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**ACE-EIA Paper 1/2009**  
*For advice*

**Environmental Impact Assessment Ordinance (Cap. 499)**  
**Environmental Impact Assessment Report**  
**Kai Tak Development**

**PURPOSE**

This paper summarizes the key findings and recommendations of the Environmental Impact Assessment (EIA) report on the Kai Tak Development (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, Civil Engineering and Development Department, 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, during various stages of the public participation process conducted under the Kai Tak Planning Review, the general public aspiration is in favour of the early implementation of the Project. There is a need to implement the construction of supporting infrastructure as well as initiate the land disposal to materialize the full development of the land left vacant at the disused Kai Tak airport and its benefits to the surrounding hinterland.

## DESCRIPTION OF THE PROJECT

4. The scope of the Project consists of an engineering feasibility study of an urban development, with a study area covering about 328 ha in the south-eastern part of the Kowloon Peninsula, which constitutes a Schedule 3 Designated Project (DP) under the EIAO, being greater than 20 ha in the study area. The Project comprises the apron and runway areas of the former Kai Tak Airport and the existing waterfront areas at To Kwa Wan, Man Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It also covers the Kowloon Bay, the Kwun Tong Typhoon Shelter and the adjacent water bodies. The Project is estimated to result in a total population and employment of about 86,000 and 84,000 respectively.

5. The EIA has also identified the following 18 Schedule 2 DPs within the study area. The Project location is shown in the attached figure.

- (i) **DP1:** New distributor roads serving the planned Kai Tak Development (KTD) (Items A.1, A.8 & A.9 of Part I of Schedule 2 of the EIAO);
- (ii) **DP2:** New sewage pumping stations serving the hinterland and the planned KTD (Item F.3 of Part I of Schedule 2 of the EIAO);
- (iii) **DP3a:** Decommissioning of the remaining parts [Ex-GFS Building and Radar Station] of the former Kai Tak Airport (Item 1 of Part II of Schedule 2 of the EIAO);
- (iv) **DP3b:** Decommissioning of the remaining parts [HKAC site and existing EMSD Headquarters] of the former Kai Tak Airport (Item 1 of Part II of Schedule 2 of the EIAO);
- (v) **DP4:** Decommissioning of the former Kai Tak Airport other than the North Apron (Item 1 of Part II of Schedule 2 of the EIAO);
- (vi) **DP5:** Kai Tak Airport North Apron decommissioning (Item 1 of Part II of Schedule 2 of the EIAO);
- (vii) **DP6:** Dredging works for proposed cruise terminal at Kai Tak (Item C.12 of Part I of Schedule 2 of the EIAO);

- (viii) **DP7:** Outdoor sporting facility of the proposed Stadium Complex (Item O.7 of Part I of Schedule 2 of the EIAO);
- (ix) **DP8:** Kwun Tong transportation link (Item A.8 of Part I of Schedule 2 of the EIAO);
- (x) **DP9:** 400kV electricity substation and transmission line (Item H.1 of Part I of Schedule 2 of the EIAO);
- (xi) **DP10:** Trunk Road T2 [including the associated dredging works and reconstruction of submarine sewage outfall from Kwun Tong PTW] (Items A.1, A.7, C.12 & F.6 of Part I of Schedule 2 of the EIAO);
- (xii) **DP11:** Central Kowloon Route (Items A.1 & A.7 of Part I of Schedule 2 of the EIAO);
- (xiii) **DP12:** Shatin to Central Link (Items A.2 & A.7 of Part I of Schedule 2 of the EIAO);
- (xiv) **DP13a:** Environmentally Friendly Transport System [if the selected transport system is rail type] (Item A.2 of Part I of Schedule 2 of the EIAO);
- (xv) **DP13b:** Maintenance depot for Environmentally Friendly Transport System [if the selected type of transport system requires a depot] (Item A.4 or A.6 of Part I of Schedule 2 of the EIAO);
- (xvi) **DP14:** Submarine gas pipeline relocation (Items C.12 & H.2 of Part I of Schedule 2 of the EIAO);
- (xvii) **DP15:** Pumping station of DWFI Compound for JVBC (Item F.3 of Part I of Schedule 2 of the EIAO); and
- (xviii) **DP16:** Upgrading of Kwun Tong Sewage Preliminary Treatment Works (Item F.1 of Part I of Schedule 2 of the EIAO).

6. The above Schedule 2 DPs will require environmental permits for their decommissioning or their construction and operation.

7. This EIA has been prepared to adequately address the environmental impacts of DP1, DP2 & DP3a without the need of further Schedule 2 EIA studies at a later stage, in addition to being a Schedule 3 EIA. Separate EIA reports have been completed for DP4, DP5 & DP6 and were approved under the EIAO. EIAs for the other DPs will be conducted in accordance with the Project's development programme.

## **VIEWS OF THE DIRECTOR AND RELEVANT AUTHORITIES**

8. 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.

## **SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT**

### Air Quality

9. The odour arising from existing odour sources, including the Kai Tak Nullah (KTN), the Kai Tak Approach Channel (KTAC) and the Kwun Tong Typhoon Shelter (KTTS), is a key issue to be considered. The EIA recommends a package of odour mitigation measures to include (i) localized dredging within KTAC and KTTS; (ii) in-situ bioremediation sediment treatment by injecting liquid calcium nitrate solution into the upper sediment layers of the entire KTAC and KTTS; (iii) creation of a 600 m opening at the northern part of the former Kai Tak Runway to improve water circulation in KTAC and KTTS; and (iv) interception of polluted discharges in the hinterland of the Project.

10. With the implementation of the above mitigation package and assuming that the bioremediation of sediment can achieve 80% odour removal efficiency, the predicted highest odour level will be reduced from current maximum of 675.0 ou/m<sup>3</sup> to about 32.2 ou/m<sup>3</sup> at representative air sensitive receivers within the Project area under the worst case scenario. The standard for odour intensity is 5 odour units over a 5-second average period. The EIA report stated that the residual odour impact will not result in long-term environmental implications nor adverse health impact. Hence the EIA concludes that the residual odour impact is acceptable.

11. The EIA recommends an odour monitoring programme to ascertain the effectiveness of the proposed mitigation measures over time, and to monitor any on-going odour impacts at the representative air sensitive receivers.

12. The EIA predicts that the air quality impact at all existing and planned air sensitive receivers due to emissions from vehicles, cruise vessels, proposed hospital and industrial chimneys in the study area will comply with the Air Quality Objectives. Moreover, with the implementation of dust suppression measures during the construction phase, no exceedance of the total suspended particulates criterion is predicted.

### Noise Impact

13. From traffic noise perspective, the EIA recommends decking of roads, the use of low noise surfacing on some local roads, structural fins at some public housing blocks, building setback and special building design at some planned residential uses, and predicts no adverse traffic noise impact at all existing and planned sensitive receivers due to the new roads of the Project. The EIA concludes that no road side noise barrier/enclosure for mitigating traffic noise arising from new roads in the Project is necessary. For fixed noise and other noise sources, with the recommended noise mitigation measures in place, the EIA predicts compliance with the TM criteria at noise sensitive receivers.

14. The external façade of some schools in close proximity to the works areas will still be exposed to construction noise exceeding the TM criteria by 1 to 16 dB(A), even with implementation of practicable noise mitigation measures: including quiet plant, movable noise barriers and noise enclosures. The longest duration of exceedance will be up to 66 months. The major activities causing the noise exceedance will be infrastructure works such as roads and drains around Prince Edward Road East and the Shatin Central Link. However, all affected schools have noise insulated windows and are equipped with air-conditioners.

15. Some residential developments will also be exposed to construction noise exceeding the TM criterion by 1 to 11 dB(A) and the longest duration is up to 60 months. The major activities causing the noise exceedance are the Central Kowloon Route [DP11] and Shatin Central Link [DP12]. The noise mitigation measures required and final level of residual impacts will be further assessed under the respective Schedule 2 EIA studies.

## Water Quality

16. The package of odour mitigation measures identified in paragraph 9 will also enhance the overall water quality. The EIA confirms that all marine based construction activities of the Project and their related cumulative water quality impact had already been assessed and presented in the “Dredging Works for Proposed Cruise Terminal at Kai Tak” EIA report approved in December 2007. The EIA reaffirms the conclusion that with the implementation of mitigation measures and appropriate dredging rate, no unacceptable water quality impact will result at representative water quality sensitive receivers during the construction phase of the Project.

17. Based on the monitoring results during the in-situ bioremediation pilot test for bottom sediment conducted at KTAC in 2006, the EIA predicts that the potential elevation in the nitrate-nitrogen level during bioremediation is expected to be transient, short-term and confined within the breakwaters of KTTS. As the ecological value of the existing water bodies in KTAC and KTTS is low and there is no biological water sensitive receiver identified in KTAC and KTTS, the EIA concludes that the potential water quality impact associated with the in-situ bioremediation sediment treatment of the Project will be limited.

18. The EIA recommends a 600 m gap opening at the northern part of the former Kai Tak Airport Runway to improve water circulation and flushing effect in the KTAC and KTTS, and the overall water quality. With this measure in place, the predicted bottom dissolved oxygen (DO) will fully comply with the water quality objectives (WQO) in all areas of KTAC & KTTS. However, under the worst assessment scenarios in 2013, exceedances of unionized ammonia, total inorganic nitrogen & depth-averaged DO in KTAC & KTTS are still predicted. Under the ultimate scenario with the planned water pollution control measures fully implemented, the predicted WQO exceedances in the Project area will be eliminated. The EIA predicates that the proposed 600 m opening will not adversely affect the overall water quality in the Victoria Harbour, and will unlikely increase the risk of algal bloom in the Harbour.

## Waste Management

19. The EIA estimates that the Project will generate about 5.95 million m<sup>3</sup> of construction and demolition material (C&DM) of which about 2.73 million m<sup>3</sup> will be reused. The remaining 3.22 million m<sup>3</sup> of C&DM may be reused at other project sites and/or disposed of at public fill or other designated sites.

20. The EIA estimates that the Project will generate about 4.57 million m<sup>3</sup> of dredged sediment. The EIA identifies that the majority of the dredged sediment will be contaminated and requires suitable marine disposal at sites to be allocated by Marine Fill Committee.

### Land Contamination

21. Land contamination identified in the North Apron area has been assessed under DP5, with the EIA report approved and land remediation completed. The EIA Report completed under DP4 did not identify any land contamination in the Runway area. Land contamination identified in the narrow strip of land near the Kai Tak Tunnel, the South Apron and the Ex-Government Flying Service Building apron area were relatively confined and localized. The urban area surrounding the Project area was found not to have any major land contamination problem. No adverse residual environmental impact is predicted with the implementation of appropriate mitigation measures and remediation actions to include biopiling and solidification/stabilization for the contaminated areas.

### Hazard to Life

22. The EIA has assessed the hazard to life implications from hazardous facilities in the study area including the Mau Tau Kok Gas Works North Plant, Kwun Tong Dangerous Goods (DG) Vehicular Ferry Pier, Kerry DG Godown, and Petrol cum Liquefied Petroleum Gas (LPG)/Dedicated LPG Filling Stations. The risk levels at the assessment year of 2012, 2016 and 2021 to the future occupants of the Project are found to be in compliance with the risk guidelines under the TM.

### Cultural Heritage

23. The marine archaeology investigation of the EIA did not lead to any archaeological resources but has not ruled out the possibility for archaeological material that could be buried deeply within the sub-seabed sediments. The EIA requires a monitoring brief during dredging to monitor the potential presence of archaeological material and to ensure its rescue if found.

24. Further terrestrial archaeological investigation (TAI) is recommended to establish the possible extent and context of the Song Dynasty material that was recovered

in Trench AA3 during the EIA TAI investigation. Upon completion of the required rescue excavation, the area in vicinity of AA3 will be ready for future development. Moreover, the EIA recommends further TAI and preservation in-situ for the remains of the unearthed Longjin Bridge.

25. Except for the Sung Wong Toi Inscription Rock which is considered to have high heritage significance, all other heritage resources examined within the study area is of moderate to low significance. The Sung Wong Toi Inscription Rock is currently located in a small public garden outside the Project boundary and will not be affected by the infrastructure work of KTD. However, whether the Sung Wong Toi Inscription Rock will be relocated to the new Sung Wong Toi Park in KTD is still subject to future consideration by the project proponent of the new Sung Wong Toi Park. No mitigation is required for the heritage resources examined and is to be retained in-situ within the Project area except for appropriate protective measures for structures at the site of the Old Far East Flying Training School during the laying of services in its vicinity, and protective measures for the Sung Wong Toi Inscription Rock in case of its relocation.

### Landscape and Visual Impacts

26. The EIA roughly estimates that about 2,250 existing trees will be affected by the KTD works, of which about 1,363 trees will be felled and 887 trees will be transplanted. Approximately 5,000 trees will be planted within new open spaces and about 1,000 trees will be planted along new distributor roads to compensate for the loss of existing trees.

27. The overall landscape character of the area will be changed from a flat open area with various temporary uses to a high-rise contemporary development with sports and entertainment nodes. Whilst the visual impacts on most the visually sensitive receivers (VSRs) are considered to be insubstantial or slight in general, there will be moderate to substantial residual visual impacts on some of the VSRs in local level, in particular those residential VSRs in To Kwa Wan, Kowloon City, San Po Kong and Kowloon Bay areas, mainly due to partial or fully loss of open sea view, enclosure of and blocking or reduction of depth of current views. However, the new open spaces and iconic developments under KTD will provide new visual resources and bring beneficial visual impacts to the VSRs. Overall, the EIA considers that the landscape and visual impacts due to KTD is acceptable with mitigation measures including the incorporation of design measures, and beneficial in the long term.

## Terrestrial Ecology

28. The EIA predicts that there will be a permanent loss of about 202.7 ha of wasteland, 15.8 ha of plantation/grassland mosaic, and 0.7 km artificial coastline in the former Kai Tak Airport. These habitats are ranked as very low to low in ecological value and support flora and faunal communities of low diversity with common and widespread species. In addition, the provision of about 127 ha of open space area with planting of native tree and vegetation species after the construction of the Project would provide more diverse and suitable habitats for the use of existing fauna assemblages. The EIA considers that impact of habitat loss under this Project as very minor and no significant and unacceptable impact on terrestrial ecological resources is expected under the Project.

## Marine Ecology

29. The EIA predicts that the Project will result in the temporary loss of approximately 74.4 ha of soft bottom benthic and subtidal habitats, temporary loss of about 1.6 km long of artificial intertidal habitat and permanent loss of about 0.7 km long of artificial intertidal habitat. Considering that the benthic, subtidal and intertidal habitats within the affected areas are of generally very low ecological value and direct impact on some isolated coral colonies will be mitigated by translocation, no significant adverse impact is expected.

## Fisheries

30. The EIA predicts that there will be temporary loss of approximately 74.4 ha of fishing area due to dredging associated with the Project. In view of the small size of affected fishing area, temporary and insignificant loss of fisheries production and the low impact of fishing activities, the fisheries impacts due to loss of fishing area within the dredging areas is considered as minor and acceptable. No impact on fisheries resources are expected to result from operation of the Project, as fishing activity will not be restricted in the sea area close to the cruise terminal and public landing steps cum fireboat berth.

## Sewerage and Sewage Treatment

31. No adverse sewerage impact due to KTD is identified in the EIA. Proposed

mitigation measures and upgrading works on the existing sewerage system are not required based on the sewage flow estimated from the latest population data.

## **ENVIRONMENTAL MONITORING AND AUDIT**

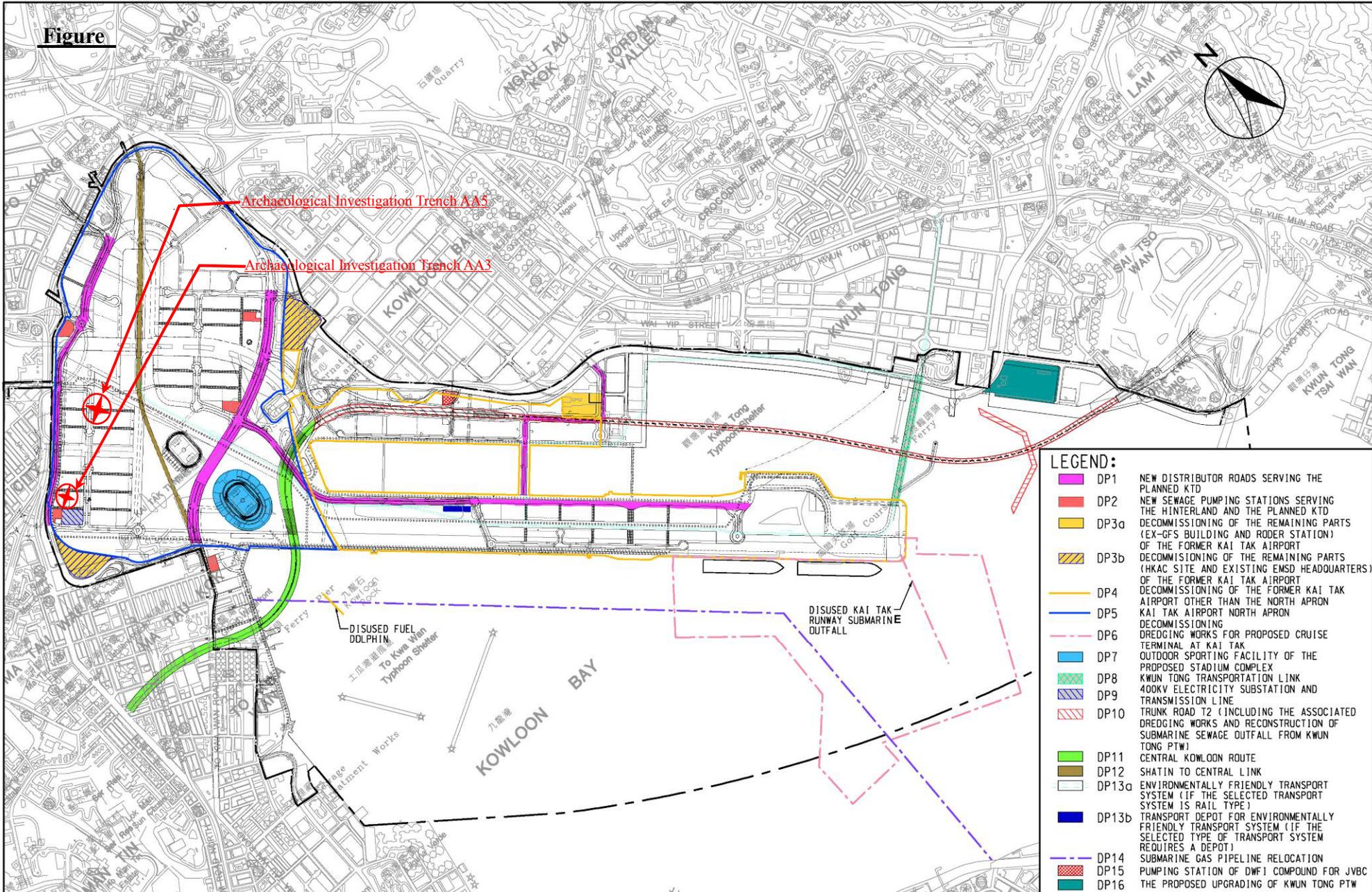
32. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during both the construction and operation phases of the Project, in particular EM&A for (i) water quality, noise, dust, post-translocation coral condition and marine archaeology during construction phase; and (ii) odour and water quality during operation phase.

## **PUBLIC CONSULTATION**

33. The EIA report, EM&A Manual and Executive Summary are available for public inspection under the EIAO from 9 December 2008 to 7 January 2009. At the meeting, Members will be briefed on any public comments received.

**December 2008**  
**Environmental Assessment Division,**  
**Environmental Protection Department**

**Figure**



**LEGEND:**

- DP1 NEW DISTRIBUTOR ROADS SERVING THE PLANNED KTD
- DP2 NEW SEWAGE PUMPING STATIONS SERVING THE HINTERLAND AND THE PLANNED KTD
- DP3a DECOMMISSIONING OF THE REMAINING PARTS (EX-GF5 BUILDING AND ROYER STATION) OF THE FORMER KAI TAK AIRPORT
- DP3b DECOMMISSIONING OF THE REMAINING PARTS (HKAC SITE AND EXISTING EMSD HEADQUARTERS) OF THE FORMER KAI TAK AIRPORT
- DP4 DECOMMISSIONING OF THE FORMER KAI TAK AIRPORT OTHER THAN THE NORTH APRON
- DP5 KAI TAK AIRPORT NORTH APRON
- DP6 DECOMMISSIONING DREDGING WORKS FOR PROPOSED CRUISE TERMINAL AT KAI TAK
- DP7 OUTDOOR SPORTING FACILITY OF THE PROPOSED STADIUM COMPLEX
- DP8 KWUN TONG TRANSPORTATION LINK
- DP9 400KV ELECTRICITY SUBSTATION AND TRANSMISSION LINE
- DP10 TRUNK ROAD T2 (INCLUDING THE ASSOCIATED DREDGING WORKS AND RECONSTRUCTION OF SUBMARINE SEWAGE OUTFALL FROM KWUN TONG PTW)
- DP11 CENTRAL KOWLOON ROUTE
- DP12 SHATIN TO CENTRAL LINK
- DP13a ENVIRONMENTALLY FRIENDLY TRANSPORT SYSTEM (IF THE SELECTED TRANSPORT SYSTEM IS RAIL TYPE)
- DP13b TRANSPORT DEPOT FOR ENVIRONMENTALLY FRIENDLY TRANSPORT SYSTEM (IF THE SELECTED TYPE OF TRANSPORT SYSTEM REQUIRES A DEPOT)
- DP14 SUBMARINE GAS PIPELINE RELOCATION
- DP15 PUMPING STATION OF DWF1 COMPOUND FOR JVBC
- DP16 THE PROPOSED UPGRADING OF KWUN TONG PTW