEX 7: SITE ENVIRONMENTAL CONTROL PROGRAMME

Following measures will be carried out during the construction stage:

1. Proper Waste Management

- 1.1 Approved Waste collector shall be engaged for collection and disposal of solid and liquid wastes.
- 1.2 Waste collection points shall be done in a clean and hygienic manner to avoid odour and vector breeding.
- 1.3 Sufficient number of bins shall be provided for storage of construction debris and other materials for storage of organic and inorganic wastes.
- 1.4 Plastic bags shall be used as available for containing organic wastes and labelled.
- 1.5 A system shall be put in place to monitor the generation and disposal of construction waste debris.

2. Noise Control Measures

- 2.1 Arrangements shall be made for setting up of noise monitoring stations.
- 2.2 All instruments and equipments (including generators) used on site shall be placed as far away as possible from neighbouring buildings or affected from nuisance (as applicable) to the residents.

3. Dust Abatement Measures

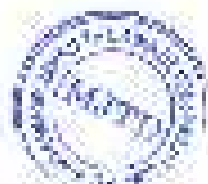
- 3.1 Speed limit shall be provided for vehicles on site before they leave the site to the road.
- 3.2 Motor vehicles used in the works shall be adequately covered to prevent dust emission.

4. Site Vegetation Control Measures

- 4.1 FOG shall come out regularly for spraying all the roads on site.
- 4.2 Resident-protection measures shall be provided to protect the residents.
- 4.3 All sites shall be cleared of overgrown vegetation, water bearing (excepted).
- 4.4 Ground destruction/land cleared areas shall be covered with.
- 4.5 Open drains shall be covered at all the works on site.

5. Earth Control Measures (ECM)

- 5.1 ECM shall ensure that the activities on site do not cause any adverse impact on the water pollution to be discharge to public during local rains.
- 5.2 Engage a qualified Environmental Expert to design and implement and do a study of impacts (see 4.1).
- 5.3 During work, restricted area shall be used.
- 5.4 Monitor site and comply with all available discharge standards.



THILAWA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

ANNEX B: SITE ENVIRONMENTAL CONTROL REPORT (Bank Form)

SITE ENVIRONMENTAL CONTROL REPORT

Date: _____

To: _____ (Name of Owner and Name of Project)

Attention: _____
Project Manager

SITE ENVIRONMENTAL CONTROL REPORT

1. I submit the Site Environmental Control Report in the above mentioned site form to _____
2. The areas of inspection and recommendations described in this report includes (please see the reports that are attached):
- ☐ Environmental health hazards and irregularities observed on the construction site
 - ☐ Recommendations or actions to be taken by the contractor to rectify the irregularities
 - ☐ Vector borne or infectious disease outbreaks which have taken place
 - ☐ Investigation conducted on vector borne or infectious disease outbreaks which took place
 - ☐ Contingency, quarantine, training courses, etc. to be held on the premises of site
 - ☐ Suggestions and cooperation necessary between the management of the construction site and any persons involved

Yours faithfully,

Name

Signature

Date



- (f) Environmental Health Check for irregularities observed on construction site:
recommendations to improve existing working conditions on the construction site.

The following irregularities were observed on the construction site:
(Please X in ☐ to indicate the irregularities)

A	Solid Waste Management	Recommendation to walk on/ to enter/ out
1)	Overloading or spillage of construction waste from trucks? ☐	
2)	Shops placed along public roads? ☐	
3)	Amount of construction waste taken out from site is different from amount deposited? ☐	
4)	Organic food wastes mixed together with construction wastes and not removed daily? ☐	
5)	Construction site area lined with plastic bags around the boundary? ☐	
6)	Refuse burnt not properly covered? ☐	
B	Vector Control Measures	
	Mosquito Breeding	
1)	Presence of water breeding grounds observed, e.g., water holding basins, ponds, gutters, depressions, unused basins, etc.? ☐	
2)	Construction site and/or yard fenced? ☐	
3)	Bait granules or coils do not applied most preferred level? ☐	
4)	Anti mosquito coil and insecticide not applied most frequent level? ☐	
5)	Thermal fogging not applied on the construction site at least once a week? ☐	



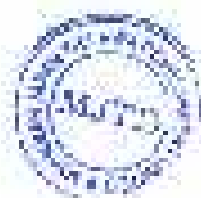
THIRUVARUR SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

Recommendations on work to be carried out		
C	ii) Resident and Fly Infestation Is the site in a open and well drained area and proof drains or culverts?	☐
	iii) Rat burrows observed?	☐
	iv) Presence of breeding animals observed?	☐
D		
Infection Disease		
E	i) Foreign workers not screened for history of malaria?	☐
	ii) Food handlers must inoculated against Typhoid?	☐
	iii) Food handlers above 45 years old not screened for malaria does?	☐
F		
Noise Control Measures		
G	i) Noise recorded & measured during the course the maximum permissible level?	☐
	ii) Generators and machinery sited close to neighbouring buildings?	☐
	iii) Noise activities, e.g. drilling, hammering limited outside working hours?	☐
H	iv) Equipment and machinery causes excessive noise and vibration due to improper maintenance?	☐
I		
Air Pollution Control & Dust Abatement		
J	i) Loads and vehicles carrying construction materials not properly and inadequately covered?	☐



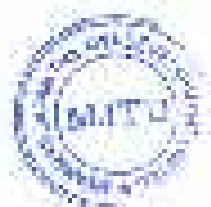
THILANA SPECIAL ECONOMIC ZONE 2 DEVELOPMENT PROJECT

		Recommendations on checks to be carried out
ii	Vehicles not washed at the paved weigh bay before they leave the worksite?	☐
iii	Exclusion of cars, trucks from construction equipment and machinery?	☐
iv	Evidence of proper handling of construction waste material?	☐
vi	Dust preventive measures not taken, e.g. water sprinklers / spray, shielding, wetting, covers / handling for aggregates and stones not provided / maintained?	☐
vii	No debris closer to transfer points than in the filters to ground floor?	☐
E	Food Hygiene	
i	Exposed food not covered or properly protected?	☐
ii	Food handlers using bare hands and not wearing gloves or using caps or other suitable headwear? When handling ready-to-eat or cooked food?	☐
iii	Good personal hygiene practices observed, e.g. washing, drying, etc.?	☐
iv	Only competent persons are handling the plates etc?	☐
v	Preparing food outside kitchen area?	☐
F	Silt Control	
i	Perforator cut off drains utilized / closed?	☐
ii	Silt traps installed?	☐
iii	Silt traps damaged or closed?	☐



TI HAWA SPECIAL ECONOMIC ZONE B DEVELOPMENT PROJECT

			Recommendations on work to be carried out
vi	Slit fences and supporting posts not clearly setback from the ground?	☐	
vii	Slit bags and support are not secured?	☐	
viii	Interceptors and line filter facilities not valued?	☐	
ix	Drainage directly of water is affected or obstructed due to the construction works?	☐	
x	Water runoff from the waste area is not controlled through the slit fences and all traps?	☐	
xi	Discharge of water directly into public drains?	☐	
xii	Earth cuttings or slopes adjacent to any drains not cleared, matted, protected or planted?	☐	
xiii	Interceptors maintained when to prevent any earth, mud, the soil, stones, or other debris or any other material to fall or be washed into the drains from any stockpile?	☐	
14	Other:		
15	Is there any discharge of water from the construction, e.g. washing, drilling, etc. leading to the ground area, or other activity (water pipe, over flow from leaking tank, over loading of septic tank, etc)?	☐	
16	Septic tank/ holding tanks and/or chambers - is there a risk of over loading or contamination?	☐	
17	Washing and repair of vehicles, equipment and other machinery - is there a risk of oil or fuel spillage?	☐	



THILAWA SPECIAL ECONOMIC ZONE DEVELOPMENT PROJECT

			Recommendations on work to be carried out
vi)	Spent / used oil not properly collected and sent to a licensed waste waste collector?	☐	
vii)	Spill treatment was not carried out by post control operators in compliance with the waste pollution control requirements?	☐	
viii)	Drums / containers / containers with oil / chemicals / waste materials / hazardous materials?	☐	
ix)	Oil spillages outside bonded / controlled area?	☐	

(III) Vector borne / food borne / infectious disease outbreak/s which took place

¹ To be completed if any vector borne / food borne / infectious disease outbreak/s took place.

S/N	Type of Vector Borne / Food Borne / Infectious Disease	No. of people affected	Cause of outbreak	Follow up action	Type of treatment: (Persons / number of people / number of treatment) ²			Remarks
					A	B	C	

² A - Self-medication

B - Clinical Treatment

C - Isolation

(III) Public Education

¹ To be completed if any public education activity/articles carried out

S/N	Type of activity (Seminars, Workshops, Conferences, etc.)	Purpose of activity	Where / Where	Duration of activity	Does it involve all employees? Yes / No If no, return number of employees involved



Thilawa Special Economic Zone (Zone B)
Development Project –Phase 4

Standard of Working Condition

Standard of Working Condition for Safety, Health and Hygiene

1. Safety Induction Course

Safety Induction Course will be conducted to any person who enters into the project site to carry out any work.

Safety Induction Course will address at least the following issues –

- i. Orientation and Explanation to the Project including site layout (position of entrance, toilet, canteen, PPE & Non-PPE stores, rest sheds, smoking areas etc.), working hours and existence of nearby municipality & landmarks.
- ii. In-house safety rules such as vehicles speed limits etc...
- iii. Identify the risks and body condition of attendees.
- iv. Attendee's particulars such as name, age, gender, N.P.C. address, employer's information, family structure and contact number will be filled in to the entry form (filled entry form shall be kept and treated as confidential);
- v. Risk involved of working PPE.
- vi. Emergency response plan.
- vii. Necessity of sanitation, fitness and cleanliness.
- viii. Safety Course go's.
- ix. Any other necessary safety issues.

2. Morning Safety Gathering

Morning Safety Gathering (MSG) shall be arranged every working day at 8.30am at suitable flat ground/location near the site office. At the gathering, supervisors/ engineers working on site shall attend the MSG. MSG will be conducted in accordance with the following order:

- i. Exercise
- ii. Project Manager's short speech.
- iii. Construction Manager's short speech.
- iv. Safety Officer's short speech.
- v. Activity and Topics of the day.
- vi. Safety Reminders (if any).
- vii. Call of 'Safety First'.

3. Tool Box Meeting

Before commencing any works the Tool Box Meeting (TBM) shall be conducted.



Standard of Working Condition for Safety, Health and Hygiene

Before the EIA, the study and consultation be with work force/employees by Engineer Supervisor to explain about the detail activity of the day and EYE safety precautional measures to be taken associated with the activities.

4. Personal Protection Equipment

The following Personal Protective Equipments (PPE) are standard use to wear in the Project:

- Hard hat (except operators working inside cabin)
- Safety Shoes/Boots
- Working Pants (Long length)
- Gloves (especially for Carpenters, Concrete and Re-bar Fixing)
- Goggles (where working in dusty area)
- Mask (where working in dusty area)
- Special Glove, Goggles and Helm for Welding Work
- Safety Net (for workers at ground especially after dark)
- Safety Bar (where working at height)

5. Safety Notice Board & Signage

Safety Notice Board shall be erected near the Temporary Site Office to provide the following items:-

- Safety Signage
- Safety Posters
- Safety Notice to workers
- Safety Statistics (Total Man hour worked without accident, Loss Man hours due to accident, if any)

Safety Signage/posters/banners shall be posted at the following location:

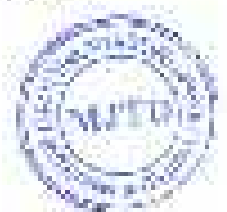
- Temporary Site Office Compound
- Near Site Entrance/Exit's
- Temporary Rest Sheds

6. Security

Designated Security Guards shall be full-time stationed at all the site

entrances/exits. Security crossing Gates made of up-down bamboo bar

shall be provided and opening of the bar shall be done by the security guard.



Standard of Working Condition for Safety, Health and Hygiene

Entrance Gates shall be closed and locked properly when the Security Guard is absent.

Security Guard shall be controlled by Safety Officer.

Guard houses with communication devices (i.e. walkie-talkie) shall be provided at each entrance/exit.

Any unauthorized person / vehicle shall be stopped at gates by the security guard. Checking whether the person / vehicle is authorized or not shall be done by communication with Manager or Engineer via walkie-talkie.

7. Safe Access, Vehicles Speed Limit and Rules

Safe Vehicle Access shall be designed with flat compacted ground from time to time to suit the site working situations and indicated by flags. All the construction vehicles are instructed to use the safe access only.

Vehicle speeds for the use of Safety Access is limited to maximum 20km/h with extreme care to the nearby workers/shells of ground.

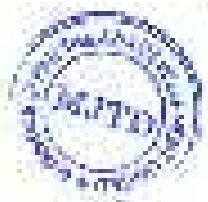
The following in House Safety Rules shall be made, this rule shall be reviewed from time to time and revised when necessary.

- Smoking during work is prohibited.
- Smoking is allowed only at the designated smoking areas.
- Suitable PPE shall be worn on site.
- Defenses and Hints shall be at temporary/sanitary toilet.
- To attend/control M&H and TBW.
- No lighting allowed on site.
- No motor bike / bicycle allowed on site except the person authorized by the Project Manager.
- No unauthorized vehicle is allowed to enter into the Site.

8. Barriers

Temporary Barriers / Fencing / Handrail shall be erected effectively to safeguard the workers/shells against accidents. The potential area of barriers / Fencing / Handrail to be erected shall be as follows:-

- Edge of deep excavation or foundation, trenches, canals, ponds etc., to prevent workers accidentally falling into the excavation.



Standard Working Condition for Safety, Health and Welfare

- Working Site near the Vehicle Access to separate the working area from the curves to prevent any Trips accident.
- Edge of Structures or Height such as top side of the Box Cuts to Form Station, High Gate, etc., to prevent workers falling from height.

9. Machineries

Annual Safety and Health Machinery Operation Campaign shall be conducted for all excavation of the project (see Attached Campaign Poster).

In order to reduce the downtime due to breakdown of Machines, weekly/monthly or quarterly checking of Machines shall be carried out by the Operator and Mechanic using Machinery's check list recommended by the supplier.

10. Temporary Drainage System

Retention Canal and Retention Pond shall be utilized as temporary Detention Pond to reduce all contents before discharging to public drains.

Refer to attached Temporary Drainage Plan which illustrates overall temporary drainage system with drain flow directions.

Temporary Drainage trenches with sand bags shall be provided to prevent water ponding and soil erosion due to rain water.

11. Recycling of Construction Material

Construction material generated from the project shall be recycled as much as possible.

- Surplus soil generated from soil grading work shall be either used as embankment or recycled for future project in accordance with the direction by the Client.
- Concrete debris generated from demolishing works (Paving) shall be recycled as hardcore to utilize for temporary access road.
- Any material which is not suitable for reusing shall be disposed off site in accordance with the Client's direction/instruction.
- Any recycling and disposal of construction materials shall be recorded.



Standard of Working Condition for Safety, Health and Hygiene

and reported to the Client

12. First Aid

First Aid Room shall be situated at all temporary site offices as instructed.

First Aid Room shall be equipped with first aid kit and a medical manager by the competent first aider. First aid room shall be kept clean, sanitized and free from bacteria at all time throughout the Contract period.

Emergency procedures/condition: First aid to be given to all workers injured for any injured person immediately.

13. Cleanliness and Tidiness

All the site area shall be kept tidy and clean including but not limited to site offices, toilets, trails etc. construction area such as excavated, concrete pouring and foundations, ore casting yard, machinery workshop, rest sheds, storage area etc.,

14. Sanitation Training

Sanitation Training shall be conducted to all the workers and staffs to encourage them to stay healthy.

Hand washing facilities such as sufficient soap, water taps with warm and cold be provided at office compound for hand washing, eyes and face washing and gargling/mouth washing.

Toilet facilities shall be kept clean and free from odors.

15. Boiler

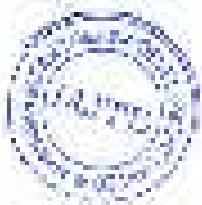
Boiler shall be installed to treat the sewage from office toilets before discharging to the natural creek.

Boiler shall be maintained in accordance with manufacturer's recommendation. (See annexes for installation of Boiler)

16. Garbage Box

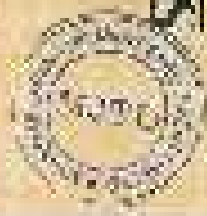
Garbage bins shall be located at office compound, rest sheds, and any other necessary working areas.

Disposal / clearances of garbage bins shall be carried out periodicaly.



ATTACHMENT-I : Campaign Poster of
"Stop Idling & Intensive Machineries Operation"





Stop Idling & Intensive Machineries Operation Campaign

To keep Healthy and Environmentally Friendly Working Condition, the "Stop Idling & Intensive Machineries Operation Campaign" is Conducted with immediate effect till Completion of the Project.

1. Stop Idling While No Operation

Engines should be Turned Off when Stopping Machineries.

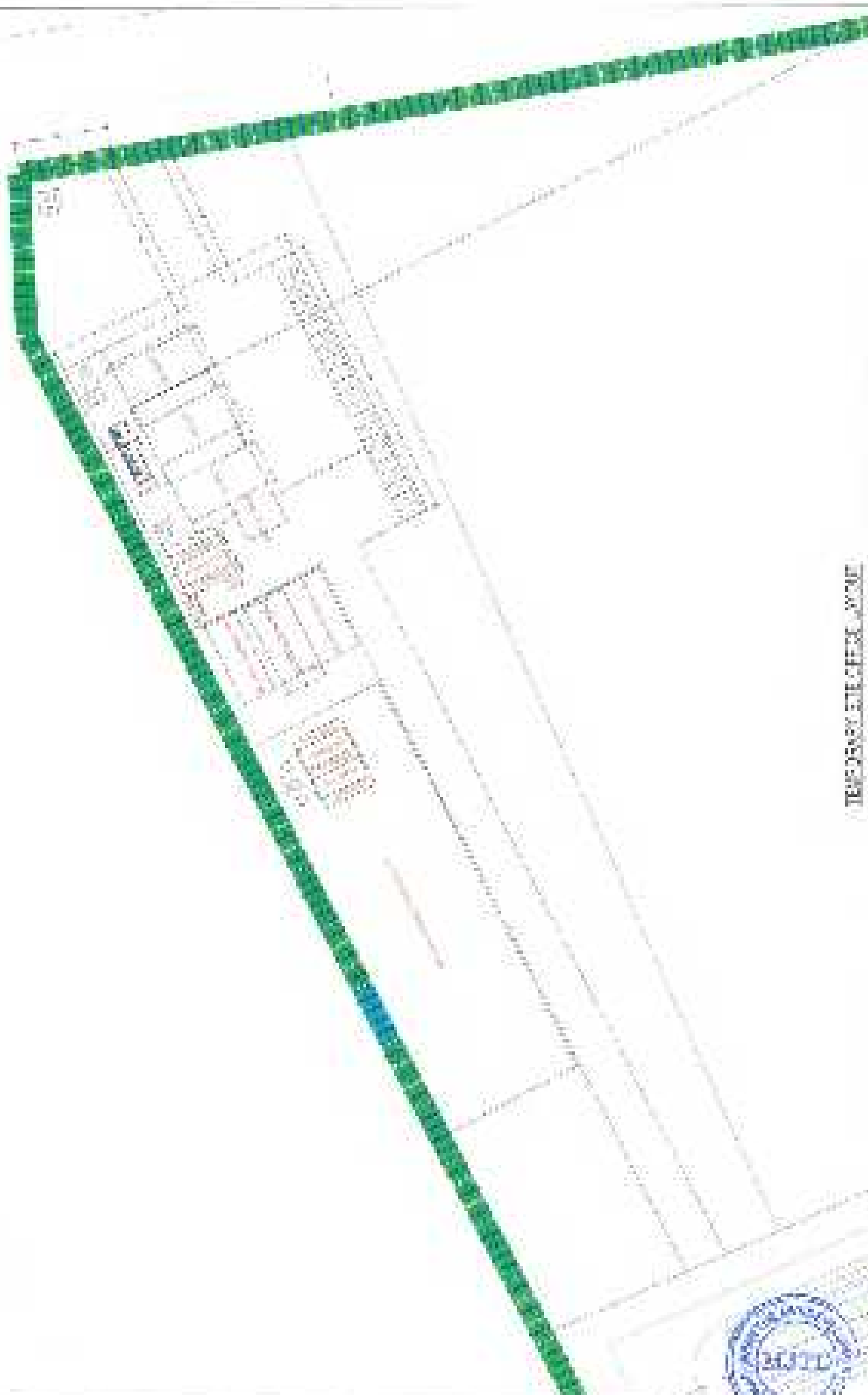
2. Stop Intensive Machineries Operation

Do Not Race Engine unnecessarily.

Gentle Driving always.

This Campaign applies to All the Machineries on site including but not limited to Backhoes, Bul. Dozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Concrete Cars, Compactors, Air Compressors, Welding Machines, etc.





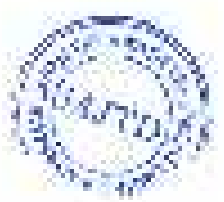
TEKNOLOGI KECERDASAN



2-10-1



Figure 10-10-1



ATTACHMENT C: BIOFILTER INFORMATION



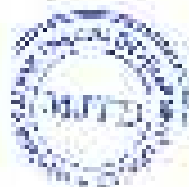


Age (years)	People (millions)
0-14	~1200
15-24	~1500
25-34	~1600
35-44	~1900
45-54	~2100

Head Office – 2200 St. Denis, Canada (Q), Kesteven, 5 Ha, Kesteven, England, Huntingdon, Eng.,
Huntingdon, Huntingdon, Eng. – Tel: +44 (0)1455 555555, Fax: +44 (0)1455 555555

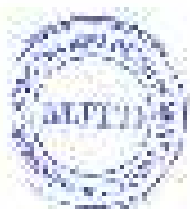
Sales Office – 2200 St. Denis, Canada (Q), Kesteven, 5 Ha, Kesteven, England, Huntingdon, Eng.,
Huntingdon, Huntingdon, Eng. – Tel: +44 (0)1455 555555, Fax: +44 (0)1455 555555

Factory – 2200 St. Denis, Canada (Q), Kesteven, 5 Ha, Kesteven, England, Huntingdon, Eng.,
Huntingdon, Huntingdon, Eng. – Tel: +44 (0)1455 555555, Fax: +44 (0)1455 555555



Information on Biofilter Tank and Temporary Sewage Reusing

- Currently, we have installed Biofilter tank model 125 (10 to be used temporary sewage treatment plant). (Please refer to attached document for more information of the Biofilter tank.)
- According to the capacity of 50/40 liter, the tank can be used for 150nos of office population for 1 month when treating the waste.
- The tank is mainly for toilet purpose only as the temporary use office compound for 70 nos of staffs and workers currently.
- If the population increases and exceeds the limited population, the treatment should be carried out more often according to the increased population.
- Temporary toilets have been installed in the material and warehouse yard for the site staffs and workers.
- Monthly disposal of sludge and wastewater from this site temporary use is carried out by the Township Municipal.





MJTD

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED

**Thilawa Special Economic Zone (Zone B)
Development Project –Phase 4**

Safety Accident Prevention Plan



Safety Accident Prevention Plan

Safety Accident Prevention Plan is elaborated measures in order to prevent any accident associated with the Thane Water Zone B Development Project. (Phase 2). Safety Accident Prevention Plan focuses on the effective and practical measures to prevent the work site from any accident. It would not be just documentation and statement only but to actually practice on site with responsible manner.

1. Prevention of Heavy Equipment Accident

Heavy Equipment Accident is the danger likelihood arising at the time of accident in this project due to heavy usage of the Heavy Equipment such as Backhous, Dump Trucks, Bulldozers, Rollers, Graders and Water Tank Trucks etc., during Earthwork, Drainage work, Road work and Paving work. Therefore the following preventive measures shall be taken at site:

- i. Reverse stalls on the ground shall wear the yellow (or orange) colored reflectable color markers to highlight against operators of moving heavy equipment.
- ii. Speed limit of the Access shall be at maximum 25km/hr. The speed limit shall be indicated at site effectively and clearly by dump trucks/yellow cones. The dump trucks/yellow cones shall be lower down and extreme care shall be taken while passing any person near the vehicle access.
- iii. Access shall be designated and informed on site. Any vehicle/truck shall not run out of designated accesses unless authorized by the Construction Manager or Civil Engineer.
- iv. Work marshal shall be on road when more than two heavy equipments are working closely.
- v. Operator shall be trained so as to check around his equipment whenever he operates the equipment.
- vi. Supervisors shall be equipped with Whistle to mark any dangerous situation on site.
- vii. Heavy Equipment shall be kept maintained in good condition. Weekly checking of Machines shall be carried out by the mechanic.
- viii. Hand lights, Tail lights, Brake lights and Hazard lights are in working condition, especially working with low visibility.



Safety Accident Prevention Plan

2. Prevention of Third Party Accident

Third Party in the project shall include but not limited to the following:-

- Monastery
- Various Privileges and Perceptions of nearby public road
- Guests visiting the site
- Nearby Residences (if any)
- Other Construction Sites within project boundary

Third Party Accident shall be avoided by the following preventive measures:-

- i. Permanent wall shall be erected around the existing Monastery so as to protect the property of Monastery against accident.
- ii. Any construction vehicles enter/exit to/from site, such vehicles shall pay attention to the vehicle expectations on the public road. The vehicles shall slow down the speed when enter the site (or go out from the site). The vehicles shall stop once before exit from site to the public road.
- iii. Provide suitable PPE to the Guests visiting the Site when visitors enter into the construction area.
- iv. Attendance who is familiar with site situation shall always be with the visitors when visitors enter into the construction site.
- v. All the activities shall be carried out and only the access is to be used within the temporary fence/hoarding (except concrete vehicles from outside) to control traffic volume on the public road.
- vi. Speed limit shall be the same as in project boundary which is 25km/h in public road as well.
- vii. Coordination shall be done via periodic coordination meeting with other parties who construct the other structures or residence nearby. Any activities near the public road or Monastery shall be well informed in advance to both parties through the coordination.
- viii. "Heavy Vehicle Crossing" Signage shall be provided facing to the coming traffic on the side of road, road 50 feet before the entrance/exit gate.

3. Prevention of Falling from Height

The following activities will be taken with the workers height or falling from height to avoid:-



Safety Accident Prevention Plan

- Temporary Office Roof
- Edge of the Excavation to Retention Pond/Canal, sewage/drainage water collecting works
- Edge of Formed Crib
- Cabin of heavy machinery equipment
- Crane Box Crib on top slab

Falling from Height Accident may be avoided by the following prevention measures:

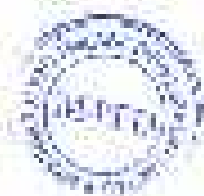
- i. Any worker working at height shall wear the safety belt (except near the excavation edge)
- ii. Life line(s) shall be provided along the working platform at height before work at height commences so as to hook the safety belt on it (except near the excavation edge)
- iii. Fence / Handrail / Banquette shall be erected rigidly along the edge at the height
- iv. Working platform (Bamboo or Metal) shall be thoroughly checked before in use
- v. The use of ladder and scaffold shall be supervised and guided by competent person or engineer.

6. Prevention of Traffic Accident

Due to the nature of the project, long distance access road(s) need to be provided and maintained from time to time in whole duration. Hence, to cut traffic accident would be one of the key issues in order to realize "zero accident" in whole project.

The following measures shall be taken to prevent the traffic accident:

- Obey the vehicle speed limit rule of 25km/hr
- Erect barriers where the access runs close to working area
- Monitor the vehicles in given area daily particularly in the morning inspection.



Safety And Accident Prevention Plan

- Maintain the access in good condition by the use of proper rollers and covering water.
- Watchman shall be provided when two or more vehicles/machineries working at the same place.
- Only the public traffic shall when the vehicles are on the public road.

5. Prevention of Accident caused by Hand Held Tool/Hand Equipment and Manual work

Accident caused by Hand Held Tool/Hand Equipment and Manual work often happen by carelessness of the workers and/or bad condition of the equipment/ tool used. Such accident can be avoided by the following preventive measures:-

- i. Wear suitable PPE such as gloves, goggles, etc.
- ii. Keep machine and tool/equipment in good condition by periodic checking and checking before use.
- iii. Be safe from cover of the tool, e.g. electric saw blade protection cover etc., should not be removed.
- iv. Proper posture for manual lifting of heavy material.
- v. Confirm ground condition and gas leakage before commencing activities.
- vi. No Manual work material stockpile is placed within 1.0m from the excavation edge.

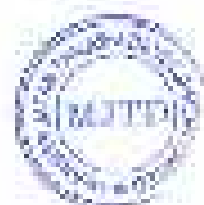
6. Prevention of Accident due to Interface with Other Contractors

Other Contractor will commence work after handing over of the completed lot(s) by the Tenant/owner(s) to suitable Warehouse, godowns etc. .

Close coordination shall be made with the Other Contractor for the Activities to be carried out at interface Area to avoid any Accident as well as for smooth progress.

Activities of Contractor shall be done but not Entire in the following:-

- Activity Schedule
- Location of Entrances / Exit.
- Lifting and Hoisting
- Any activities to be conducted outside his Plot/land
- Activities which may cause Hazards to other party such as Crane Lifting



Safety/Accident Prevention Plan

as follows near the reference.

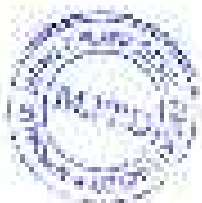
➤ Material Equipment Delivery Schedule

7. Prevention of Accident during Lifting Activities

Lifting activities may be required in the project. Use of various types of lifting equipment shall require extreme attention to the following in order to prevent the Accident during Lifting activities.

Crane (or any other lifting equipment) shall be maintained in good condition. Responsible Mechanic shall thoroughly check the lifting equipment before use.

- i. All Outriggers shall be fully extended while lifting.
- ii. Steel plates or equivalent material shall be placed under the outriggers.
- iii. Operator shall have valid license to operate the lifting equipment.
- iv. Signal man shall be designated for the lifting activities. Crane operator shall follow only the designated signal man's signal.
- v. Signalman and Rigger men shall be equipped with whistle at the time and use whenever necessary to direct other people while lifting.
- vi. Supervisor in charge shall be full time on site to look after the lifting activities.
- vii. Rigger men shall be well trained and is to lift the material properly without dropping while lifting.
- viii. No person shall be allowed to stay under the lifted material.
- ix. Lifting gear such as lifting wire, lifting hooks, shackles etc... shall be checked by competent person before use. Competent person means supervisor, engineer and safety officer.
- x. Any damaged lifting gear shall be disposed off site in order not to re-entrantly use it.
- xi. Weight of material to be lifted and be checked against the lifting capacity of the lifting equipment.
- xii. Crane shall be equipped with the overloading limit switch/indicator to avoid lifting will over loading which may lead to the toppling of the crane.
- xiii. Crane shall be equipped with the over winding limit switch to be triggered if the mis-operation during lifting.



Safety & Accident Prevention Plan

equipment. Grounding can be done in two ways:

- i. System or Service Ground: This is used to protect machines, tools and installers. There is one wire the neutral ground, which is grounded.
- ii. Equipment Ground: This is used to protect the operator. This type provides a path for current from a piece of equipment (tool or machine) to the ground.

7. **Electrical Accident Prevention**

Housekeeping

- Combustibles shall be kept to a minimum.
- Combustible dust shall be removed on regular schedule.
- Oil rags shall be kept in metal containers with lids.

Smoking

- Smoking areas shall be free of combustibles.
- Appropriate signage and devices shall be provided in smoking areas.

Electrical

- Extension cords shall not be used in place of permanent wiring.
- Flexible wiring shall be clear of overhead live material.
- Circuit shall not being overloaded with multiple appliances.
- Combustibles shall not be stored in front of electrical boxes.

Heating

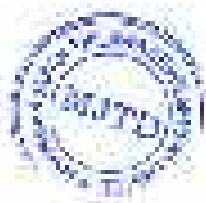
- Heating units shall have ample clearance for combustibles.

Fire Protection

- Fire hydrant access shall be clear and unobstructed.
- Fire extinguishers accessible and visible; access shall not be blocked and location marked.
- Fire extinguishers shall be checked monthly.
- Fire alarm pull stations shall be visible.

Exit

- All emergency exits shall be clear.
- All exits shall be adequately marked.
- Fire drills shall be performed.
- Evacuation plan and staging area shall be posted.





Title: Emergency Response Plan

A. Roles & Responsibilities during emergency

1. OBSERVER

- Shout "Fire, Fire, Fire"
- Evacuate other people in the area
- Using gas fire, if possible (incipient stage fire)
- Notify Safety Officer / Safety Officer
- Proceed to muster area

2. SAFETY OFFICER (ERTLI)

- Announce Emergency to muster area
- If he is not under control notify Fire Emergency Helpline (119)
- Evacuate other people in the area
- Using gas fire, if possible (incipient stage fire)
- Proceed to muster Area
- Take control or coordination of the fighting operations
- Deal Fire Fighting team to be when to receive a situation
- Coordinate with the fighting team leader and first aid team leader

3. ALL PERSONNEL

- Upon hearing the Announcement stop working
- Proceed to muster Area

4. FIRE TEAM LEADER

- Muster at Muster Point Area
- Manage and direct the fighting team members
- Report to ERTLI about the situation, require and follow his instructions
- Report to ERTLI when fire is under control/being extinguished

5. FIRST AID TEAM LEADER

- Muster at Muster Point Area
- Manage and direct the first aid team members
- Report to ERTLI about the situation and follow his instructions

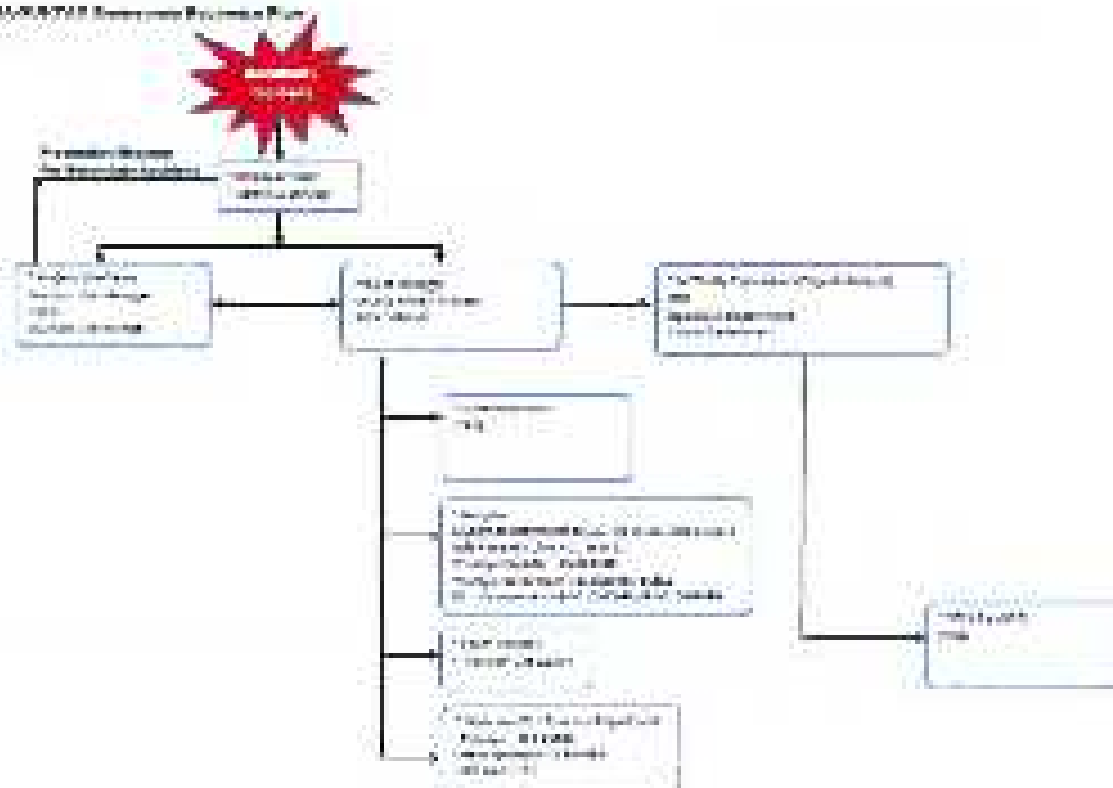




11th Emergency Response Plan

a. Emergency Responsibility Chart

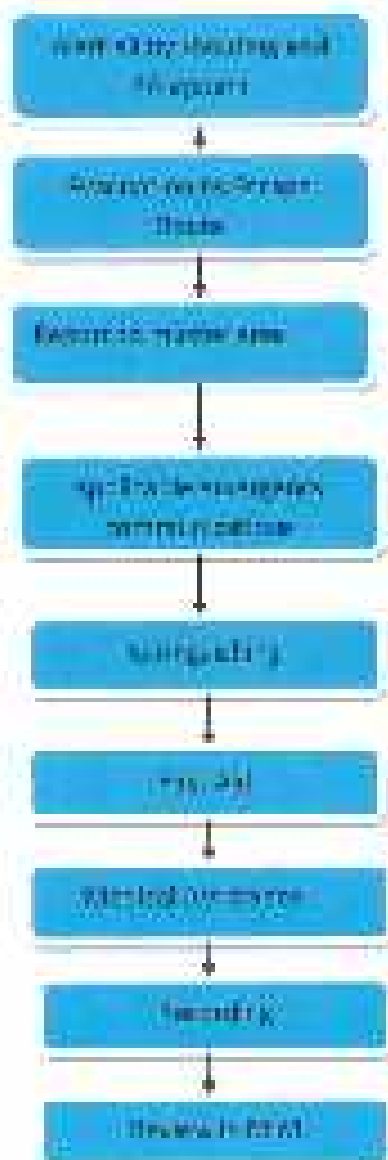
EMERGENCY Response Responsibility Chart





11B1 Emergency Response Plan

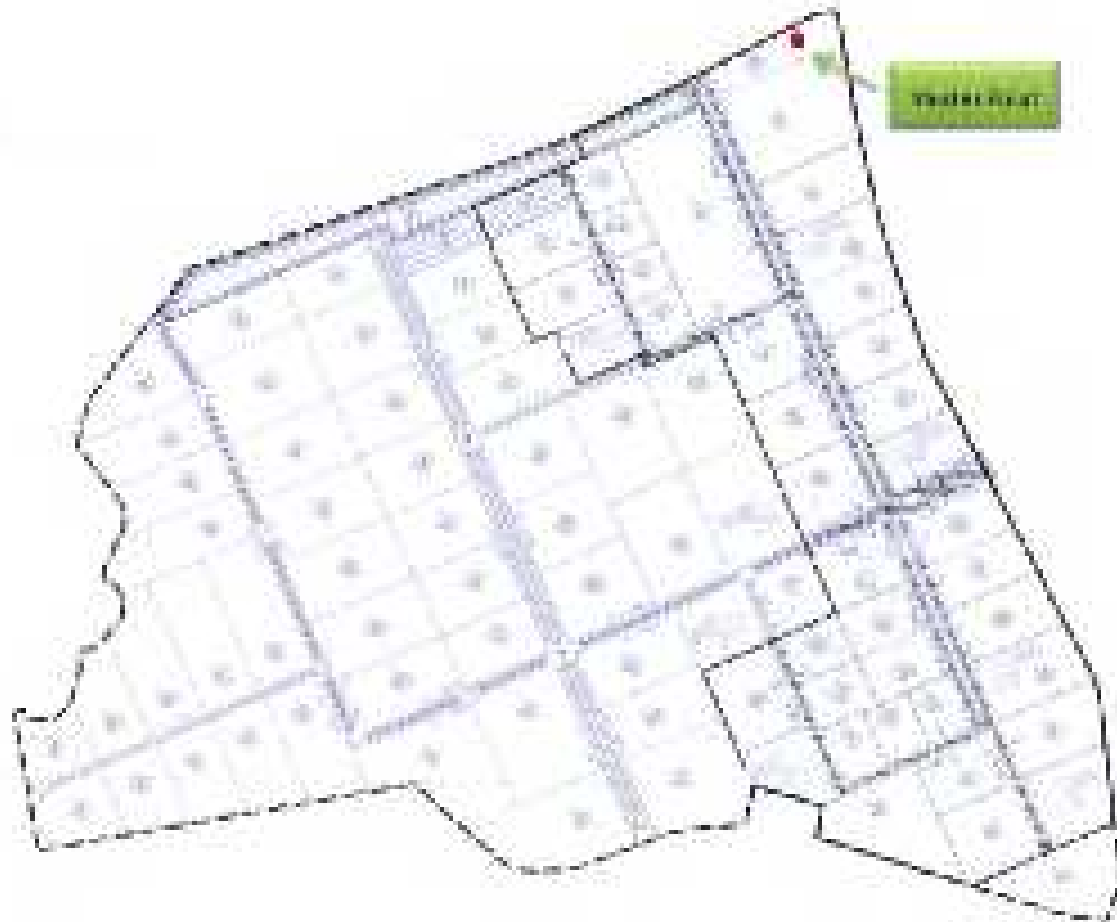
c. Activity Flow Chart





Title: Emergency Response Plan

D. Site Lay Out Plan



Title: emergency Response Plan

E. PPE and Fire Prevention& Extinguishing data

1. Personal Protective Equipment (PPE):

There are several types of personal protective equipments, which must be worn by personnel as and when required. Absence or improper use of personal protective equipment may place an individual's life in danger.

a) Safety Helmets/Hard hats :

All the personnel must wear a safety helmet/hard hat for protection of their head against any falling object or striking against, while they are working their living grounds. These safety helmets should not have any stickers on any side. A fluorescent tape should be affixed on the back side of the helmet. A strap should be there attached to the safety helmet to protect it from falling when person is working at height.

b) Reflective vest/ Astina

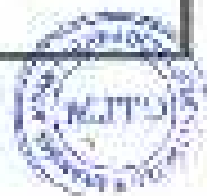
All personnel must wear reflective vest while they are outside of the working area and can be recognized easily from safety. Proper working attire must be worn for protection of overall body against any dust, dirt or any striking objects.

c) Safety Shoes :

Every person outside the working area to ensure his foot safely against any falling object or any striking against must wear safety shoes.

d) Safety glass/Goggles:

All personnel, while working as mentioned below, must wear safety goggles. Workers should wear a working helmet for protection of their eyes against the radiation produced during the welding and also for protecting their face against any flying objects, which may produce carrying out his job.



Cut filler should wear a safety goggles having brass glasses any to protect his eyes against the hot fumes while carrying out a gas cutting job.

Genders should wear a plain safety goggles with a mesh at both ends to protect his eyes against the flying sparks/object while doing grinding work.

e) Safety Hand Gloves:

All personnel engaged in jobs like rigging, material handling, any type of hot work etc. should wear a proper type of hand gloves for protecting their handed (prim area) against any injury. There are various types of the same and vary according to the nature of work. Persons involved in material handling, rigging etc. must wear leather hand gloves. Persons engaged in hot jobs like grinding, gas cutting, welding etc. should wear a pair of heat set hand gloves for the safety of their hands.

f) Safety Mask:

Like hand gloves, there are several types of safety masks also which must be worn according to the nature of work. Ordinary cotton face masks should be worn by grinders, furnace operators etc. to avoid entry of any fine particles or dust in their nose.

Special type of anti gas masks, SCUBA set must be worn by the personnel carrying out their work in a gas leakage area. Confined space (for go inside vessels) personnel involved in operations like painting etc. should also wear a properly set of mask.

In case of confined space entry, a SCABA set must be worn by personnel working inside. The same should be worn any after checking the percentage of oxygen inside a confined space vessel.

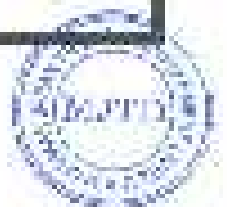
g) Earplugs / Ear muffs:

Earplugs or earmuffs must be worn by all personnel working in a high noise area. No person should be employed against a noise level of 80 decibel for a period of more than 8 hrs.



h) Safety harness;

Every person working at a height more than 2 mtrs must wear a safety harness. A safety harness, after wearing must be tightened to a fixed structure, which should bear the weight of a person in case of an lapse if any. An individual must wear a safety harness where there is a requirement of working on scaffolding or staging.



Title: Emergency Response Plan

2. Fire Prevention & Extinguishing data

A FIRE is an exothermic chemical reaction between fuel (burning material) and oxygen in presence of heat energy.

To extinguish a fire, one has to cut anyone element from the mentioned above i.e. fuel (burning material)/oxygen/heat.

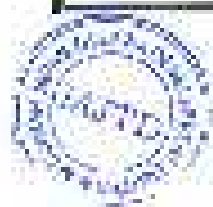
Following ways can do the same:

- ❖ Cooling i.e. removal of heat
- ❖ Smothering i.e. removal of oxygen supply
- ❖ Starvation i.e. removal of fuel supply
- ❖ Breaking of chain reaction

2.1 Classes of FIRE & respective extinguishing media

Class 'A'	Cloth, Paper Fires	Water
Class 'B'	Oil, Diesel, Petrol Fires	W.Foam, DCP
Class 'C'	Gaseous Fires	DCP, CO ₂
Class 'D'	Metal Fires	Special Dry Powders

Note: Electrical Fires can be fought by using DCP or CO₂ fire fighting media.



**Thilawa Special Economic Zone (Zone B)
Development Project –Phase A**

Dust Emission Prevention Plan

Dust Pollution Prevention Plan

Dust and Airborne Control / Prevention are critical in the Project in order to safeguard the health of workers/staff working on site as well as third parties against disease caused by air pollution. It is also important in order to prevent the Earth being badly working.

As the project involves earthwork with large quantities (Tons/M³) in large area (68,44ha), transfer of materials with dump trucks are unavoidable. Movement of Dump Trucks would create a cloud of Dust on site without effective prevention plan. Movement of heavy equipment such as backhoes, dump trucks, rollers, bulldozers and graders would have potential impact to the air pollution.

As such, the following Dust and Airborne Preventive Measures shall be implemented throughout the project duration:

1. Water Spraying in the Vehicle Access
Water shall be sprayed on the site vehicle accesses effectively, especially where dump trucks used. Sufficient numbers of Water Tank Truck with spraying devices shall be deployed full time on site to spray water on the accesses. Dump Trucks shall drive over the water-sprayed accesses on tracks as predicted to be to minimize the dust creation.
2. Speed Limit at Site Access
Speed of vehicle access shall be limited to 25km/hr so as to avoid excessive dust creation as well as to minimize the air pollution by the exhaust fumes.
3. Stopping and idling the Machines Operation Campaign
In order to keep healthy and Environmentally Friendly Working Condition, the "Stop Idling & Idling Machine Operation Campaign" shall be conducted throughout the Project duration.

A) Stopping While No Operation

- 1) Engine should be Turned Off when Stopping Machines.

B) Stop Idling the Machines Operation



Dust Emission Prevention Plan

2. Do Not Run Engines unnecessarily. Minimize idling delays.

The Campaign applies to All the Machines on site including but not limited to: Backhoes, Fill Graders, Dump Trucks, Motor Graders, Motor Trucks, Pallets, Concrete Cuts, Dozers, Generators, Air Compressors, Welding Machines etc....

3. Personal Care & Protection

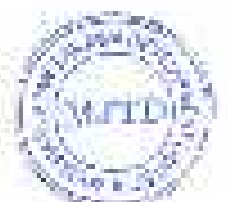
Proper Personal Protective Equipment (PPE) shall be worn any worker who is subject to exposure to the Dust. PPE against dust & emission shall mean goggles and masks.

Eyes and mouth washing after work shall be encouraged to the workers.

4. Maintenance of Heavy Equipment

Heavy equipment such as backhoes, dump trucks, shovels, bulldozers and graders shall be maintained in good condition. Periodical checking of mechanical/equipment will be carried out by mechanic.

Any vehicle with black smoke exhaust gases should stop working then mechanical checking/repairing should be carried out as soon as possible.



**Thilawa Special Economic Zone (Zone B)
Development Project –Phase 4**

Noise and Vibration Control Plan

Noise and Vibration Control Plan

As the project involves earthwork with large quantity (0.65 Mil m³) in large area (66.44ha), transportation of earth with dump trucks are unavoidable. Movement of Dump Trucks would create quite amount of noise on site without effective prevention plan.

Besides movement of machineries, most of the RC structure construction works also create noise. Therefore control of noise and vibration is crucial in the project for the welfare of public as well as all the employees.

As such, the following Dust Emission Preventive Measures shall be implemented throughout the project duration.

i. Working Hours

Any work activities near Monastery and residential area that are beyond normal working hours shall be notice or inform in advance. Work with potential to be audible to sensitive receivers require prior notice even withing working hour.

ii. Speed Limit at Site Access

Speed of vehicle access shall be limited to 25km/hr so as to avoid excessive dust creation as well as to minimize the noise that is produced by vehicles' engines.

iii. Maintenance of Heavy Equipment/ vehicle

Heavy equipment such as backhoes, dump trucks, rollers, bull dozers, graders as well as other vehicles such as motorbikes and cars shall be maintained in good condition. Periodical checking of machineries/equipment shall be carried out by mechanic.

**Thilawa Special Economic Zone (Zone B)
Development Project –Phase 4**

**Campaign Plan of Stop Idling and
Intensive Machineries Operation**

Nonstation Part of Stopping & Inactive Machine's Operation

Dust and Emission Control/Prevention are crucial in this Project in order to safeguard the health of workers & its working condition as well as environment against disease caused by air pollution.

In order to keep healthy and Environmentally Friendly Working Condition, the "Stopping & Inactive Machine's Operation Campaign" shall be conducted throughout the Project duration.

a) Stopping While No Operation

- Engine should be turned Off when Stopping Machines.

b) Inactive Machine's Operation

- Do Not Run Engine unnecessarily. Get it moving always.

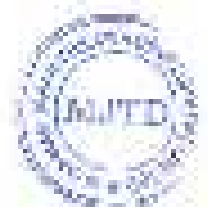
This Campaign applies to All the Machines on site including but not limited to loaders, bulldozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Grapple Cars, Cranes, Generators, Air Compressors, Welding Machines etc...

The Campaign shall take effect immediately whenever the Machines are on site.

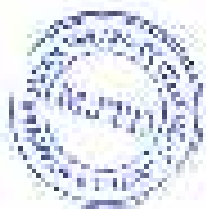
During Campaign period, the campaign poster enclosed under Appendix shall be posted at office compound, rest sheds, smoking area etc...

The campaign shall be notified from time to time to all the staff and workers especially the machines operators through the Morning Safety Gathering, to all Box Area etc.

Any act infringing the above campaign spirit shall be ceased immediately and the person who infringes the campaign spirit shall be prosecuted by the PS&SI Management Staff.



APPENDIX 1 : Campaign Poster of
"Stop Idling & Intensive Machineries Operation"



Stop Idling & Intensive Machineries Operation Campaign

To keep Healthy and Environmental Friendly Working Condition, the 'Stop Idling & Intensive Machineries Operation Campaign' is Conducted with immediate effect till Completion of the Project.

1. Stop Idling While No Operation

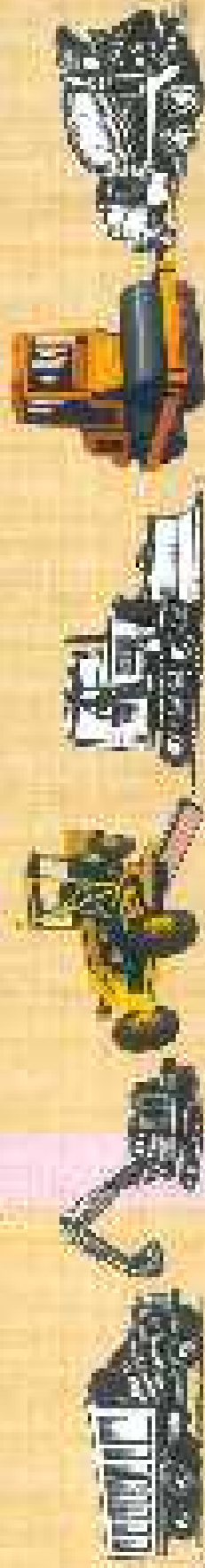
Engine should be Turned Off when Stopping Machineries.

2. Stop Intensive Machineries Operation

Do Not Race Engine unnecessarily.

Gentle Driving a way.

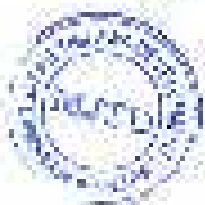
3. This Campaign applies to All the Machineries on site including but not limited to Backhoes, Ball Dozers, Dump Trucks, Motor Graders, Water Trucks, Rollers, Concrete Cars, Cranes, Generators, Air Compressors, Welding Machines etc.



**Thilawa Special Economic Zone (Zone B)
Development Project –Phase 4**

**Management of AIDS/HIV, Tuberculosis and
Cholera for Health and Safety**

Environmental Monitoring and Management Plan



Management of AIDS/HIV for Health and Safety

What is AIDS/HIV?

1. HIV

- Human Immune deficiency Virus
- Breaks the Immune System
- HIV causes people to become sick with infections that normally would not affect them.

2. AIDS

- Acquired Immune Deficiency Syndrome
- Caused by HIV
- Advanced stage of HIV



What are Symptoms of AIDS/HIV?①

[HIV]

- Have symptoms as early as 2 weeks after exposure, or no symptoms at all.
- Flu-like symptoms such as: headache, fever, tiredness, swollen lymph nodes, rash
- Also muscle and joint pain, sore throat, ulcers in mouth or genitals, night sweat, diarrhea etc.

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What are Symptoms of AIDS/HIV?②

[AIDS]

In addition to symptoms of HIV:

- Cough and shortness of breath
- Seizures and lack of coordination
- Difficult or painful swallowing
- Mental symptoms such as confusion and forgetfulness
- Severe and persistent diarrhea
- Fever
- Vision loss
- Nausea, abdominal cramps, and vomiting
- Weight loss and extreme fatigue
- Severe headaches with neck stiffness
- Cema etc.

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How to Get AIDS/HIV

- having vaginal or anal intercourse without a condom with someone who has HIV/AIDS
- sharing needles or syringes with someone who has HIV/AIDS
- being deeply punctured with a needle or surgical instrument contaminated with HIV
- getting HIV-infected blood, semen, or vaginal secretions into open wounds or sores
- Mother to Baby during giving birth or breastfeeding

Source: www.hiv.gov



How to Prevent AIDS/HIV

- No Sex = Abstinence
- Have only one uninfected partner
- Use condoms etc. for protection
- Do not share needles
- Be sure to disinfect needles before use
- Do not share personal items that may have blood on them

If you are unsure if you have AIDS/HIV or not, please get tested.

Source: www.hiv.gov



AIDS - HIV ၏ ထိခိုက်မှု

1. HIV

- ခန္ဓာကိုယ်ရှိ ဂရုဗလီယပ် ကူးစက်မှု
- ခန္ဓာကိုယ်ရှိ ခွံသားဆေးကုန်ကို ချိတ်ဆွဲ
- HIV ကူးစက်မှုကို ခွံသားဆေးကုန်ဖြင့် သက်တောင့်သက်သာရှိစွာ ထိန်းချုပ် ထားနိုင်ရန် ခွံသားဆေးကုန်ကို ခွဲခြားသုံးစွဲရန် လိုအပ်ပါသည်။

2. AIDS

- ခန္ဓာကိုယ်ရှိ ခွံသားဆေးကုန်ကို ချိတ်ဆွဲ
- HIV ဖြစ်လာပြီး ခွံသားဆေးကုန်
- HIV ချိတ်ဆွဲမှု ချိတ်ဆွဲမှုကို ထိန်းချုပ်ရန် လိုအပ်ပါသည်။

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AIDS - HIV ၏ သဘောတရား

HIV

- HIV ကူးစက်မှုကို ခွံသားဆေးကုန်ဖြင့် သက်တောင့်သက်သာရှိစွာ ထိန်းချုပ် ထားနိုင်ရန် ခွံသားဆေးကုန်ကို ခွဲခြားသုံးစွဲရန် လိုအပ်ပါသည်။
- ခွံသားဆေးကုန်ကို သက်တောင့်သက်သာရှိစွာ ထိန်းချုပ် ထားနိုင်ရန် ခွံသားဆေးကုန်ကို ခွဲခြားသုံးစွဲရန် လိုအပ်ပါသည်။
- ခွံသားဆေးကုန်ကို သက်တောင့်သက်သာရှိစွာ ထိန်းချုပ် ထားနိုင်ရန် ခွံသားဆေးကုန်ကို ခွဲခြားသုံးစွဲရန် လိုအပ်ပါသည်။

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- သရောင်းဆိုင်ခြင်း။ အသက်ရှူကုသခြင်း။
- ဘက်ရုမ်းခြင်း။ ဘက်ရုမ်းနှင့် အသက်ရှူကုသခြင်း။
- အစားအသောက်များသုံးစွဲရင်း ခက်ဆုံးခြင်း၊ နာကျင်ခြင်း
- ဝိတိဝိသိယနိဗ္ဗာန်၊ ချစ်ခင်စေခြင်း၊ အမှတ်တရခြင်း။
- ဆိုရှယ်ပရိဘောဂနှင့်အသက်ရှူကုသခြင်း၊ အမှတ်တရခြင်း။
- ဂုဏ်ထူးခြင်း၊ အမြင်ကွင်းခြင်း
- ပြုခြင်း၊ အသက်ရှူကုသခြင်း၊ အမှတ်တရခြင်း၊ အမှတ်တရခြင်း
- ခန္ဓာကိုယ်အသက်ရှူကုသခြင်း၊ အမှတ်တရခြင်း၊ အမှတ်တရခြင်း
- ဆိုရှယ်ကုသခြင်း၊ အသက်ရှူကုသခြင်း၊ အမှတ်တရခြင်း
- အသက်ရှူကုသခြင်း၊ အသက်ရှူကုသခြင်း၊ အမှတ်တရခြင်း



4106 : HIV orienbo

- ၂၀၁၅ - ၂၀၁၆ ခုနှစ်တွင် ကုန်သွယ်ရေးနှင့် အထွေထွေ စီးပွားရေး ဝန်ကြီးဌာနမှ ပြုစုသော အချက်အလက်များ
- ၂၀၁၅ - ၂၀၁၆ ခုနှစ်တွင် အစိုးရ၏ အသုံးအဆောင်များ
- ၂၀၁၅ ခုနှစ်တွင် အစိုးရ၏ အသုံးအဆောင်များ (အစိုးရ၏ အသုံးအဆောင်များ) အချက်အလက်များ
- ၂၀၁၅ ခုနှစ်တွင် အစိုးရ၏ အသုံးအဆောင်များ (အစိုးရ၏ အသုံးအဆောင်များ) အချက်အလက်များ
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- ၂၀၁၅ ခုနှစ်တွင် အစိုးရ၏ အသုံးအဆောင်များ (အစိုးရ၏ အသုံးအဆောင်များ) အချက်အလက်များ

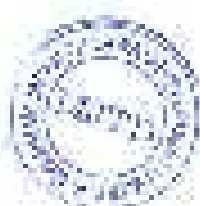


AIDS + HIV တားဆီးပယ်ဖျက်ရေး

- ၂၀၁၅-၂၀၂၀ ခုနှစ်အတွက် ရည်ရွယ်ချက်
- အချိန်အကန့်အသတ်ခံရမှု၊ အသက်ဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု
- အသက်ဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု
- အသက်ဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု
- အသက်ဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု
- အသက်ဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု၊ အကျိုးအမြတ်အရှိဆုံးရှုံးမှု

သက်တမ်းတိုင်း AIDS + HIV ပိုးရိုး မရှိ မသေချာသော စစ်ဆေးမှုများကို
 ပြုလုပ်ဆောင်ရွက်ပါ။

၂၀၁၅-၂၀၂၀ ခုနှစ်အတွက် ရည်ရွယ်ချက်



Management of Tuberculosis and Cholera for Health and Safety

The World Bank

1

What is Tuberculosis?

- It is an infectious disease that usually affects the lungs.
- Compared with other diseases caused by single infectious agent, it is the second biggest killer globally.
- TB germs are mostly found in the lungs and when you have TB disease of the lungs, you can spread it to other people

The World Bank

2

How are the germs spread?

- TB germs are passed through the air when a person with TB disease coughs, speaks or sneezes
- To become infected with TB germs, a person usually needs to share air space with someone sick with TB disease, (e.g., live, work, or play together).
- In most cases, your body is able to fight off the germs.

© 2012 National Institute for Research in Tuberculosis

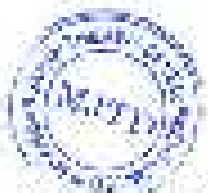
Page 2

What are the Symptoms?

- Cough (2-3 weeks or more)
- Coughing up blood
- Chills
- Fatigue
- Fever
- Loss of weight
- Loss of appetite
- Night Sweats

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Page 3



How to Prevent?

- Regular health screening (e.g., chest X-ray)
- Do not interact with a person who is suspected with TB.
- Always maintain good ventilation if you are staying in a room with many people.
- Maintain good immune system by eating and living healthy.

Source: www.who.int

3

What is Cholera?

- Cholera is an infectious diseases that causes severe watery diarrhea.
- It can lead to dehydration and even death if untreated.
- It is caused by eating food or drinking water contaminated with *Vibrio Cholerae* bacterium.
- The disease is most common in places with poor sanitation.

Source: www.who.int

4

What are the causes?

- Poor sanitation and hygiene.
- Eating raw or not completely cooked food.
- + Contaminated water source.
- In situations where sanitation is severely challenged such as in refugee camps or communities with highly limited water resources.

www.usaid.gov/our-work/health

7

7

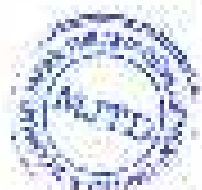
What are the Symptoms?

- Large volumes of watery diarrhea
- Vomiting
- + Leg cramps
- Severe dehydration caused by losing or losing of fluids.

www.usaid.gov/our-work/health

7

7





How to prevent?

- Make sure water is bottled or boiled and safe to use.
- Ensure food is thoroughly cooked
- Avoid eating raw or street food that can carry cholera and other diseases.

Source: World Health Organization (WHO)

10



လုပ်ငန်းခွင် သေဆုံးမှု ရှောင် ကင်းရှောင်ကျွန်းမကုသဆေးကုတ်
တီဘီဆေးကုတ်နှင့် ကာလပေးဆေးကုတ် ပိတ် ခန့်မှီမှု

11



ဘီယိုမေ့ရင်းနှီးမြှုပ်နှံမှုများ

- ဘီယိုမေ့ရင်းနှီးမြှုပ်နှံမှုများကို အများစုမှာ ဘီယိုဂတ်စ်၊ အပင်များ၊ အပင်များ၊ အပင်များ
- ဘီယိုမေ့ရင်းနှီးမြှုပ်နှံမှုများကို အများစုမှာ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ
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ဘီယိုမေ့ရင်းနှီးမြှုပ်နှံမှုများ ဘယ်လို ဖွဲ့စည်းရမည်

- ဘီယိုမေ့ရင်းနှီးမြှုပ်နှံမှုများကို အများစုမှာ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ
- ဘီယိုမေ့ရင်းနှီးမြှုပ်နှံမှုများကို အများစုမှာ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ၊ အပင်များ
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ထိခိုက်ချက် သတ်မှတ်ချက်များ

- အချက်အလက်များ ပြုပြင်ဆင်ဆင်ကြည့်ခြင်း
- အချက်အလက်များ အချက်အလက်
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- အချက်အလက်များ အချက်အလက်

13

ဆောင်ရွက်ရမည့် အချက်အလက်များ

- အချက်အလက်များ အချက်အလက် အချက်အလက်
- အချက်အလက်များ အချက်အလက် အချက်အလက်
- အချက်အလက်များ အချက်အလက် အချက်အလက်
- အချက်အလက်များ အချက်အလက် အချက်အလက်

14






ကတိကဝတ်များကြီးမားသည်မှာ

- ကတိကဝတ်များဆိုသည်မှာ မှီခိုခံရသူ၊ မိမိအဖွဲ့သူ မှီခိုခံသူ ကတိကဝတ်များကို ပေးပြန်ရမည်။
- မတိကဝတ်များက တကယ်တော့ မကတိကဝတ်များဖြစ်ရန် မကတိကဝတ် မဟုတ်ဘဲ ဖြစ်တည်နိုင်ကတိကဝတ် ဖြစ်ရမည်။
- ကတိကဝတ်တစ်ခုနှင့် ဟောပြောမှုကတိကဝတ်တစ်ခုကွာခြားပြီး မိမိအဖွဲ့ သဘာဝအတိုင်း ပြောဆိုရန် ကတိကဝတ်ဖြစ်ရမည်ဖြစ်သည်။
- မကတိကဝတ် မရှိဘဲ မှီခိုခံရသူနှင့် မှီခိုသူတို့ ပူးပေါင်းဆောင်ရွက်ရန် ကတိကဝတ်တစ်ခုရမည်။

၁၅




ခေတ်ပြစ်မှုအခေတာ အရာများ

- မိတ္တူကူးယူမှု၊ ကမ်းပီ၊ အင်္ကျီကူးယူမှု မရှိခြင်း
- သမိုင်းတစ်လျှောက် အသံထွက်ပုံပြင်၊ သဘာဝတရား၊ သဘာဝတရားတရား၊ နဂါး၊ သမိုင်းတစ်လျှောက်
- အပျစ်သီးနှံများ၊ အပျစ်သီးနှံများ မဟုတ်ခြင်း
- နဂါးကူးယူမှု၊ နဂါးကူးယူမှု၊ သမိုင်းတစ်လျှောက်၊ သမိုင်းတစ်လျှောက်၊ သမိုင်းတစ်လျှောက်၊ သမိုင်းတစ်လျှောက်၊ သမိုင်းတစ်လျှောက်၊ သမိုင်းတစ်လျှောက်

၁၆

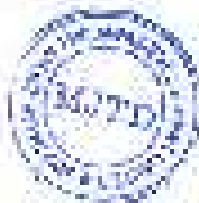


Health Management Plan by the Contractor

- Promote health education by conducting infectious disease awareness talks to all the employees with the intention to:
- Provide signage or handouts on the information on preventive measures of infectious diseases.
- Provide medical facilities in a well-ventilated for the health of staffs and visitors.
- Provide treatment services such as first aid kit with basic medication for all the employees as well as nearby residents.
- Provide clean and fresh water supply on-site to all the employees.
- Provide pest control service around site office and storage area to eliminate virus and avoid propagation.
- Promote immunization by conducting talks on importance of vaccination.

Working on Project: 2023-2024

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End of Document



