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ACE-EIA Paper 8/2008
For advice

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
West Island Line

PURPOSE

This paper summarizes the key findings and recommendations of the Environmental Impact Assessment (EIA) report on the West Island Line (hereafter known as "the Project"), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO). The EIA report will be presented by the applicant, MTR Corporation Limited, and their consultants at the meeting.

ADVICE SOUGHT

2. Members' views are sought on the findings and recommendations of the EIA report.

NEED FOR THE PROJECT

3. The EIA report points out that, as one of the priority railway extensions recommended in the Railway Development Strategy 2000, an extension of the existing MTR Island Line to Western District has been under planning for many years. The project is known as the West Island Line. When completed, it will help improve passenger accessibility to the Western District and relieve road congestion in the area.

DESCRIPTION OF THE PROJECT

4. The Project scope consists of a fully underground railway approximately 3 km long (see **Figure 1**). Three new underground stations will be provided, namely Sai Ying Pun, University and Kennedy Town. Construction is scheduled to start in early 2009 for completion by early 2014. The Project constitutes a Designated Project (DP) by virtue of the following items in Schedule 2, Part I of the EIAO:

(i) Item A.2 **-** A railway and its associated stations;

(ii) Item A.7 - A railway tunnel more than 800 m in length between portals; and

(iii) Item Q.2 / K.10 - Underground rock cavern / An explosive depot in a stand-alone, purpose built building

VIEWS OF THE DIRECTOR AND RELEVANT AUTHORITIES

5. The Director of Environmental Protection (DEP), in conjunction with the relevant authorities, considers that the EIA report meets the requirements of the EIA Study Brief and the Technical Memorandum on Environmental Impact Assessment Process (TM). DEP will take into account comments from the public and the Advisory Council on the Environment before deciding whether or not to approve the EIA report.

ALTERNATIVES/OPTIONS

6. In the EIA report, alternatives/options with respect to railway alignment, location of stations, location of ventilation shafts, location of underground magazine, and construction methods are provided. The preferred options have taken into account environmental factors as well as other considerations such as passenger accessibility, site constraints, safety and engineering practicability.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

Ground-borne Noise

7. Given that the Project is an underground railway, ground-borne noise during operation is a key issue to be considered. The EIA predicts that the ground-borne operation noise will exceed the night-time criteria of 45 dB(A) Leq(30 min) by 4 to 14 dB(A) at five Noise Sensitive Receivers (NSRs). With mitigation measures in the form of "Type 1a Trackform – Resilient Baseplate" for about 1.3 km of the track (west of Sheung Wan Station and around University Station), no exceedance is predicted. As regards the ground-borne construction noise arising from the use of Tunnel Boring Machine and Powered Mechanical Equipment (PME) in open works areas, no exceedance is predicted. The ground-borne noise impact associated with the drill and blast construction method is not considered because the duration of blasting is very short and infrequent. Nonetheless, the EIA recommends that blasting should be done outside sensitive hours to avoid causing nuisance.

Cultural Heritage

8. The Project runs through the Western District where a number of Declared Monuments and Graded Historical Buildings are located, including the Western Market and the Main Building of the University of Hong Kong. As no project work will be done within any built heritage sites or known sites of archaeological potential, no direct cultural heritage impact is expected. Indirect impact in the form of construction vibration impact will be adequately controlled, through buffer distance and adjustment to charge weight per blast (as low as 0.5 kg near Kennedy Town Station) so as to stay within the relevant vibration criteria of 25 mm/s peak particle velocity limit. Vibration impact to heritage buildings during the operation stage will be minor since there is a minimum buffer distance of 23 m.

Landscape and Visual Quality

9. Several important landscape features might be affected by the Project. They include the tree walls at Forbes Street and the King George V Memorial Park, as well as

some of the Old and Valuable Trees listed in the Leisure and Cultural Services Department register. Potential landscape and visual impacts have been carefully considered during the planning stage. For example, by siting the Kennedy Town Station under the existing Kennedy Town Swimming Pool and away from the Forbes Street tree wall protection zone, all the wall-cum-trees at Forbes Street will be kept intact during both the construction and operation stages of the Project.

10. However, a total of about 13,500 m^2 of public open space and about 350 trees will still be subject to construction impacts, albeit only temporary for some; including 3 Old and Valuable Trees in King George V Memorial Park. Mitigation measures recommended include protection measures for Old and Valuable Trees and other trees under the supervision of registered landscape architect, tree transplantation, compensatory tree planting and re-provisioning of public open space as far as practicable. Details of these mitigation measures, the architectural design, chromatic treatment and visual/landscape measures for all above ground structures, including station entrances and vent shafts, will be submitted to the Planning Department for review to ensure that the structures will be sensibly designed and the measures will be implemented in a manner that is compatible with the existing urban environment.

11. The EIA report concludes that, after 10 years of implementation of the mitigation measures, the landscape and visual impacts would be small or insubstantial. The Planning Department has reviewed the EIA report and advised that the landscape and visual assessment of the report meets the requirements of the EIA Study Brief and TM.

Air-borne Noise

12. The Project requires construction works within a densely built-up urban setting. Construction noise level of up to 96 dB(A) is expected under the unmitigated scenario. With mitigation measures in place (quieter PME, movable noise barriers, acoustic shed for air compressor/concrete pump, acoustic enclosure for rock drill, noise insulating fabric for pile auger, silencer for fans, noise control curtain for building demolition and deck-over for excavation area, etc.), noise level of up to 86 dB(A) (i.e. 11 dB(A) in excess of the 75 dB(A) standard) is still predicted, due to close proximity of the construction sites and demolition works to the nearby residential NSRs. At the most affected NSR, the predicted residual impact of 11 dB(A) would last for about 27 months. Indirect Technical Remedy, i.e. improved glazing and air-conditioning, is proposed by the project proponent as a last resort for 109 dwellings where residual noise impact of 5 dB(A) or above is expected for durations of 1 month or more.

13. Operation noise impact, mainly from fixed plants in vent shafts, is predicted to be 5 dB(A) or more below the appropriate Acceptable Noise Levels set out in the Noise Control Ordinance Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites. Nonetheless, some noise reduction measures are proposed to further reduce the noise impact, e.g. installing quieter plants and locating fixed plants/louvers away from NSRs.

Hazard to Life

14. The hazard to life arising from the storage, transport and use of explosives in the Project has been assessed in a quantitative risk assessment. The results show that the societal risk and individual risk are both within the acceptable risk levels of the Risk Guidelines under the TM.

Waste Management Implication

15. The Project would generate about 0.82 Mm^3 of construction and demolition (C&D) materials, most of which (about 0.76 Mm^3) requires disposal at public fill reception facilities for recycling or other appropriate uses. The Civil Engineering and Development Department has reviewed the EIA report and raised no concern from the fill management perspective on the re-use/disposal of the C&D materials.

Air Quality

16. Impacts of construction dust from demolition, handling of C&D materials, and the proposed rock crushing activities at the works area in the former Kennedy Town Incinerator site are predicted to comply with relevant standards and criteria at Air Sensitive Receivers with the implementation of dust control measures in the engineering design of rock crusher, conveyor belt system (enclosed), stockpiling and barging facilities, and with the proper dust suppression measures/good site practice in place.

17. The West Island Line is an electric railway and there is no engine exhaust emission from railway operation. According to the preliminary design of the West Island Line, the separation distance between the vent shafts and openings of the adjacent building will be over 8 m and no noticeable temperature effect will result from vent shaft emissions.

Other Environmental Impacts

18. The EIA report also covers assessment of the potential impacts on water quality and land contamination, and recommended measures to minimize such impacts. It also covers the impacts from construction and operation of the magazine in the cavern. With appropriate mitigation measures in place, the expected impacts are considered acceptable in terms of meeting the relevant requirements of the EIA Study Brief and TM.

ENVIRONMENTAL MONITORING AND AUDIT

19. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during both the construction and operation phases of the Project, in particular EM&A for (i) construction phase air-borne noise, ground-borne noise, dust, landscape and visual impacts, cultural heritage impacts, changes in water table level; and (ii) commissioning test for ground-borne noise during operation phase, and implementation of landscape and visual mitigation measures.

PUBLIC CONSULTATION

20. The EIA report, EM&A Manual and Executive Summary are available for public inspection under the EIAO from 14 October 2008 to 12 November 2008**.** At the meeting, members will be briefed on any public comments received.

October 2008
Environmental Assessment Division,
Environmental Protection Department

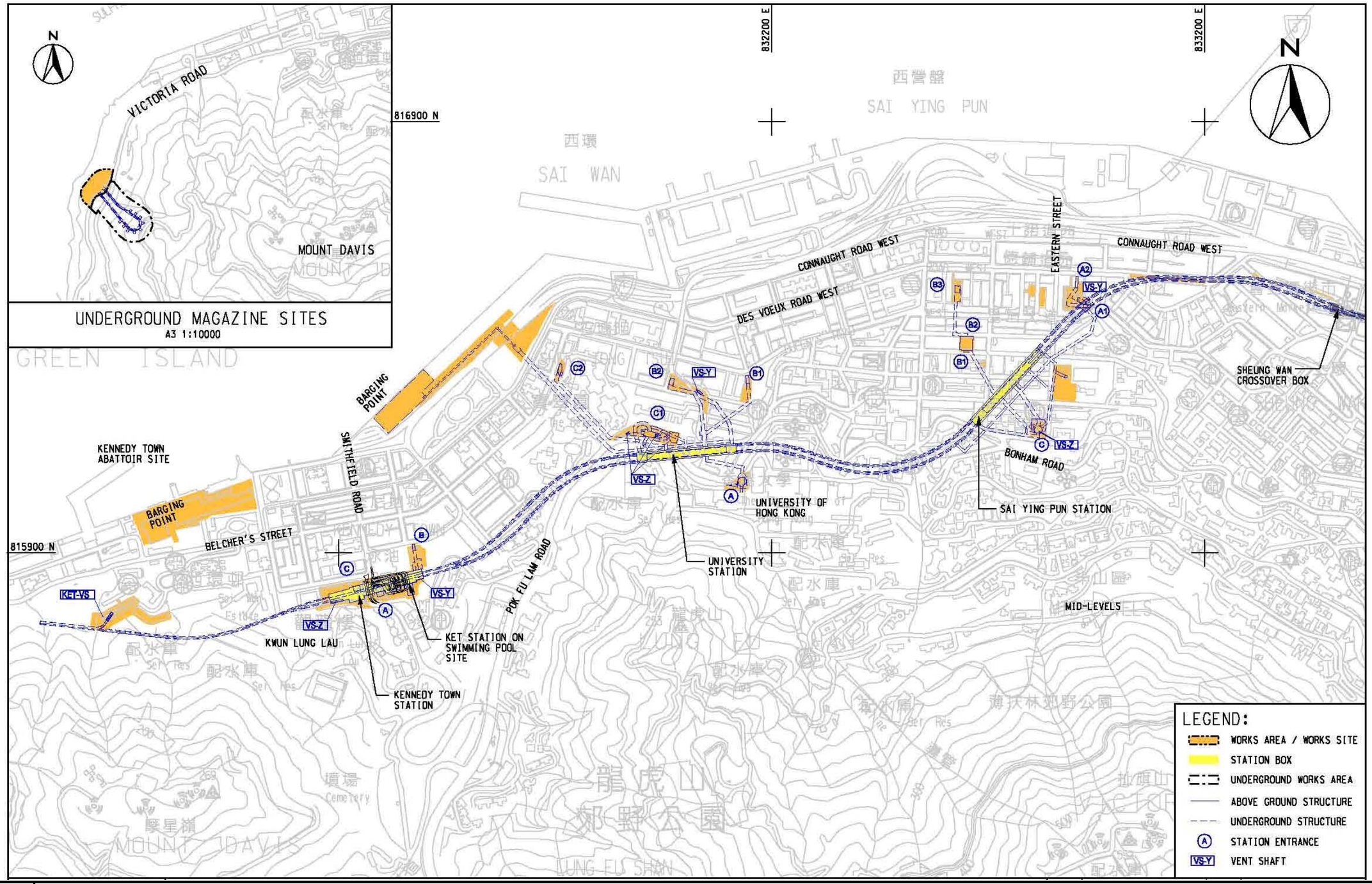

Figure 1: West Island Line Environmental Impact Assessment – West Island Line Overall View

(This figure was prepared based on Figure 1.1 of the submitted EIA report)