

ATTACHMENT 1

RECOMMENDED POLLUTION CONTROL CLAUSES FOR CONSTRUCTION CONTRACTS

AVOIDANCE OF NUISANCE

- (i) All works are to be carried out in such a manner as to cause as little inconvenience as possible to nearby residents, property and to the public in general, and the Contractor shall be held responsible for any claims which may arise from such inconvenience.
- (ii) The Contractor shall be responsible for the adequate maintenance and clearance of channels, gullies etc. and shall also provide and maintain such pedestrian and vehicular access as shall be directed within the works site.
- (iii) Water shall be used to prevent dust rising and the Contractor shall take every precaution to prevent the excavated materials from entering into the public drainage system.
- (iv) The Contractor shall carry out the Works in such a manner as to minimise adverse impacts on the environment during execution of the Works.

NOISE POLLUTION CONTROL

General Requirements

- (i) The Contractor shall comply with and observe the Noise Control Ordinance and its subsidiary regulations in force in Hong Kong.
- (ii) The Contractor shall provide an approved integrating sound level meter to IEC 651: 1979 (Type 1) and 804 : 1985 (Type 1) and the manufacturer's recommended sound level calibrator for the exclusive use of the Engineer at all times. The Contractor shall maintain the equipment in proper working order and provide a substitute when the equipment are out of order or otherwise not available.
- (iii) The sound level meter including the sound level calibrator shall be verified by the manufacturers every two years to ensure they perform the same levels of accuracies as stated in the manufacturer's specifications. That is to say at the time of measurements, the equipment shall have been verified within the last two years.
- (iv) In addition to the requirements imposed by the Noise Control Ordinance, to control noise generated from equipment and activities for the purpose of carrying out any construction work other than percussive piling during the time period from 0700 to 1900 hours on any day not being a general holiday (including Sundays), the following requirements shall also be complied with : -
 - (a) The noise level measured at 1m from the most affected external facade of any nearby noise sensitive receivers from the construction work alone

during any 30 minute period shall not exceed an equivalent sound level (Leq) of 75 dB(A).

- (b) The noise level measured at 1m from the most affected external facade of any nearby schools from the construction work along during any 30 minute period shall not exceed an equivalent sound level (Leq) of 70dB(A) [65dB(A) during school examination periods].

The contractor shall liaise with the schools and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the Contract.

- (c) Should the limits stated in the above sub-clauses (a) and (b) be exceeded, the construction shall stop and shall not recommence until appropriate measures acceptable to the Engineer that are necessary for compliance have been implemented.

Any stoppage or reduction in output resulting from compliance with this clause shall not entitle the Contractor to any extension of time for completion or to any additional costs whatsoever.

- (v) Before the commencement of any work, the Engineer may require the methods of working, equipment and sound-reducing measures intended to be used on the Site to be made available for inspection and approval to ensure that they are suitable for the project.
- (vi) The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.
- (vii) The Contractor shall ensure that all plant and equipment to be used on Site are properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means to avoid disturbance to any nearby noise sensitive receivers.
- (viii) Notwithstanding the requirements and limitations set out in clause (iv) above and subject to compliance with clauses (vi) and (vii) above, the Engineer may upon application in writing by the Contractor, allow the use of any equipment and the carrying out of any construction activities for any duration provided that he is satisfied with the application which, in his opinion, to be of absolute necessity and adequate noise insulation has been provided to the educational institutions to be affected, or of emergency nature, and not in contravention with the Noise Control Ordinance in any respect.
- (ix) No excavator-mounted breaker shall be used within 125m from any nearby noise sensitive receivers. The Contractor shall use hydraulic concrete crusher whenever applicable.

- (x) The only equipment that shall be allowed on the site for rock drilling works will be quiet drilling rigs with a sound power level not exceeding 110dB(A). Conventional pneumatically driven drilling rigs are specifically prohibited.
- (xi) For the purposes of the above clauses, any domestic premises, hotel, hostel, temporary housing accommodation, hospital, medical clinic, educational institution, place of public worship, library, court of law, or performing arts centre or office building shall be considered a noise sensitive receiver.
- (xii) The Contractor shall, when necessary, apply as soon as possible for a construction noise permit in accordance with the Noise Control (General) Regulations, display the permit as required and copy to the Engineer.

DUST SUPPRESSION MEASURES

- (i) The Contractor shall undertake at all times to prevent dust nuisance as a result of his activities. The air pollution control system installed shall be operated whenever the plant is in operation.
- (ii) The Contractor shall at his own cost, and to the satisfaction of the Engineer, install effective dust suppression equipment and take such other measures as may be necessary to ensure that at the Site boundary and any nearby sensitive receiver the concentration of air-borne dust shall not exceed 0.5 milligrams per cubic meter, at standard temperature (25°C) and pressure (1.0 bar) averaged over one hour, and 0.26 milligrams per cubic metre, at standard temperature (25°C) and pressure (1.0 bar) averaged over 24 hours.
- (iii) In the process of material handling, any material which has the potential to create dust shall be treated with water or sprayed with wetting agent.
- (iv) Where dusty materials are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust should be provided for this enclosure and vented to a fabric filter system.
- (v) Any vehicle with an open load carrying area used for moving materials which have the potential to create dust shall have properly fitting side and tail boards. Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.
- (vi) Any stockpile of dusty material shall be either:
 - (a) covered entirely by impervious sheeting;
 - (b) placed in an area sheltered on the top and three sides; or
 - (c) sprayed with water or dust suppression chemical so as to maintain the entire surface wet.

- (vii) Implementation of mitigation measures under the Air Pollution Control (Construction Dust) Regulation where appropriate.
- (viii) The Contractor shall frequently clean and water the site to minimize the fugitive dust emissions.
- (ix) The Contractor shall restrict all motorized vehicles to a maximum speed of 8km per hour and confine haulage and delivery vehicles to designated roadways inside the site. Areas of roadway longer than 100m where movement of motorized vehicles exceeds 100 vehicular movements/day or as directed by the Engineer shall be furnished with a flexible pavement surfacing.
- (x) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facilities to the Engineer prior to construction of the facility. Such wheel washing facility shall be usable prior to any earthworks excavation activity on the Site. The Contractor shall also provide a hard-surfaced road between washing facility and the public road.
- (xi) Conveyor belts shall be fitted with windboards, and conveyor transfer points and hopper discharge areas shall be enclosed to minimize emission of dust. All conveyors carrying materials which have the potential to create dust shall be totally enclosed and fitted with belt cleaners.

WATER POLLUTION CONTROL

Discharge into Sewers and Drains

- (i) The Contractor shall not discharge directly or indirectly (by runoff) or cause or permit or suffer to be discharged into any public sewer, storm-water drain, channel, stream-course or sea, any effluent or foul or contaminated water or cooling or hot water without the prior consent of the relevant Authority who may require the Contractor to provide, operate and maintain at the Contractor's own expense, within the premises or otherwise, suitable works for the treatment and disposal of such effluent or foul or contaminated or cooling or hot water.
- (ii) If any office, site canteen or toilet facilities is erected, foul water effluent shall, subject to paragraph (I) above, be directed to a foul sewer or to a sewage treatment facility.
- (iii) The Contractor's attention is drawn to the Building Ordinance, the Water Pollution Control Ordinance and the Technical Memorandum 'Standard for Effluent Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters' and ProPECC PN 1/94 "Construction Site Drainage".

WASTE MANAGEMENT

General

- (i) The Contractor is responsible for waste control within the Site, removal of waste materials produced from the Works and to implement any mitigation measures to minimise waste or to redress problems from waste arising from the Works. The waste may include any sewage, waste water or effluent containing sand, cement, silt or any other suspended solid or dissolved material to flow from the Works onto any adjoining land, storm water or foul water sewer, or any waste matter or surplus material or refuse to be deposited outside the Site or to be deposited permanently anywhere within the Works. The illegal ‘fly-tipping’ of any wastes or surpluses which may arise from the Works is strictly prohibited.
- (ii) The overall waste management strategy to be adopted involves minimisation of the waste generation, coupled with the maximum reuse and recycling of waste, where practicable, in accordance with the general principles of the waste management hierarchy.
- (iii) Unless otherwise stated in the Contract, all Construction and Demolition (C&D) Material arising from or in connection with the Works shall become the property of the Contractor. The Contractor shall promptly remove all sorted and processed materials not suitable for inclusion in the Works.
- (iv) The Contractor shall comply with the Waste Disposal Ordinance, the Dumping at Sea Ordinance, the Public Health and Municipal Services Ordinance and the Water Pollution Control Ordinance and any other relevant legislation that may be brought into force when undertaking waste management.
- (v) The Contractor shall be responsible for obtaining the relevant license / permit, such as the effluent discharge licence, the chemical waste producer registration etc.

Removal of Waste Material

- (i) The Contractor shall not permit any sewage, waste water or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the Site onto any adjoining land or allow any waste matter or refuse to be deposited anywhere within the Site or onto any adjoining land and shall have all such matter removed from the Site.
- (ii) The Contractor shall be liable for any damages caused to adjoining land through his failure to comply with sub-clause (i).
- (iii) The Contractor shall be responsible for temporary training; diverting or conducting of open streams or drains intercepted by any works and for reinstating these to their original courses on completion of the Works.
- (iv) The Contractor shall be responsible for adequately maintaining any existing site drainage system at all times including removal of solids in sand traps, manholes and stream beds.

- (v) Any proposed stream course and nullah temporary diversions shall be submitted to the Engineer for agreement one month prior to such diversion works being commenced. Diversions shall be constructed to allow the water flow to discharge without overflow, erosion or washout. The area through which the temporary diversion runs is to be reinstated to its original condition or as agreed by the Engineer after the permanent drainage system has been completed.
- (vi) The Contractor shall furnish, for the Engineer's information, particulars of the Contractor's arrangements for ensuring that material from any earthworks does not wash into the drainage system. If at any time such arrangements prove to be ineffective, the Contractor shall take such additional measures as the Engineer shall deem necessary and shall remove all silt which may have accumulated in the drainage system whether within the Site or not.
- (vii) The Contractor shall segregate all inert construction waste material suitable for reclamation or land formation and shall dispose of such material at such dumping areas as may be specified from time to time by the Director of Civil Engineering.
- (viii) All non-inert construction waste material deemed unsuitable for reclamation or land formation and all other waste material shall be disposed of at a public landfill.
- (ix) The Contractor's attention is drawn to the Waste Disposal Ordinance, the Public Health and Municipal Services Ordinance and the Water Pollution Control Ordinance. It shall be the Contractor's responsibility, at his own cost, to obtain all licences, permits and the like which may be necessary for compliance with the above or other ordinance.