

## Environmental Management of Works Projects

Protecting the environment as far as practicable in our work remains one of our top commitments. We systematically manage impacts that our work may have on the environment and ensure that all our activities are carried out in an environmentally responsible manner.



## Environmental Impact Assessment for Works Projects

In delivering a new works project, we identify at the planning stage the environmentally sensitive areas and try to avoid its impacts on the environment. During the design stage, we set up operational control requirements on the significant aspects and identify mitigation measures for inclusion into the project documents. With a view to protecting residents and other sensitive receivers from adverse environmental impacts of the proposed works, we go through the Environmental Impact Assessment (EIA) process as required under the Environmental Impact Assessment Ordinance (EIAO). The process usually covers an assessment on noise, air and water pollution; landscape and visual aspects; and impact on ecology, cultural heritage and archaeological sites during both the construction and operation stages of the project. It identifies the sectors of the community and aspects of the environment likely to be affected, quantifies impact sources, and evaluates the severity of impacts on potential affected uses. If any adverse impact is identified, we provide measures to avoid such impact or to mitigate it to an acceptable level.



## EIA for Central-Wan Chai Bypass and Island Eastern Corridor Link

An Environmental Impact Assessment (EIA) Report was prepared under the EIAO. The proposed environmental mitigation measures recommended in the EIA Report are highlighted below:

- use of quiet powered mechanical equipment;
- use of temporary movable noise barrier;
- provide silencers for ventilation fans in ventilation buildings;
- use of silt curtain;
- translocation of potentially affected coral colonies;
- reduction of dredging rate;
- use of floating booms to confine floating refuse from working barges;
- use of geosynthetic containers for disposal of highly contaminated dredged mud; and
- air quality monitoring for operational performance of the East Ventilation Building and associated East Vent Shaft.

We shall apply for Environmental Permits (EPs) from Environmental Protection Department and incorporate the conditions in the EPs together with the mitigation measures into relevant contracts for implementation.

## Preservation of Heritage for Central Kowloon Route

The proposed Central Kowloon Route (CKR), a dual 3-lane trunk road across central Kowloon linking West Kowloon in the west and the proposed Kai Tai Development in the east, will mainly comprise tunnel sections.

The proposed alignment of CKR may affect the existing Yau Ma Tei Police Station which is a Grade III historic building. In the investigation study which commenced in August 2007,

various alignment options and impacts to the police station are being studied as a measure for heritage preservation. Consultation activities are held to keep concerned parties informed about the progress of the study and to collect their views on the approach to be adopted for the preservation of the building.

A built heritage impact assessment will also be carried out in the investigation study to identify known and unknown heritage items related to the CKR alignment (including the Yau Ma Tei Police Station) and to assess the direct

or indirect impacts with recommendation for mitigation as appropriate.



Yau Ma Tei Police Station – a Grade III historic building



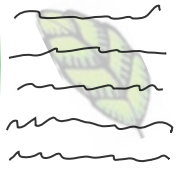
## Green Procurement in Works Tenders

### Incorporation of environmental clauses into the tender documents

In addition to incorporation of all relevant standard environment-related clauses promulgated by the Development Bureau into the tender documents, further measures to be carried out by the contractors are also included in the tender documents to further protect the environment. These measures include the following: -

- Vehicles for the Engineer shall be equipped with engines propelled by petrol, liquefied petroleum gas (LPG), electricity, hybrid of petrol-electricity, or any other non-fossil fuels;
- where appropriate, metallic materials shall be used for temporary works;
- site depots shall be surfaced with reclaimed asphalt pavement;
- all electrical appliances and equipment used in the site shall bear Energy Efficiency Labels where practicable; and
- for contracts involving considerable earthworks, wheel washing facilities shall be provided.

### TENDER



In the tender documents, tenderers' attention is particularly drawn to the contract requirements in respect of the use of environmentally friendly plant/materials. For projects requiring environmental permits under the Environmental Impact Assessment Ordinance, the Environmental Permits issued to the Department are included in the contracts requiring the contractors to observe and abide by the conditions set out in the Permits.

### Tender submission and tender evaluation

As a general policy, tenderers' past convictions records on environment-related offences will be checked and considered prior to recommendation of the tenderers for award of contracts. Where a marking scheme is adopted for assessment of the tenders, extra credits will be given to the tenderers who propose better environmental protection measures in their technical proposals.

Both hard and soft copies of tender documents for works contracts are issued to the tenderers. Tenderers are allowed to submit tenders in the traditional hard copy format or partly in electronic format.

## Environmental Management in Construction Sites

In general, our contractors in capital works contracts are required to prepare and implement Environmental Management Plans (EMP) comprising abatement of environmental nuisances on construction sites and reduction of construction and demolition (C&D) materials. Typical EMP contains mainly the organizational structure of project team in respect of environmental management, summary of environmental impacts identified and the associated mitigation measures, waste management plan as well as the procedures for handling environmental emergencies.

### General environmental nuisance abatement measures in works projects

The photographs below show some of the environmental nuisance abatement measures carried out on site by our contractors:

#### Water Pollution



Silt curtain as water pollution nuisance abatement



Toilet facilities were provided in works area



Sedimentation tank with flocculant dosing



Air Pollution



Plastic and tarpaulin sheets as dust pollution nuisance abatement



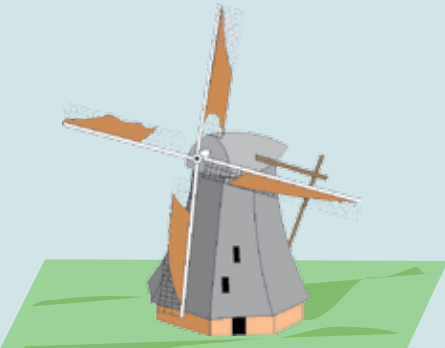
Dusty material covered up



Dump truck fitted with automatic covers



Fugitive dust control



## Waste Pollution



Waste collection bins for different categories of wastes



Storage of chemical waste to avoid work site contamination

## Noise Pollution



Silent piler was used for driving sheetpiles in front of Kwai Tsing Theatre



### Waste Management

The strategy for management and disposal of all construction and demolition (C&D) materials is based on the principle of sorting and re-use as far as practicable.



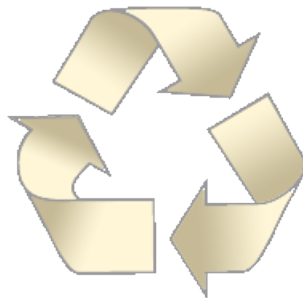
Recovery of steel reinforcement bars from broken concrete



Sorting out of good quality granite from cut-slope work for reuse



Using of recycled grade 200 rock fill from Public Filling Area as temporary road sub-base



## Monitoring of Contractors' Performance on Environmental Protection

In general, a contractor's overall performance including the individual aspect of performance on "environmental pollution control" is subject to quarterly review after the contract commences. In the event of unsatisfactory environmental performance, it will be reflected in the Contractor's Performance Report, which may lead to possible suspension of tendering.

### Environmental Management System

Our Department implements the Environmental Management System (EMS) certified to ISO 14001:2004. Under the EMS, the contractors' environmental performance and their compliance with the environmental requirements including various legislations are regularly checked and monitored.

We monitor the environmental performance of our contractors through:

- Regular environmental walks jointly conducted by the contractor and the Engineer's Representative
- Regular inspections and monitoring by Environmental Team and Independent Environmental Checker required for designated projects under the Environmental Impact Assessment Ordinance
- Monthly Site Safety and Environmental Management Committee Meeting chaired by the Engineer's Representative
- Regular environmental inspections by our project officers
- Site checks by the Engineer's



Representative or his site supervisory staff in monitoring the trip ticket system implemented by the contractor

- Spot checks by site supervisory staff to ensure that vehicles carrying dusty material are properly and securely covered before leaving construction sites
- Task-oriented audits to assess effectiveness of the contractors' performance in controlling mosquito breeding on construction sites and compliance with legislative and other requirements

In the event that a contractor is found to be non-compliant, corrective action will be identified and implemented. With an aim of monitoring closely the contractor's follow-up actions, any non-compliance with legal requirements (i.e. potential offence / offence) once identified will also be brought to the attention of the senior management in the Department. Project staff regularly review the progress of the follow-up actions taken and report them to the senior management until completion of the actions.

For those contracts under "Pay for Safety and Environment Scheme", the performance of the contractors in implementing the Environmental Management Plan is monitored under the framework described in ETWB TCW No. 19/2005 "Environmental Management on Construction Sites" and its interim guidance note issued on 19 June 2006. The contractors will receive monthly payment only if they have satisfactorily performed the items as specified in the contracts.



## Environmental Training

The Department is committed to providing environmental training for all levels of staff. To promote understanding of the principles and operation of the Environmental Management System (EMS) complying with ISO 14001, all staff newly posted to the department would attend a relevant awareness course. Moreover the Training Services Unit arranged training on 2-day EMS Internal Auditor courses for staff who are required to serve as internal auditors.

Adequate training opportunities were provided to frontline staff to brief them on environmental monitoring procedures and checking requirements under the department's EMS. Latest changes in handling and reporting of identified non-compliance with legal requirements were also included in the training. Moreover our professional and technical staff also attended training courses on environmental legislation conducted by EPD.

The department had procured the computer software "RoadNoise 2000" which was used for the assessment of road traffic noise and design of noise barrier. Relevant training including EPD's requirement on

noise assessment method for our staff was conducted so that they could get hands-on experience of using the software.

To enhance knowledge and awareness about heritage and conservation, we have arranged with the Department of Architecture at The University of Hong Kong to organise a half-day programme for our professional staff. The programme, comprising two interactive lectures and a mini-workshop, introduced the subject on cultural heritage and also looked at the multiple values carried by cultural heritage assets with emphasis placed on buildings and public spaces. The mini-workshop gave participants the opportunity to apply their understanding on cultural heritage and associated values to a specific area in Hong Kong.

Besides, the department organized regular internal seminars to promote experience sharing among the professional staff. Topics related to environmental issues included the latest developments in technology of low noise road surfacing in Europe and application of solar power in public lighting.

Environmental Training Courses held in 2007

