



**1.0 Purpose**

This instruction provides guidelines on the best practices to be adopted by WBC staff and their subcontractors for controlling environmental impacts of construction activities and to comply legal requirements on construction sites.

**2.0 Scope**

This instruction applies to WBC's construction project sites.

**3.0 Procedures**

3.1 Before project commencement, the Project Manager (PM) shall prepare the project Environmental Management Plan (EMP). (refer to EI-01 for more details)

3.2 The EMP shall define control measures to be adopted for controlling potential significant environmental aspects of all construction activities throughout the project, it shall refer to the guidelines on the best practices provided in the attached chapters of this instruction and the contractual requirements of the project.

3.3 There are total 8 chapters on Best Practices as below.

3.4 The PM is responsible for maintain all environmental permits/licenses and monitoring records as stated in the EMP or in the instructions herein, wherever suitable, and ensuring that the defined control measures in EMP or in this instruction are adopted by site personnel and subcontractors, wherever practicable.

3.5 It is highly recommended that PM and staff of WBC Should follow the "Recommended Pollution Control Clauses for Construction Contracts" issued by Environmental Protection Department. The materials are also available at EPD website with the following address.

[http://www.epd.gov.hk/epd/english/environmentinhk/eia\\_planning/guide\\_ref/rpc.html](http://www.epd.gov.hk/epd/english/environmentinhk/eia_planning/guide_ref/rpc.html)

**4.0 Environmental Inspection and Monitoring**

4.1 To ensure that the environmental control measures are implemented, the PM or his/her designate shall conduct, at least, weekly site inspection for the environmental performance on site, or more frequently as defined in the EMP / WMP. An inspection checklist (EF-EI04-01) is provided for reference purpose is used to check and record the inspection results, in case of any nonconformity determined, the PM shall notify relevant personnel to take corrective actions for improvement.

4.2 The PM shall also ensure that the environmental monitoring and auditing requirements defined in the EMP / WMP are performed according to schedule, and summarizes the findings in the Monthly Environmental Monitoring Report for review, or as required by the contractual requirements.

**5.0 Attachments**

Chapter 1	Best Practices for Air Pollution Control
Chapter 2	Best Practices for Water Pollution Control
Chapter 3	Best Practices for Noise Pollution Control
Chapter 4	Best Practices for Waste Management
Chapter 5	Best Practices for Handling and Storage of Chemicals and Dangerous Goods
Chapter 6	Best Practices for Protection of Flora, Fauna and Historical Heritage
Chapter 7	Best Practices for Resource Conservation
Chapter 8	Best Practices for Potential Accidents and Emergency Situations
Appendix 1	Environmental Site Inspection Checklist (EF-EI04-01)

**Chapter 1 : Best Practices for Air Pollution Control****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirements (LR-01).

**2. Licenses and Permits**

The PM shall:

- notify EPD of any Notifiable Works under the Air Pollution Control (Construction Dust) Regulations; and
- ensure any concrete batching plants on site are with valid Specific Process License under the Air Pollution Control (Specific Processes) Regulations.

**3. Definitions**

APCO	-	Air Pollution Control Ordinance
C&D	-	Construction and demolition
ODS	-	Ozone depleting substances (e.g. CFCs, HCFCs and Halons, etc.)
PM	-	Project Manager
PFA	-	Pulverised fuel ash
TSP	-	Total Suspended Particulates

**4. Best Practices for Air Pollution Control**

Refer to Table 1 attached.

Table 1. Best Practices for Air Pollution Control

Issue(s) to Control	Best Practices to be Adopted
4.1 <i>Asbestos Use and Handling</i>	<ul style="list-style-type: none"> <li>• Forbid the use of asbestos and materials that contain asbestos in all existing and future works.</li> <li>• Appoint registered personnel to carry out removal/handling of asbestos, asbestos investigation report and asbestos abatement plan.</li> </ul>
4.2 <i>Emission of Dark Smoke from Plant and Equipment</i>	<ul style="list-style-type: none"> <li>• Conduct routine and major maintenance in accordance to manufacturer's instructions, and maintain records of all inspections and maintenance works.</li> <li>• Use fuel of quality specified by manufacturer/supplier.</li> <li>• Shut down all vehicles and plant in intermittent use between work periods or throttle down to a minimum idling speed (if the former is not possible).</li> </ul>
4.3 <i>Open Burning on Site</i>	<ul style="list-style-type: none"> <li>• Forbid open burning of wastes (C&amp;D waste, tyres, cables, or other solid waste).</li> </ul>
4.4 <i>Dust Emission from Construction /Demolition Activities</i>	<p>General requirements:</p> <ul style="list-style-type: none"> <li>• Operate air pollution control equipment properly and effectively, in accordance to manufacturer's instructions.</li> <li>• In the event of a malfunctioning or breakdown of any air pollution control equipment, suspend the plant, process(s) or activity(s) concerned as soon as practicable until the equipment is restored to its proper function.</li> <li>• Do not use compressed air jet for cleaning or clearing dust from vehicles, equipment, other materials and person except for cleaning formwork or other surfaces receiving concrete prior to concreting or cleaning of slopes prior to shattering.</li> </ul> <p>Site boundary and entrance:</p> <ul style="list-style-type: none"> <li>• Provide vehicle washing facilities at every vehicle exit point.</li> <li>• Where a site boundary adjoins a road, street, service lane or other area accessible to the public, provide hoarding of not less than 2.4 m high from ground level along the entire length of that portion of the site boundary except for a site entrance or exit.</li> </ul> <p>Access road (main haul road):</p> <ul style="list-style-type: none"> <li>• Pave with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or</li> <li>• Spray with water;</li> <li>• Keep the portion of any road leading only to a construction site that is within 30 m of a discernible or designated vehicle entrance or exit clear of dusty materials.</li> </ul>

Issue(s) to Control	Best Practices to be Adopted
	<p>Exposed earth:</p> <ul style="list-style-type: none"> <li>• Treat properly by applying water spray, surface compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or temporary covers.</li> <li>• Schedule construction programme to complete works on open areas as quickly as possible.</li> </ul>
	<p>Dusty materials:</p> <ul style="list-style-type: none"> <li>• Dispose of cement, pulverized fuel ash or any other dusty materials collected by fabric filters or other air pollution control system or equipment in totally enclosed containers.</li> </ul>
	<p>Stockpile of dusty materials:</p> <ul style="list-style-type: none"> <li>• Cover stockpile over 50m<sup>3</sup> entirely by impervious sheeting with enclosure extending at least 1 m above and beyond the stored materials.</li> <li>• Place in an area sheltered on the top and the 3 sides.</li> <li>• Spray with water.</li> </ul>
	<p>Loading, unloading or transfer of dusty materials:</p> <ul style="list-style-type: none"> <li>• Spray all dusty materials (except cement and PFA) with water immediately prior to any loading, unloading or transfer operation.</li> <li>• Control height from which excavated materials are dropped to a practical minimum.</li> </ul>
	<p>Pneumatic or power-driven drilling, cutting, polishing, breaking or crushing:</p> <ul style="list-style-type: none"> <li>• Spray water continuously on the surface during operation.</li> </ul>
	<p>Transfer of dusty materials with a belt conveyor system:</p> <ul style="list-style-type: none"> <li>• Enclose belt conveyor on top and 2 sides.</li> <li>• Enclose every transfer point between any 2 belt conveyors.</li> <li>• Install belt scraper at the head pulley of every belt conveyor to dislodge fine particles that may adhere to the belt surface and to reduce carry-back of fine particles on the return belt</li> <li>• Equip the belt scraper with bottom plates to prevent falling of materials from the return belt.</li> <li>• Provide every stockpiling belt conveyor with a mechanism to adjust its level such that the vertical distance between the belt conveyor outlet and the material landing point is maintained at not more than 1 m.</li> <li>• Enclose the area for the unloading of dusty materials from a belt conveyor outlet to any stockpile, storage bin, truck and barge on</li> </ul>

Issue(s) to Control	Best Practices to be Adopted
	<p>top and 3 sides.</p> <p>Use of vehicles:</p> <ul style="list-style-type: none"> <li>• Wash every vehicle to remove any dusty materials from its body and wheels immediately before leaving the site.</li> <li>• Restrict vehicles to minimum practicable speed limits (&lt; 10 km/h).</li> <li>• Where a vehicle leaving a construction site is carrying a load of dusty materials, cover the load entirely by clean impervious sheeting, which extends over the edges of properly fitting side and tail boards and dampen materials before transportation.</li> <li>• Make sure dusty materials are not loaded to a level higher than the side and tail boards.</li> </ul> <p>Debris handling:</p> <ul style="list-style-type: none"> <li>• Cover debris entirely by impervious sheeting or store in a debris collection area, sheltered on top and 3 sides.</li> <li>• Enclose every debris chute by impervious sheeting or similar materials.</li> <li>• Before debris is dumped into a debris chute, spray with water.</li> </ul> <p>Excavation or earth moving:</p> <ul style="list-style-type: none"> <li>• Spray working area of any excavation or earth moving operation with water immediately before, during and immediately after the operation.</li> </ul> <p>Cement and dry pulverised ash</p> <ul style="list-style-type: none"> <li>• For every stock of more than 20 bags of cement or dry pulverized fuel ash, cover entirely by impervious sheeting or place in an area sheltered on top and 3 sides.</li> <li>• For cement or dry pulverized fuel ash delivered in bulk, store in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line such that an audible alarm is triggered and the material filling stops within one minute.</li> <li>• Do not overfill silos used for the storage of cement or dry pulverized fuel ash.</li> <li>• Carry out loading, unloading, transfer, handling or storage of bulk cement or dry pulverized fuel ash or any cement or dry pulverized fuel ash during or after the de-bagging process, in a totally enclosed system or facility, and install effective fabric filter or equivalent air pollution control system on vent or exhaust systems.</li> <li>• For production of concrete or any other substances using bagged cement or dry pulverized fuel ash in a standard bag (not exceeding 50 kg), carry out de-bagging, batching and mixing processes in an area sheltered on top and 3 sides.</li> </ul>

Issue(s) to Control	Best Practices to be Adopted
	<p>Site clearance:</p> <ul style="list-style-type: none"> <li>• Spray working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures with water immediately before, during and immediately after operation.</li> <li>• Cover all demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles entirely by impervious sheeting or placed in an area sheltered on top and 3 sides within a day of demolition.</li> </ul> <p>Blasting:</p> <ul style="list-style-type: none"> <li>• Spray with water on regions within 30 m from the blasting area prior to blasting.</li> <li>• Where practicable, utilise blast nets and canvas covers.</li> <li>• Do not perform blasting when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted unless prior to permission of the Commissioner of Mines is obtained.</li> </ul>
<p>4.5 <i>Compressor Units of Plants and Equipment (e.g. concrete batching plants, vehicles)</i></p>	<ul style="list-style-type: none"> <li>• Use compressors with ozone-friendly refrigerants where possible.</li> <li>• Make sure ODS used in the compressors are imported from country or places which are party to the Montreal Protocol.</li> <li>• Make sure approved refrigerant recycling/recovery equipment is used in maintenance services to compressors with a ODS refrigerant charge of over 50 kg.</li> <li>• Make sure during maintenance of vehicles, ODS refrigerants in the compressor units are not intentionally vented.</li> </ul>



**Chapter 2 : Best Practices for Water Pollution Control****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirements (LR-01).

**2. Licenses and permits**

The PM shall ensure that:

- wastewater discharge licence(s) are obtained for the Project.
- The treatment facilities specified in the licence are provided and operated in satisfactory conditions at all stages of the project.
- The discharge limits and monitoring requirement specified in the discharge licence complied with.

**3. Definitions**

BOD	-	Biochemical oxygen demand
COD	-	Chemical Oxygen Demand
EPD	-	Environmental Protection Department
ETWBTC	-	Environment, Transport and Works Bureau Technical Circular
O&G	-	Oil and Grease
PM	-	Project Manager
SS	-	Suspended Solids
TM	-	Technical Memorandum
WPCO	-	Water Pollution Control Ordinance

**4. Best Practices for Water Pollution Control**

Refer to Table 2 attached.

Table 2. Best Practices for Water Pollution Control

Issue(s) to Control	Best Practices to be Adopted
4.1 Stormwater polluted with Debris /Chemicals	<p>A. Water Discharge from Construction/Demolition/Excavation Materials Storage:</p> <ul style="list-style-type: none"> <li>• Minimise the areas of exposed ground</li> <li>• Locate siltation traps at key points on the site (areas where the ground slopes or where run off could enter groundwater or a river or the sea) and discharge all runoff through the traps.</li> <li>• Provide adequate drainage channels lined with impervious material.</li> <li>• Construct catchpits for stormwater and perimeter channels for site discharge in advance of site formation and earthworks.</li> <li>• Regularly inspect drains for structural defects and maintain drains (e.g. remove silt regularly).</li> <li>• Ensure integrity of hoarding to prevent uncontrolled discharge to stormwater drains outside site boundaries.</li> <li>• Where not possible to install temporary water drainage works as above, use sand bags (and sealed hoarding) to divert site water run-offs to siltation tank and water treatment systems.</li> <li>• Avoid carrying out earthworks during the rainy season and if is not avoidable ensure that the works are kept to a minimum.</li> <li>• Cover temporarily exposed slopes and stockpiles by tarpaulin, etc. protect access road by crushed stone or gravel (as excavation proceeds) and provide intercepting channels (along crest/edge of excavation).</li> <li>• Surround earthworks by dykes or embankments for flood protection and cover earthworks as appropriate.</li> <li>• To prevent soil erosion, compact earthworks final surfaces and perform subsequent permanent work/surface protection immediately after surface formation and provide appropriate drainage.</li> <li>• Cover and seal manholes (including newly constructed ones).</li> <li>• Discharge groundwater from wells (for lowering of ground water level in basement or foundation construction and tunnel/caverns construction) and wastewater from boring and drilling into stormwater drains after passing through silt removal facilities.</li> <li>• Reuse water used in ground boring and drilling for site investigation or rock/soil anchoring as far as practical after sedimentation.</li> <li>• Ensure that the road from the wheel washing facilities to the end of the site is paved with backfall to prevent runoff of wash water.</li> <li>• Discharge water from the wheelwash and car-washing facilities through a sediment trap.</li> </ul>

Issue(s) to Control	Best Practices to be Adopted
4.1 Stormwater polluted with Debris /Chemicals (cont'd)	<p>B. Sedimentation Tanks:</p> <ul style="list-style-type: none"> <li>• Position sediment tanks upstream and downstream of any modified culvert sections in order to minimise sediment loading.</li> <li>• Ensure out flow from the sediment traps is low enough and trap design allows for settling of deposits at bottom</li> <li>• Design sediment traps taking into account seasonal variations in rainfall.</li> <li>• Control water flow into the tank to allow for sedimentation by provision of additional retention tanks, etc. Cover tanks to minimise deposition of debris and silt.</li> <li>• Maintain pipes from tanks in good condition to minimise leaks and spills of treated water which can pick up debris and silt and has to be treated again.</li> </ul>
4.2 Concrete Batching and Precast Concrete Casting Wastewater	<ul style="list-style-type: none"> <li>• Recycle wastewater from washing of mixer trucks, drum mixers and similar equipment wherever practical to minimise wastewater discharge.</li> <li>• Provide standby pumping for recycling system to avoid pollution from wastewater overflow.</li> <li>• After treatment of surplus wastewater for silt by means of siltation tank and pH adjustment facilities to pH 6-10, discharge into foul sewer.</li> <li>• Employ more elaborate treatment for discharge into stormwater drains.</li> <li>• Treat all contaminated surface water from concrete operations with appropriate facilities.</li> </ul>
4.3 Bentonite Slurries	<ul style="list-style-type: none"> <li>• Recondition and reuse slurries (used in diaphragm wall and bore-pile construction) wherever possible.</li> <li>• Dewater used slurry prior to disposal at marine spoil grounds (subject to issue of marine dumping licence from EPD).</li> <li>• Mix liquid slurry with inert fill materials and dispose as above.</li> <li>• Elaborated slurry treatment required to satisfy standards set out in the WPCO TM on Standard Effluents for disposal into public drainage system.</li> </ul>
4.4 Oil Contaminated Water	<ul style="list-style-type: none"> <li>• Locate dip trays underneath trucks and equipment for fuelling and maintenance.</li> <li>• Provide secondary containment and roofing for vehicle plant servicing areas, vehicle wash bays and lubrication bays (if any).</li> <li>• Use oil interceptors to remove O&amp;G, and dispose the sludge as chemical waste.</li> </ul>

Issue(s) to Control	Best Practices to be Adopted
4.5 <i>Dredging and Reclamation</i>	<ul style="list-style-type: none"> <li>• Design, use and maintain mechanical grabs to avoid spillage of materials into sea and tightly sealed for lifting operations;</li> <li>• Use barges and hoppers equipped with tight fitting seals on bottom opening to avoid material leakage;</li> <li>• Use watertight grabs/pneumatic sucking systems for dredging of contaminated mud;</li> <li>• For inaccessible dredging sites by barges, use water tight trunk for delivery of dredged sediment to barging point for marine disposal; and</li> <li>• Minimise turbidity from vessel movement and propeller wash by sizing vessels for adequate clearance between vessels and seabed in all tide conditions;</li> <li>• Remain vessel stationary throughout dumping operation; and</li> <li>• Do not over filling of barges and hoppers which causes overflow of materials or polluted water during loading or transportation;</li> <li>• Control loading/unloading operations of barges and hoppers to avoid splashing of dredged/filling materials;</li> <li>• Discharge mud as rapidly as possible and immediately close hopper, without washing out material adhering to sides of hopper, and hopper remain closed until next dumping operation;</li> <li>• Monitor barge loading to eliminate loss of material during transportation (barges equipped with automatic self-monitoring devices as specified by EPD). for reclamation projects involving public dumping, provide and adopt measures for refuse containment booms in accordance to ETWBTC (Works) No. 34/2002; to minimise visual and pollution impacts from floating refuse.</li> </ul>
4.6 <i>Toilet and Kitchen Sewage Discharges</i>	<p>A. Septic Tank and Soil Soakaway System</p> <ul style="list-style-type: none"> <li>• Discharge sewage from toilets and kitchens into foul sewer as possible.</li> <li>• Use septic tank and soil soakaway system if connection to foul sewers impermissible.</li> <li>• Use sewage treatment system for large flows.</li> </ul> <p>B. Chemical Toilets:</p> <ul style="list-style-type: none"> <li>• Use chemical toilets for sites with toilet wastes arising, if septic tank and soil soakaway system not feasible.</li> <li>• Ensure sewage handling and disposal by authorised and approved contractor.</li> <li>• Record amount of toilet waste collected by contractor.</li> </ul>

<b>Issue(s) to Control</b>	<b>Best Practices to be Adopted</b>
	<p>C. Grease Trap (if catering facilities are provided on Site):</p> <ul style="list-style-type: none"><li>• Discharge all wastewater from canteen kitchens into foul sewer via grease traps.</li><li>• Screen out solids by installing filters at the traps inlets.</li><li>• Arrange collection of grease trap waste by licensed collector(s).</li></ul>
4.7 Testing Water	<ul style="list-style-type: none"><li>• Reuse water for checking of structure (e.g. window seals).</li></ul>

**Chapter 3 : Best Practices for Noise Pollution Control****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirements (LR-01).

**2. Licenses and Permits**

The PM shall ensure that:

- a CNP is obtained if PME's are to be used during restricted periods.
- a CNP is obtained if PCW are to be carried out during restricted periods or at any time on a general holiday.
- A CNP for piling operations is obtained (if appropriate).

**3. Definitions**

CNP	-	Construction Noise Permit issued under the Noise Control Ordinance
NEL	-	Noise Emission Label
NSR	-	Noise Sensitive Receiver(s)
NCO	-	Noise Control Ordinance
PCW	-	Prescribed Construction Work
PM	-	Project Manager
PME	-	Powered Mechanical Equipment
TM	-	Technical Memoranda issued under Noise Control Ordinance

**4. Best Practices for Noise Pollution Control**

Refer to Table 3 attached.

Table 3. Best Practices for Noise Pollution Control

Issues(s) to Control	Best Practices to be Adopted
4.1 <i>General Noise Control Measures</i>	<p>A. Schedule work carefully to:</p> <ul style="list-style-type: none"> <li>• Minimise noisy operation during restricted periods as possible.</li> <li>• Avoid simultaneous operation of noisy equipment.</li> <li>• Shut down all plants and equipments in intermittent use between work periods or throttled down to minimum idling speed.</li> <li>• Retain existing features such as site office which act as noise barrier until the last phase of the project.</li> <li>• Erect as early as possible noise source screening structures such as stores to shield the noise sensitive receivers (NSR).</li> <li>• Remove stockpiles and perform excavation works at the side which is furthest away from the NSR to allow earth materials to shield NSRs from noise sources.</li> </ul>
	<p>B. Locate facilities such that:</p> <ul style="list-style-type: none"> <li>• plant known to emit noise strongly in more than one direction be oriented to direct noise away from the NSR.</li> <li>• noisy equipment and plant (generators and water pumps, etc) be sited as far away from NSRs as practically possible.</li> <li>• nearby objects such as water cooling tanks used to shield noise source against NSRs as practically possible.</li> </ul>
	<p>C. Maintenance and servicing of equipment and vehicles in accordance to manufacturers recommendations (especially for noise mitigation components e.g. retaining silencers and mufflers supplied with construction equipments and closing generator doors).</p>
	<p>D. Erect temporary noise barriers constructed from readily available building materials or commercially available sound absorbing panels:</p> <ul style="list-style-type: none"> <li>• Surface mass of barrier material must be greater than 7kg/m<sup>2</sup>.</li> <li>• Avoid gaps &amp; opening at joints of barrier material.</li> <li>• Barrier located as close to noise source/NSR as possible.</li> <li>• Minimum height of the barrier must be such that no part of noise source visible from NSR.</li> <li>• Length of the barrier must be at least 5 times its height.</li> <li>• Noise reduction of 5 - 10 dB(A) readily achieved.</li> </ul>

Issues(s) to Control	Best Practices to be Adopted
	<p>E. Use portable noise barriers/enclosures with skid footing and a small cantilevered upper portion for noisy stationary/mobile plants:</p> <ul style="list-style-type: none"> <li>• Can be constructed from available building materials (plasterboard, plywood, chipboard) or purposely made acoustically isolative lining products.</li> <li>• Noise reduction of up to 10dB possible for stationary plant (compressor, water pump, drilling rigs, generator, various hand tools and saw).</li> <li>• Noise reduction of up to 5dB possible for mobile plant (bulldozer, excavator, loader, truck mixer, mobile crane, vibrator and breaker).</li> </ul>
<p>4.2 <i>Powered Mechanical Equipment from General Construction Works</i></p>	<p>A. Select quiet equipment whenever possible:</p> <ul style="list-style-type: none"> <li>• Silenced/super silenced compressors or electric compressor (when mains power available);</li> <li>• Hydraulic concrete cutters and crushers, and rock drills (up to 20 dB noise reduction).</li> <li>• Pneumatic breakers fitted with mufflers and damping collars (up to 21dB noise reduction)</li> </ul>
<p>4.3 <i>Percussive Piling - Quieter Proprietary Piling Methods</i></p>	<p>A. Consider the use of Hydraulic Hammers:</p> <ul style="list-style-type: none"> <li>• Noise level at 15 meters - <math>L_{eq}</math> less than 90 dB(A).</li> <li>• No exhaust noise or air pollutant emission.</li> </ul> <p>B. Consider the use of BSP Impulse Pile Driver:</p> <ul style="list-style-type: none"> <li>• Not suitable for very hard driving conditions.</li> <li>• Reduce noise level to <math>L_{eq}</math> of 87-89 dB(A) at 15 meters.</li> </ul> <p>C. Consider the use of HUSH Piling System:</p> <ul style="list-style-type: none"> <li>• Piling rates are comparable to conventional systems.</li> <li>• Noise level of <math>L_{eq} = 75</math> dB(A) at 15 meters is achievable.</li> </ul> <p>D. Consider the use of SERF Pilemaster:</p> <ul style="list-style-type: none"> <li>• Comparable to conventional systems when operating in clay soils, silts &amp; fine sands.</li> <li>• Noise level at 15 meters is <math>L_{eq} = 67</math>dB(A).</li> </ul>
<p>4.4 <i>Percussive Piling - Control of Piling Noise</i></p>	<p>A. Resilient packing and dolly (in where noisy piling method cannot be avoided):</p> <ul style="list-style-type: none"> <li>• Protecting head of pile by a helmet fitted with resilient packing and a dolly which cushions the blow of the hammer.</li> <li>• Inspecting the dolly and packing regularly and maintaining them in good working condition.</li> </ul>



Issues(s) to Control	Best Practices to be Adopted
	<p>B. Shrouding</p> <ul style="list-style-type: none"> <li>• Completely enclose pile driver in a shroud when noisy piling method cannot be avoided.</li> <li>• Shroud should consist of robust framework fitted with acoustically designed cladding/panels.</li> <li>• Alternatively, a flexible thick vinyl curtain is suspended to enclose the whole length of pile and driver to keep noise levels to minimum.</li> </ul> <hr/> <p>C. Damping of steel pile:</p> <ul style="list-style-type: none"> <li>• Treat steel pile columns with damping compounds to reduce ringing noise.</li> <li>• Apply damping compounds onto surface of pile.</li> </ul>
<p>4.5 <i>Hand Held Percussive Breakers which are heavier than 10kg and Air Compressors</i></p>	<p>A. Must comply with specified Noise Emissions Standards, which is confirmed by the issue of a Noise Emission Label from the manufacturer or supplier.</p> <p>B. Only purchase/use equipment with authentic Noise Emission Labels.</p>
<p>4.6 <i>All Vehicles, Plants and Equipments for Noise Experienced at NSRs</i></p>	<p>A. Provide building insulation to most of the affected NSRs (e.g. acoustically isolative windows and air conditioning).</p> <ul style="list-style-type: none"> <li>• only adopted as last resort (if measures fails) due to financial implications and receiver deprived of outdoor activities and “open window lifestyle”.</li> </ul>

**Chapter 4 : Best Practices for Waste Management****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirements (LR-01).

**2. Licenses and Permits**

The PM shall ensure that:

- a chemical waste producer licence is obtained for the Project Site concerned, and that the licence covers all types of chemical waste produced from the project.

**3. Definitions**

C&D	-	Construction and Demolition
EPD	-	Environmental Protection Department
ETWBTC	-	Environment, Transport and Works Bureau Technical Circular
FMC	-	Fill Management Committee
PM	-	Project Manager
WMP	-	Waste Management Plan

**4. Best Practices for Waste Management**

Refer to Table 4 attached.

**Table 4. Best Practices for Waste Management**

Issues(s) to Control	Best Practices to be Adopted
4.1 <i>General Waste Management</i>	<p>A. Waste Management Plan (WMP): (if required)</p> <ul style="list-style-type: none"> <li>• Formulate a WMP before construction starts. (refer to EI-02)</li> <li>• Review WMP monthly and update WMP if necessary.</li> </ul> <p>B. Storage, Collection and Transportation:</p> <ul style="list-style-type: none"> <li>• Ensure disposal of wastes at licensed landfill sites.</li> <li>• Use authorised or licensed wastes collectors (including chemical wastes).</li> <li>• Provide labelled bins or compaction units for storage of general refuse and separate from construction and chemical wastes.</li> <li>• Handle and store waste in a secure manner to avoid pollution or contamination by wastes.</li> <li>• Maintain and clean waste storage areas on regularly.</li> <li>• Prohibit general littering on site (both on land or sea).</li> <li>• Influence waste collectors to cover trucks with impervious sheeting or transport waste in enclosed containers to minimise windblown litter and dust generation during transportation.</li> <li>• Forbid open burning on site issued and communicated to all staff members and sub contractors.</li> </ul> <p>C. Waste Minimisation and Recycling:</p> <ul style="list-style-type: none"> <li>• Minimise over-ordering and wastage of construction materials.</li> <li>• Design formwork to maximise use of standard wooden panels to achieve high reuse levels and consider steel/plastic alternatives for increase potential for reuse and reduce wastes.</li> <li>• Ensure works quality to avoid unnecessary demolition.</li> <li>• Establish on-site waste segregation with separately allocated storage areas (for timber, paper, metal, plastic, inert C&amp;D waste).</li> <li>• Use of separate chutes for inert and non-inert wastes.</li> <li>• Maintain records of waste generated/disposed/recycled.</li> <li>• Adopt alternative working methods to minimise wastage where possible (e.g. use precast concrete rather than in situ concrete, reduce timber formwork requirements).</li> <li>• Employ construction and design methods which reduce the use of polystyrenes wherever feasible.</li> <li>• Reuse concrete and masonry wastes from cut and fill operations as general fill materials.</li> <li>• Influence suppliers to minimise/use recyclable packaging.</li> <li>• Return package materials to suppliers/other organisations for reuse/recycle as possible.</li> <li>• Provide separate labelled containers paper, aluminium and plastic bottles to facilitate recycling of domestic solid waste.</li> </ul>

Issues(s) to Control	Best Practices to be Adopted
4.2 <i>Construction and Demolition Wastes</i>	<ul style="list-style-type: none"> <li>• Reuse inert demolition wastes as general filling materials on site where possible</li> <li>• Ensure C&amp;D waste are disposed of at the designated Public Filling Area or landfill; otherwise influence waste collector to dispose the waste in Public Filling Areas.</li> <li>• Maintain trip tickets record.</li> </ul>
4.3 <i>Surplus Excavated Materials</i>	<ul style="list-style-type: none"> <li>• Reuse on site as fill material as possible.</li> <li>• Complete the Fill Management Committee (FMC) Questionnaire on Surplus and Fill Requirements and return to FMC for inclusion in the Fill Management Database to increase opportunity for reuse in other projects.</li> <li>• Facilitate exchange of surplus material by liaison with other sites/ contractors</li> <li>• Transport to Public Filling Areas if the above measures are not possible.</li> </ul>
4.4 <i>Marine Mud and Sediment Disposal</i>	<ul style="list-style-type: none"> <li>• Dispose dredged mud and sediment as directed by the Marine Fill Committee (MFC) and obtain dumping licence from the EPD;</li> <li>• Dredge, transport and dispose contaminated mud and sediment at approved dumping grounds as specified in the ETWBTC (Works) No. 34/2002;</li> <li>• Complete the Fill Requirements and Surplus Data Form<sup>1</sup> and return to MFC for inclusion in the Fill Management Database database to increase opportunity for reuse in other projects</li> <li>• (refer to Appendix 1 Water Pollution Control for measures for controlling impact on the water column)</li> </ul>
4.5 <i>Chemical Wastes (e.g. spent lube, sludge from oil interceptors, contaminated gloves/rags, bentonite slurry)</i>	A. Register with EPD as Chemical Waste Producer and apply for a revision if the types of chemical waste to be disposed from the Project site change.
	B. Appoint licensed collector(s) (from EPD's list of approved registered chemical waste collectors) to collect and dispose of chemical wastes.
	C. Maintain records of wastes generated/collected.
	D. Adopt alternative working practices/processes to eliminate/reduce/generate less toxic chemical wastes.

<sup>1</sup> available from [http://www.cedd.gov.hk/tc/services/fillmanagement/doc/fill\\_surplus\\_form.xls](http://www.cedd.gov.hk/tc/services/fillmanagement/doc/fill_surplus_form.xls)

Issues(s) to Control	Best Practices to be Adopted
	<p data-bbox="507 300 1402 398">E. Adopt storage, handling, transportation and disposal practices in accordance to the EPD publication “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes”:</p> <ul data-bbox="507 405 1402 1025" style="list-style-type: none"> <li data-bbox="507 405 1402 504">• Provide appropriate wastes containers for each type of chemical waste generated on site. (Use container with capacity less than 450 litre unless specification approved by EPD.)</li> <li data-bbox="507 510 1402 548">• Ensure that containers are in good condition, closed/ sealed.</li> <li data-bbox="507 555 1402 622">• Put chemical waste labels with the appropriate information (in Chinese and English) on chemical waste containers</li> <li data-bbox="507 629 1402 667">• Maintain waste containers upright to minimise spillage/leakage.</li> <li data-bbox="507 674 1402 772">• Designate separate storage facilities for incompatible chemical waste, and provide these areas with prominent signage, lock, etc.</li> <li data-bbox="507 779 1402 952">• Provide secondary containment (e.g. drip trays or impermeable floor and bunding) and adequate ventilation for storage areas. (Capacity of the secondary containment should be able to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored, whichever is greatest.)</li> <li data-bbox="507 958 1402 1025">• Water collected within chemical waste storage areas must be tested and disposed as chemical waste if necessary;</li> </ul> <p data-bbox="507 1032 1402 1099">F. Dispose bentonite slurry as alkali chemical waste in accordance to the procedures above.</p> <p data-bbox="507 1106 1402 1173">G. Provide storage facilities for car batteries and/or battery acids if the disposal of such waste from the Project Site is necessary.</p>
4.6 Asbestos Wastes	<ul data-bbox="507 1182 1402 1281" style="list-style-type: none"> <li data-bbox="507 1182 1402 1281">• Ensure that the implementation of asbestos abatement plan, and handling and disposal of asbestos waste are carried out by EPD registered professionals.</li> </ul>

**Chapter 5 Best Practices for the Handling and Storage of Chemicals and Dangerous Goods****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirements (LR-01).

**2. Licenses and Permits**

The PM shall:

- determine if DG stored in the Project Site will exceed the exempted quantity, and if so, arrange the appropriate storage facility(s) and obtain licence from the respective authority.

**3. Definitions**

DG - dangerous goods

PM - Project Manager

**4 Best Practices for Handling and Storage of Chemicals and Dangerous Goods**

Refer to Table 5 attached.

Table 5. Best Practices for Handling and Storage of Chemicals and Dangerous Goods

Issue(s) to Control	Best Practices to be adopted
4.1 <i>Information and Labelling</i>	<ul style="list-style-type: none"> <li>• Obtain details for the handling, storage and control of impurities and spills from supplier or manufacturer.</li> <li>• Obtain details of the chemical composition of the substances, and correct treatment with eyes, skin, ingestion, etc from the supplier or manufacturer (usually available in a MSDS).</li> <li>• Ensure that the information is up to date, provided to the relevant staff, and easily accessible in case of emergency in accordance to the site safety plan.</li> </ul>
4.2 <i>Containers</i>	<ul style="list-style-type: none"> <li>• Use containers designed to minimise spills.</li> <li>• Ensure that containers used are appropriate to the substances contained (e.g. do not react with the substance, resistant to corrosions).</li> <li>• Ensure that containers are maintained in good conditions and securely closed</li> <li>• Label all containers with appropriate labels (in Chinese and English).</li> </ul>
4.3 <i>Bulk Storage and Transportation</i>	<ul style="list-style-type: none"> <li>• Provide separate storage facilities for different substances to prevent dangerous chemical reaction and contamination.</li> <li>• Locate secondary containment store as far away from environmentally sensitive areas such as watercourses and water discharge points as possible.</li> <li>• Store goods away from heavily trafficked areas to avoid container damage.</li> <li>• In each storage area: <ul style="list-style-type: none"> <li>• Ensure that only the substance(s) specified are stored.</li> <li>• Provide secondary containment or drip trays, and impermeable floor and bunding.</li> <li>• Prevent unauthorised access by providing locks to the storage areas.</li> <li>• Provide clear signage (e.g. DG category, type of substances, “No smoking” signs).</li> <li>• Ensure adequate ventilation and fire fighting facilities.</li> <li>• Provide labelled shelving for smaller chemicals.</li> <li>• During transportation keep all containers upright (and chained for DG).</li> </ul> </li> </ul>
4.4 <i>Handling and Spill Prevention</i>	<ul style="list-style-type: none"> <li>• Use pump dispensers for removal of chemicals from drums and containers.</li> <li>• For handling of chemicals, use equipment and piping only for their designated purposes.</li> <li>• Ensure accurate weighing, dispensing and mixing of chemicals.</li> <li>• Ensure mixing areas are well lit and ventilated, and are as close to their point of use as possible.</li> <li>• Use trays to contain spills from transferring of substances (e.g. from one container to another).</li> <li>• Follow the safety instructions provided by site management and chemical labels.</li> </ul>

<b>Issue(s) to Control</b>	<b>Best Practices to be adopted</b>
4.4 <i>Handling and Spill Prevention (cont'd)</i>	<ul style="list-style-type: none"><li>• Where required, use the protective clothing provided and dispose of properly after use.</li><li>• Do not smoke, eat or drink in any place where chemical substances are stored or used.</li></ul>
4.5 <i>Cleaning up minor spills</i>	<ul style="list-style-type: none"><li>• Use sand, saw dust, or spill kit to absorb the spill and prevent it from spreading.</li><li>• Dispose of the contaminated absorbent material as chemical waste.</li><li>• Ensure that saw dust, spill kits, etc are readily accessible and of enough quantity.</li></ul>
4.6 <i>Inspection and Maintenance</i>	<ul style="list-style-type: none"><li>• Periodically inspect, and where necessary test, the condition of storage drums, tanks and pipelines (especially flanges and gaskets)</li><li>• Inspect and maintain all plant and equipment to prevent leakage of chemicals/fuel.</li></ul>



**Chapter 6 : Best Practices for Protection of Flora, Fauna and Historical Heritage****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirements (LR-01).

**2. Licenses and Permits**

No licenses or permits are required.

**3. Definitions**

AFCD - Agriculture, Fisheries and Conservation Department

EIAO - Environmental Impact Assessment Ordinance

PM - Project Manager

**4. Best Practices for Protection of Flora, Fauna and Historical Heritage**

Refer to Table 6 attached.

Table 6. Best Practices for Protection of Flora, Fauna and Historical Heritage

Issue(s) to Control	Best Practices to be Adopted
4.1 <i>General (for protection of flora and fauna, and historical heritage)</i>	<ul style="list-style-type: none"> <li>• For designated projects under the EIAO, follow strictly the conditions specified in the contract and Environment Permit, and the subsequent recommendations throughout the EM&amp;A program.</li> <li>• Implement the procedures specified in other Appendices pertinent to site activities.</li> </ul>
4.2 <i>Aquatic habitats</i>	<p>A. Sedimentation</p> <ul style="list-style-type: none"> <li>• Prevent sediment run off from site by using siltation tanks and water treatment systems.</li> <li>• Do not block natural watercourses.</li> <li>• Carry out earth works in dry season.</li> <li>• Prevent encroachment of heavy equipment into riparian zones along river streams.</li> </ul> <p>B. Contamination and Loss /Disturbance Outside Works Area</p> <ul style="list-style-type: none"> <li>• Restrict construction equipment and personnel to specified works area.</li> <li>• Locate site fuelling/oiling stations away from streams or other wetlands.</li> <li>• Prevent runoff of pollutants by using concrete bunds and water treatment systems.</li> </ul>
4.3 <i>Terrestrial Flora</i>	<p>A. Limit Loss /Disturbance Inside Work Areas</p> <ul style="list-style-type: none"> <li>• Retain planting and trees by adopting suitable alternatives (eg. change of site, design and construction method) as practical and possible.</li> <li>• Restrict construction equipment and personnel to specified works area to minimise disturbance.</li> <li>• For unavoidable disruption, transplant important plant species to protected locations with advise from specialists.</li> </ul> <p>B. Plants to be preserved (<i>in situ</i> or in nurseries)</p> <ul style="list-style-type: none"> <li>• Do not store debris, chemicals or other harmful materials near plants.</li> <li>• Provide sufficient watering.</li> </ul>
4.4 <i>Terrestrial Fauna</i>	<p>A. Animal burrows</p> <ul style="list-style-type: none"> <li>• Report any suspected animal burrows in accordance to Appendix 8 Environmental Instruction for Potential Accidents and Emergency Situations.</li> <li>• Do not disturb the burrow systems using heavy equipment.</li> <li>• Do not excavate burrow systems before arrival of qualified personnel to capture and remove burrow animals.</li> </ul> <p>B. Spotting of rare animals</p> <ul style="list-style-type: none"> <li>• Report spotting of any rare animals in accordance to Appendix 8 Environmental Instruction for Potential Accidents and Emergency Situations.</li> <li>• Minimise disturbance to the area concerned until approval is obtained from the PM.</li> </ul>

<b>Issue(s) to Control</b>	<b>Best Practices to be Adopted</b>
<p>4.5 <i>Birds - Nest Destruction</i></p>	<ul style="list-style-type: none"> <li>• Report any bird nests in accordance to Appendix 8 Environmental Instruction for Potential Accidents and Emergency Situations.</li> <li>• Do not remove bird nests prior to seeking advice from the appropriate authorities (e.g. AFCD).</li> <li>• Minimise disturbance to the area concerned until approval is obtained from the PM.</li> </ul>
<p>4.6 <i>Historical Heritage – Discovery of sites, objects, etc.</i></p>	<ul style="list-style-type: none"> <li>• Report in accordance to Appendix 8 Environmental Instruction for Potential Accidents and Emergency Situations.</li> <li>• Minimise disturbance to the area concerned until approval is obtained from the PM.</li> </ul>

**Chapter 7 : Best Practices for Resource Conservation****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirement for Project Activities (LR/01).

**2. Licenses and Permits**

No licenses or permits are required.

**3. Definitions**

PM - Project Manager

ETWBTC - Environment, Transport, and Works Bureau Technical Circular

**4. Best Practices for Resource Conservation**

Refer to Table 7 attached.

Table 7. Best Practices for Resource Conservation

Resource	Best Practices to be Adopted
4.1 <i>Water</i>	<ul style="list-style-type: none"> <li>• Recycle wastewater from wheelwashing, testing (of water tightness), concrete curing, etc (for use in road spraying) Wheel wash water is also recycled.</li> <li>• All taps are turned of when water is not required.</li> <li>• All leaks in pipes are repaired once they are identified.</li> <li>• Fit taps and hoses with flow restricting, water efficient, spray nozzles where possible.</li> <li>• Ensure water use for washing of tools, concrete curing, mixing of adhesive mortar, etc are not excessive.</li> </ul>
4.2 <i>Diesel</i>	<ul style="list-style-type: none"> <li>• Select fuel-efficient plant.</li> <li>• Shut off diesel-powered plant and equipment while not in use.</li> <li>• Prevent spillage through appropriate storage and handling.</li> <li>• Maintain the plant and equipment to prevent leak of fuel to achieve optimal fuel efficiency.</li> <li>• Minimise non-essential load on generators.</li> </ul>
4.3 <i>Electricity</i>	<ul style="list-style-type: none"> <li>• Shut off mains-powered plant and equipment when not in use.</li> <li>• Select energy efficient plant and equipment.</li> <li>• Reduce non-essential load.</li> </ul>
4.4 <i>Lubricant oil</i>	<ul style="list-style-type: none"> <li>• Maintain pile driver in good conditions to prevent dispersal of lubricant oil mist.</li> </ul>
4.5 <i>Timber for Formwork, Falsework, Trench Support and Hoarding</i>	<ul style="list-style-type: none"> <li>• Use metal or other alternatives (as specified in ETWBTCs No. 32/92 and 19/01).</li> <li>• Clean boards to facilitate reuse. (Re-use of formwork as directed by the clerk of works).</li> <li>• Careful store and handle boards to prevent damage.</li> </ul>
4.6 <i>Cement, aggregates, lime for making adhesive mortar</i>	<ul style="list-style-type: none"> <li>• Ensure high quality control over mixing of adhesive mortar to prevent wastage.</li> <li>• Utilise surplus mortar in other temporary works.</li> </ul>
4.7 <i>Other materials</i>	<ul style="list-style-type: none"> <li>• Ensure materials are handled and stored in good conditions to prevent deterioration and wastage.</li> <li>• Ensure materials are not over-applied.</li> <li>• Influence subcontractors to take away and reuse surplus material in the same or other Projects.</li> </ul>

**Chapter 8 Best Practices for Potential Accidents and Emergency Situations****1. References to Legal and Other Requirements**

Please refer to Register of Legal and Other Requirement (LR-01).

**2. Licenses and Permits**

No licenses or permits are required.

**3. Definitions**

AFCD - Agriculture, Fisheries and Conservation Department  
EPD - Environmental Protection Department  
FSD - Fire Services Department  
PM - Project Manager

**4. Best Practices for Response to Accidents and Emergency Situations**

Refer to Table 8 attached.

The PM shall :

- prepare the emergency plan for construction site for Client's approval (if required) and ensure that the emergency plan shall follow or equivalent to the emergency instructions as specified in Table 8
- ensure that all preventive and mitigating measures (e.g. fire extinguishers, spillage kits, etc.) on sites receive proper maintenance;
- conduct fire drill on site and periodically testing the emergency plan if possible and provide the evidence (e.g. fire drill report) to EMR for review;
- provide appropriate training to their site staff on the emergency procedures; and
- inform EMR after each accident or emergency situation by submission of an accident report, which should include information on root causes and corrective actions taken to mitigate the impacts on environment.

Table 8. Best Practices for Response to Accidents and Emergency Situations

Issue(s) to Control	Best Practices to be Adopted
4.1 <i>Condition of fire fighting facilities</i>	1. Ensure fire fighting facilities are in good conditions, sufficient, and have not reached their expiry dates.
4.2 <i>Muddy site runoff during or after rainstorms (also see abstract of ProPECC PN 1/94 on precautions to be taken during rain storm season)</i>	1. Before the storm, provide diversion channel along the boundary of the site and a bunded area for emergency retention of turbid water at the lowest point of site. The position and capacity of the bunded retention area must be able to combat the additional muddy runoff during the rainy season. 2. After the storm, pump muddy water from the bunded areas to the retention tank prior to treatment by siltation tank, at a rate such that the suspended solids of the discharge is below the regulatory limits. 3. PM will determine if the rate is suitable and arrange the SS analysis of the discharge by a HOKLAS approved laboratory.
4.3 <i>Fire, Explosions, Rainstorms and typhoons</i>	A. Wastewater from extinguishing of fire, or potentially contaminated with chemicals after fire or typhoons: 1. Contain wastewater (with sand bags, etc) to prevent from entering water treatment facilities, drainage systems or watercourses. 2. Pump the wastewater into a suitable container and dispose of as chemical wastes. 3. The PM determines if other parties (e.g. EPD, neighbouring communities) need to be informed. B. Solid wastes: 1. Contain (and if necessary, treat) the waste containment to reduce land contamination. 2. The PM shall determine if the wastes are chemical waste. 3. The PM will determine if other parties (e.g. EPD, neighbouring communities) need to be informed.
4.4 <i>Major Chemical Spillage</i>	1. Contain the spill to minimise reduce land contamination and pollution of nearby watercourse. 2. Inform the PM immediately. 3. The PM shall arrange for appropriate removal and disposal of the chemicals by authorised organisations, and determine if other parties (e.g. EPD, FSD, neighbouring communities) need to be informed.
4.5 <i>Interference to Utility Services due to Site Accidents - e.g. accidental damage to electricity power lines, gas supplies and water supply lines</i>	1. Stop works immediately to avoid further destruction. 2. Evacuate the area affected if necessary (e.g. after damaging a gas supply pipeline). 3. Inform the PM immediately. 4. The PM shall inform the appropriate organisations (e.g. the utility company) and ensure mitigation measures have been carried out to minimise the community impacts of the accident. 5. Only recommence work with authorisation from the PM.

Issue(s) to Control	Best Practices to be Adopted
<p>4.6 <i>Discovery of Historical Sites of Cultural Heritage Interest/ Graves/Dangerous Substances such as bombs, arsenals, explosives and unknown chemicals during ground digging operations</i></p>	<ol style="list-style-type: none"> <li>1. Stop work immediately to avoid further disturbance of historical/dangerous items</li> <li>2. Seal off and evacuate the area and inform the PM of the discovery.</li> <li>3. The PM shall inform the appropriate organisations (e.g. Police) and ensure suitable actions have been taken.</li> <li>4. Only recommence work with authorisation from the PM.</li> </ol>
<p>4.7 <i>Discovery of Rare/Protected Species of flora and fauna</i></p>	<ol style="list-style-type: none"> <li>1. Stop work immediately to avoid damaging to the species</li> <li>2. Isolate the animal(s) or plant(s), or the area concerned, and avoid hurting/damaging animal(s) or plant(s).</li> <li>3. Inform the PM immediately of the discovery.</li> <li>4. The PM shall inform the appropriate authorities (e.g. AFCD) and ensure suitable actions have been taken for the well-being of the animal(s) or plants(s).</li> <li>5. Only recommence work with authorisation from the PM.</li> </ol>



Note : This form is designed for general use and may not be exhaustive. Modifications and additions may be necessary to suit individual projects and to address specific environmental issues and associated mitigation measures.

Project : \_\_\_\_\_ Site Location : \_\_\_\_\_

Construction stage / status during inspection : \_\_\_\_\_

Inspection Date : \_\_\_\_\_ Inspection Time : \_\_\_\_\_

Inspected by : \_\_\_\_\_ Weather : \_\_\_\_\_

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative action)
	Yes	No*		
<b>1. Air Pollution Control</b>				
1.1. Are the construction sites watered to minimize dust generated?				
1.2. Are stockpiles of dusty materials (size with more than 20 bags cement) covered or watered?				
1.3. Cement debagging process undertaken in sheltered areas				
1.4. Are all vehicles carrying dusty loads covered/watered over prior to leaving the site?				
1.5. Are demolition work areas watered? (e.g. trimming activities by using breaker)				
1.6. Are dusty roads paved and/or sprayed with water?				
1.7. Are dust controlled during percussive drilling or rock breaking?				
1.8. Are plant and equipment well maintained? (any black smoke observed, please indicate the plant/equipment and location)				
1.9. Is dark smoke controlled from plant?				
1.10. Are there enclosures around the main dust-generating activities? (e.g. grout mixing)				
1.11. Hoarding (not <2.4m) provided along boundaries and properly maintained (any damage / opening observed, please indicate the location).				

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative action)
	Yes	No*		
1.12. Are speed control measures applied? (e.g. speed limit sign)				
1.13. Others (please specify)				
<b>2. Water Pollution Control</b>				
2.1. Are water discharge licenses valid?				
2.2. Are conditions of the license compiled with? (check the monitoring records and observe physically)				
2.3. Are wastewater treatment system being used and properly maintained on site? (e.g. desilting tank)				
2.4. Is untreated wastewater discharged to stormwater drains?				
2.5. Are measures provided to properly direct effluent to silt removal facilities? (e.g. provide earth bunds / U-channels)				
2.6. Are u-channels and manholes free of silt and sediment?				
2.7. Are sedimentation traps and tanks free of silt and sediment?				
2.8. Are all manholes on-site covered and sealed?				
2.9. Are sandbags/earth bund adopted to prevent washing away of sand/silt and wastewater to drains, catchpit, public road and footpath?				
2.10. Are vehicles and plants cleaned before leaving the site?				
2.11. Are wheel washing facilities well maintained to prevent overflow, flooding sediment?				

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative action)
	Yes	No*		
2.12. Is sand and silt settled out in wheel washing bay and removed?				
2.13. Is the public road/area around the site entrance and site hoarding kept clean and free of muddy water?				
2.14. Is domestic water directed to septic tanks or chemical toilets?				
2.15. Others (please specify)				
<b>3. Noise Control</b>				
3.1. Is the CNP (Construction Noise Permit) valid for work during restricted hours?				
3.2. Are copies of the valid Construction Noise Permits posted at site entrance/exit?				
3.3. Do air compressors and generators operate with doors closed?				
3.4. Is idle plant/equipment turned off or throttled down?				
3.5. Do air compressors and hand-held breakers have valid noise emission labels (NEL)?				
3.6. Any noise mitigation measures adopted (e.g. use noise barrier / enclosure)?				
3.7. Are silenced equipments utilized?				
3.8. Others (please specify)				
<b>4. Waste Management</b>				
4.1. Is the site kept clean and tidy? (e.g. litter free, good housekeeping)				

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative action)
	Yes	No*		
4.2. Are separate chutes used for inert and non-inert wastes?				
4.3. Are separated labelled containers / areas provided for facilitating recycling and waste segregation?				
4.4. Are construction wastes / recyclable wastes and general refuse removed off site regularly?				
4.5. Are construction wastes collected and disposed of properly by licensed collectors?				
4.6. Are chemical wastes, if any, collected and disposed of properly by licensed collectors?				
4.7. Does chemical waste producer license covers all major chemical wastes produced on site?				
4.8. Are chemical wastes properly stored and labelled?				
4.9. Are oil drums and plants/equipments provided with drip trays?				
4.10. Are drip trays free of oil and water?				
4.11. Is there any oil spillage? Clean-up the contaminated soil immediately?				
4.12. Is litter, foam or other objectionable matters in nearby water drain/sewer cleaned?				
4.13. Are asbestos wastes handled by registered professionals?				
4.14. Others (please specify)				
<b>5. Storage of Chemicals and Dangerous Goods</b>				
5.1. Are chemicals stored and labelled properly?				

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative action)
	Yes	No*		
5.2. Does storage of DG comply with license conditions (include types and quantities if DG store is available, check the DG store license)?				
5.3. Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays)				
5.4. Are spill kits / sand / saw dust used for absorbing chemical spillage readily accessible?				
5.5. Others (please specify)				
<b>6. Protection of Flora, Fauna and Historical Heritage</b>				
6.1. Are disturbance to terrestrial flora minimized (e.g. plants to be preserved)?				
6.2. Are disturbance to terrestrial fauna minimized (if rare species identified)?				
6.3. Any historical heritage exist on site ? If yes, appropriate measures taken to preserve it				
6.4. Others (please specify)				
<b>7. Resource Conservation</b>				
7.1. Is water recycled wherever possible for dust suppression?				
7.2. Is water pipe leakage and wastage prevented?				
7.3. Are diesel-powered plants and equipments shut off while not in use to reduce excessive use?				
7.4. Are energy conservation practices adopted?				

Inspection Items	Implemented?		N/A	Remarks (i.e. specify location, good practices, problem observed, possible cause of nonconformity and/or proposed corrective/preventative action)
	Yes	No*		
7.5. Are metal or other alternatives used to minimize the use of timber?				
7.6. Are materials stored in good condition to prevent deterioration and wastage (e.g. covered, separated)?				
7.7. Are pesticides used under the requirement of Agriculture, Fishers and Conservation Department?				
7.8. Others (please specify)				
<b>8. Emergency Preparedness and Response</b>				
8.1. Are fire extinguishers / fighting facilities properly maintained and not expired? Escape not blocked / obstructed?				
8.2. Are accidents and incidents reported and reviewed, and corrective & preventive actions identified and recorded?				
8.3. Others (please specify)				

*\*Any "No" recorded represents the potential breach of regulation or improvement needed and details of nonconformity (NC) shall be recorded in the **Remarks**.*

*\* Report NC in the following forms. Each NC should make reference into the checklist as coded. The responsible personnel shall identify the root cause of NC and adopt appropriate corrective and preventive actions (CPA) for mitigation. Confirmation of the effectiveness of the CPA shall be verified by Project Manager within an agreed time.*

Signature of Site Inspector \_\_\_\_\_ Date \_\_\_\_\_

Reviewed by Project Manager \_\_\_\_\_ Date \_\_\_\_\_

**Improvement Request:**

Project \_\_\_\_\_ Site Location \_\_\_\_\_  
Inspection Date \_\_\_\_\_ Inspected by \_\_\_\_\_

NC Reference	
Description of NC	
Root cause of NC	
CPA adopted Target completion date	
Verified by PEO (Date)	

NC Reference	
Description of NC	
Root cause of NC	
CPA adopted Target completion date	
Verified by PEO (Date)	

NC Reference	
Description of NC	
Root cause of NC	
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