40/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong
香港灣仔告士打道 5 號稅務大樓 40 樓

ACE-EIA Paper 12/2009
For advice

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
West New Territories Landfill Extensions

PURPOSE

This paper outlines the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the proposed West New Territories (WENT) Landfill Extensions (hereafter known as the Project), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-171/2009). The Environmental Infrastructure Division of the Environmental Protection Department of the HKSAR Government (the applicant) and their consultants will present the report. Comments from the public and the Advisory Council on the Environment will be taken into account by the Director of Environmental Protection (DEP) in deciding on the approval of the EIA report under the EIAO.

ADVICE SOUGHT

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

NEED FOR THE PROJECT

3. Currently, about 5 million tones of waste are disposed of each year at the three strategic landfills in Hong Kong, including the WENT Landfill, the South East New Territories Landfill and the North East New Territories Landfill.

4. In order to maintain the continuity of landfill capacity for disposal of waste, the DEP commissioned a study in 2000. The study was completed in 2003 and proposed a strategic plan for the development of landfill extension and new sites for the disposal of solid waste in the next 50 years. The WENT Landfill Extensions form an integral part of the strategic plan.

DESCRIPTION OF THE PROJECT

5. The Project involves developing an extension site for the existing WENT Landfill. It will have an area of about 200 ha and a filling capacity of about 81 Mm^3 lying between the existing WENT Landfill and the Black Point Power Station at Nim Wan. Location of the Project is shown in the attached **figure**. The Project will mainly involve the following tasks:

(i) site formation and preparation;
(ii) installation of a liner system to prevent contamination of land and water resources;
(iii) installation of leachate collection, treatment and disposal facilities;
(iv) installation of gas collection, utilization and management facilities;
(v) provision of utilities, drainage and road network;
(vi) operation of the landfill;
(vii) restoration and aftercare in subsequent stages; and
(viii) implementation of measures to mitigate environmental impacts as well as environmental monitoring and audit.

6. The Project constitutes a designated project by virtue of the following items in Schedule 2 of the EIAO:

(i) Item G.1, Part I – A landfill for waste as defined in the Waste Disposal Ordinance (Cap. 354); and

(ii) Item 8, Part II – The decommissioning of a waste disposal facility for pulverized fuel ash, furnace bottom ash or gypsum.

CONSIDERATION OF ALTERNATIVE OPTIONS

7. During the EIA study, five broad layout options were considered, with environmental factors taken into consideration for recommending the preferred option.

8. The recommended layout of the Project will involve a balanced cut and fill approach and no disposal of excavated materials is anticipated. The recommended layout is also remote from the nearby residential developments, which are located about 1 km away from the site.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

<u>Ecological Impact</u>

9. The EIA study has recommended the provision of 21 ha of compensatory woodland planting to mitigate the loss of 3.76 ha of semi-natural woodlands

resulting from the construction of the Project. 5 ha of the compensatory planting will be provided in advance at the existing landfill after its restoration, while the remaining 16 ha of woodland will be planted at the landfill extension site after its restoration.

10. The EIA study has also recommended the provision of 5 ha of compensatory freshwater ponds as breeding habitats for Little Grebe and some other faunal species to mitigate the loss of 5 ha of water bodies due to the Project. 3 ha of the compensatory freshwater ponds will be created in advance on the existing landfill after its restoration; while the remaining 2 ha will be provided at the landfill extension site after its restoration.

11. Based on the EIA recommendations, the existing Pitcher Plant at Tsang Kok Stream will be transplanted to a nearby stream outside the Castle Peak Firing Range. This receptor site is chosen for its resemblance to the habitat at the impact site.

12. With the ecological mitigation measures in place, the anticipated residual impact is considered insignificant and meeting the requirements under the Technical Memorandum on Environmental Impact Assessment Process (TM).

Landscape and Visual Impact

13. The EIA study has assessed the potential visual impacts from the Project and has recommended mitigation measures such as provision of vegetation and careful design of the final level and final landform to match with the surroundings. The EIA report further concludes that the impacts are acceptable with mitigation measures in place.

14. In relation to the landscaping impacts, the EIA study predicts that about 6,000 trees would be felled resulting from the construction of the Project. The total loss of aggregate trunk diameter from these trees would be 3,650 m. A total of 107,100 tree seedlings, each with a diameter of about 35 mm, will be planted to compensate for the loss of trees and the ratio of compensation in terms of actual loss to compensated aggregate trunk diameter will not be less than 1:1.

Landfill Gas

15. The decomposition of waste deposited in a landfill will generate landfill gas (LFG), which can pose potential hazards if not properly controlled. The EIA study has included a qualitative risk assessment of LFG hazards at various receivers, such as workers and staff of the Project and the Black Point Power Station. The overall risk to the receivers within the Project area, such as workers and staff of the Project, was categorized as “Medium” to “High”; while that to receivers outside the Project area, such as the Black Point Power Station, would be “Low” to “Medium”. The EIA study has recommended a package of protective

and precautionary measures, including provision of barriers for cutting off LFG and installation of vent pipes, as well as monitoring programme to reduce the risk. With these measures in place, unacceptable LFG hazards are not anticipated.

Water Quality Impact

16. No dredging will be carried out during the construction stage. During the operation of the Project, the size of the tipping face will be strictly controlled to reduce the amount of rainwater penetrating into the waste mass, ending up as leachate. All contaminated run-off due to contact with the waste will be collected and treated together with the landfill leachate/sewage at the proposed on-site leachate treatment plant before being discharged via the existing submarine outfall at Urmston Road into marine waters. As a precautionary measure, a contingency plan on leachate seepage has also been proposed, including groundwater collection layers to collect any leaked leachate to the on-site leachate treatment plant and hence no residual groundwater impact is predicted. With the above measures in place, adverse water quality impact is not anticipated.

Odour Impact

17. The EIA study has assessed the odour impact from the active tipping surfaces of the landfill and the proposed on-site leachate treatment plant. While in general two active tipping surfaces will be used, in certain areas which are close to sensitive receivers, the EIA report recommends to allow only one tipping face with a tipping surface area of no more than 60 m x 30 m. The EIA further recommends installation of ventilated cover with deodorizer for the leachate treatment plant. The odour assessment results show that, with these measures in place, the residual impact on nearby dwellings during the operation period of the Project will comply with the criteria of 5 odour units in the TM.

Cultural Heritage

18. The EIA study has concluded that the potentially affected Hung-Shing Temple and historic clan graves within the Project Site are all of relatively low cultural heritage value, as they were rebuilt recently in the last two decades.

19. As the Tsang Tsui Archaeological Site is situated within the Project boundary, the EIA study has recommended the execution of a full scale rescue excavation so that the archaeological data and items can be recorded and retrieved prior to the commencement of construction at the Tsang Tsui Archaeological Site.

Other Environmental Impacts

20. The EIA report has also assessed the potential impacts arising from air emissions and noise during the construction and operation phases. The

assessment concludes that, with appropriate mitigation measures in place, the anticipated environmental impacts are acceptable in terms of meeting the relevant requirements of the EIA Study Brief and TM.

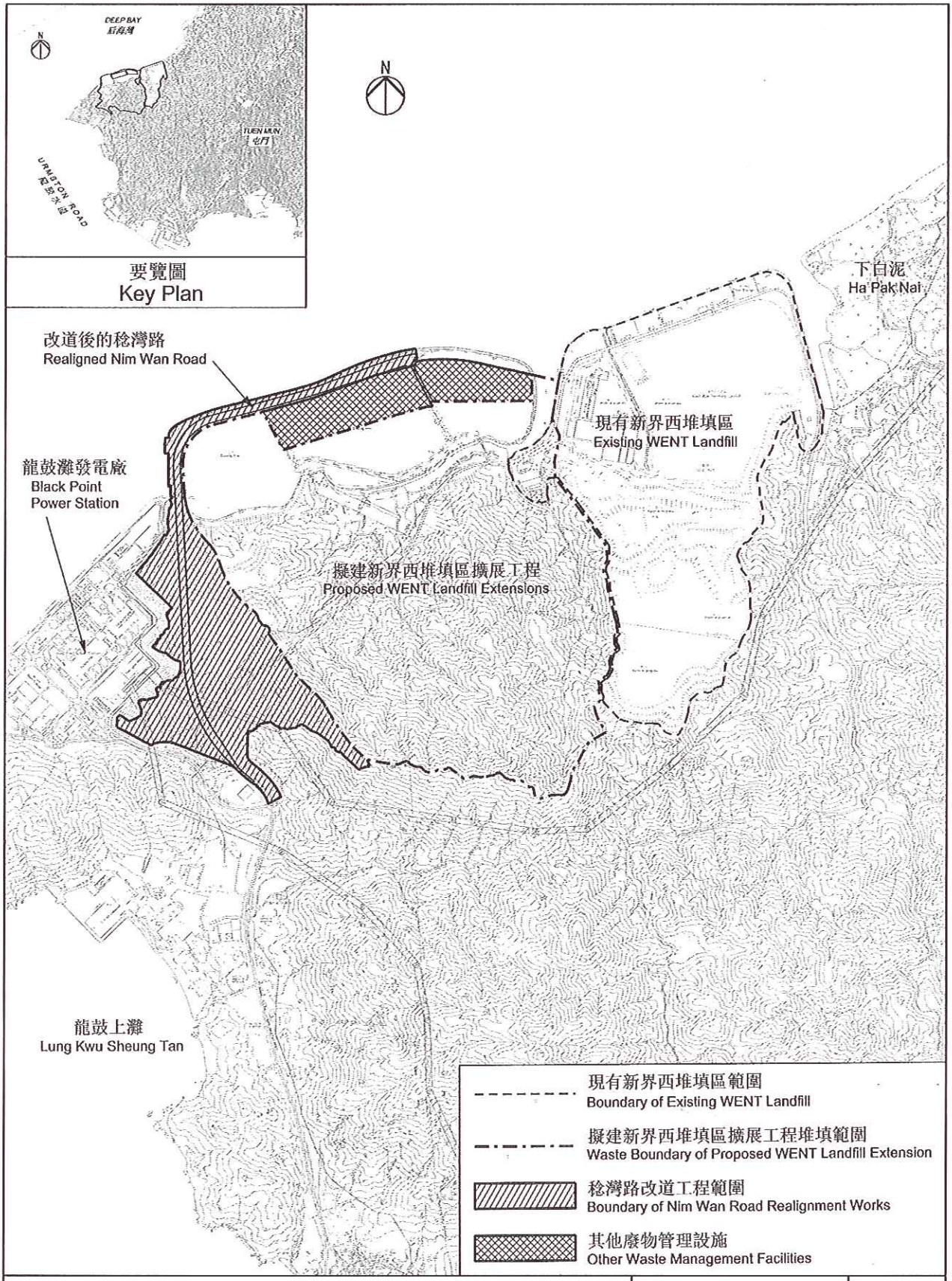
ENVIRONMENTAL MONITORING AND AUDIT

21. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during the construction, operation, restoration and aftercare phases of the Project.

PUBLIC CONSULTATION

22. The EIA report, EM&A Manual and Executive Summary were made available for public inspection under the EIAO from 25 August 2009 to 23 September 2009. At the meeting, Members will be briefed on public comments received.

September 2009
Environmental Assessment Division
Environmental Protection Department



擬建新界西堆填區擴展工程 – 位置圖
Proposed West New Territories (WENT) Landfill Extension Site - Location Plan

Figure