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25 Jun 2019

Ms Shirley CHAN  
Legislative Council Secretariat  
Legislative Council Complex  
1 Legislative Council Road  
Central  
Hong Kong

Dear Ms Chan,

**Panel on Economic Development**

**Follow-up to meeting on 29 April 2019 and  
letters from Hon WU Chi-wai and Hon Jeremy TAM Man-ho**

At the meeting on 29 April 2019, we briefed the Legislative Council Panel on Economic Development on progress of the Three-Runway System (“3RS”) project at Hong Kong International Airport. The Government and the Airport Authority Hong Kong (“AAHK”) were requested to provide supplementary information related to the increased use of Deep Cement Mixing (“DCM”) of the 3RS, progress of fill supply, key milestones of the project, and financial information pertaining to AAHK’s operating surplus and collection of Airport Construction Fee.

Subsequently, the Panel Secretariat referred to us two letters from Hon WU Chi-wai and Hon Jeremy TAM Man-ho, dated 29 April 2019 and 2 May 2019 respectively, requesting for further information on fill materials for land formation works and public fill situation.

The information provided by AAHK in response to the requests for information is at Annex for Members' reference. In addition, on the general situation of fill banks, Civil Engineering and Development Department advises that there are two temporary fill banks in Hong Kong, located at Tseung Kwan O Area 137 and Tuen Mun Area 38 respectively, with a total holding capacity of about 20 million tonnes. Contractors of reclamation projects may set up sorting facilities at the fill banks to sort out public fill of suitable size and quality for use in the reclamation works based on their individual needs. Some ongoing reclamation projects have set up five sets and one set of sorting facilities at the fill banks in Tseung Kwan O Area 137 and Tuen Mun Area 38 respectively.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Mickie Choi', written in a cursive style.

(Mickie CHOI)  
for Secretary for Transport and Housing

c.c. Airport Authority Hong Kong (Attn: Mr KH SIU)

**Information provided by Airport Authority Hong Kong (“AAHK”)**

- (a) Increased use of Deep Cement Mixing (“DCM”) in reclamation works of the Three-runway system (“3RS”) and progress of fill supply

The DCM method adopted for the 3RS project is the first of its kind applied in large scale reclamation works in Hong Kong. Having considered the effectiveness of the DCM works in ground improvement, AAHK has optimised the reclamation design by increasing the use of DCM outside the contaminated mud pit area where infrastructure and superstructure will be constructed.

2. The increased use of DCM in the reclamation works will bring about following engineering, environmental, and programme benefits:

- (i) it will significantly reduce consolidation settlement induced by traditional ground improvement techniques, such as surcharge and prefabricated vertical drains, thus reducing a notable portion of the overall fill demand for the settlement volume. In addition, the amount of surcharge to be placed on top of the newly reclaimed land could be largely reduced, thereby dispensing with the need to dispose of the same to the fill banks upon completion of the surcharging. This is a significant environmental and programme benefit generated by DCM compared with other ground improvement methods;
- (ii) the use of more DCM will bring about the engineering and programme benefit of reducing the differential settlements to be sustained by airfield facilities and infrastructures across different reclaimed areas; and
- (iii) the use of more DCM will eliminate months of construction idling time whilst awaiting the consolidation of the marine deposit layer to reach the designated level before follow-on construction works could commence. In other words, with the application of DCM, the subsequent works could commence soon after the land is formed.

3. The benefits of the DCM for the project are realised in design, construction, environmental management and programme aspects. The costs for the increased use of DCM alone are neither sufficient nor accurate to fully reflect the benefits realised, and the corresponding cost savings of the works items replaced by DCM (including the significant reduction in fill and surcharge amount, the traditional ground improvement omitted, etc.). Nor is it fair, practical and appropriate to gauge the overall benefits from the cost perspective alone.

4. In fact, the reclamation works was originally estimated to require 100 million m<sup>3</sup> of fill materials. After careful design optimisation and the increased use of DCM, the overall fill materials required for the 3RS project has been reduced by roughly 20 million m<sup>3</sup>. AAHK is adjusting the combination of different fill materials according to the project needs and supply situation as part of the process of optimising the overall reclamation design of the 3RS project.

5. As regards the progress of fill supply, AAHK has already reminded the reclamation contractor under the usual contractual mechanism, requiring it to strictly fulfill the contractual obligations for timely sourcing of sufficient reclamation fill supply in accordance with the contract terms. Under the usual contractual mechanism, AAHK always reserves its right to enforce the contractual requirements according to the mechanism for the contractor's non-performance in relation to achievement of works.

6. It has always been the plan for AAHK to use different types of fill materials from multiple sources. At the moment, the main reclamation contractor has been using a combination of fill materials from a number of sources, predominantly manufactured sand; supplemented by public fill generated locally as well as fill materials imported from different areas.

7. Since the main reclamation contractor will source fill materials with different suppliers, both in the Mainland and overseas, it is not appropriate to disclose information about the quantities of marine sand and manufactured sand used, and their further quantities to be finally procured, as it will severely jeopardise the procurement process conducted by the main reclamation contractor. Individual suppliers may also gain benefits from inappropriate disclosure of commercially sensitive information. Despite so, AAHK confirms that the 3RS project cost remains within the original budget of HKD141.5 billion in money-of-the-day ("MOD") prices.

(b) The use of public fill

8. To maximise the utilisation of public fill for appropriate use in the 3RS project, AAHK's contractor has built three sorting facilities at Tseung Kwan O Fill Bank and one at Tuen Mun Fill Bank for the 3RS project. Currently, these four sorting facilities are being operated by AAHK's contractor to produce suitable fill materials.

9. As runway and taxiway areas are subject to stringent settlement control and technical requirements, there are limitations on the use of public fill in the reclamation works of 3RS project. That said, AAHK continues its endeavour to maximise the use of public fill in the reclamation works of 3RS project, but the exact intake quantities will be subject to a number of factors, such as reclamation progress, weather condition, and the quality of sorted fill materials.

10. Upon completion of the reclamation works of the 3RS project, AAHK will work with the relevant Government departments to review if these sorting facilities would be suitable for other projects' use.

(c) Key milestones of 3RS

11. In LC Paper No. CB(4)775/18-19(05) submitted recently, AAHK provided the list of key contracts awarded as at 10 April 2019 (at Appendix I). So far the total value of these awarded contracts amounted at HKD48 billion, which is within AAHK's budget allowed for these contracts. However, given commercial sensitivity and to avoid affecting future tendering exercise or administration of the awarded contracts, including possible implications for claims, AAHK is not in a position to disclose the original estimated budget for the 16 awarded contracts. AAHK maintains the target to deliver the 3RS project within the budget of HKD141.5 billion.

12. To monitor the progress of the 3RS construction, AAHK has a series of milestones for the key construction activities, as outlined at Appendix II. AAHK is proceeding with the original targets to commission the new Third Runway by 2022 and the entire 3RS by the end of 2024.

(d) Financial arrangement of AAHK's operating surplus and collection of Airport Construction Fee ("ACF")

13. In the past Panel meetings, this Panel was briefed that in devising the overall financial arrangement plan for the 3RS project which is estimated at HKD141.5 billion in MOD prices, AAHK has proposed to fund the 3RS through three funding sources, namely: (i) retaining AAHK's operating surplus; (ii) levying an ACF; and (iii) borrowing/raising funds up to an estimated HKD69 billion from the market.

*(i) Retaining operating surplus*

14. AAHK has retained its profits since the fiscal year 2014/15. The operating result for each year is published in AAHK's annual and interim reports. AAHK's operating cash flow after considering the recurring and capital expenditure for enhancing existing airport facilities such as Terminal 1 Annex Building, Sky Bridge, Carpark 4 expansion, Intermodal Transfer Terminal, is used to fund the 3RS project.

*(ii) Collection of ACF*

15. AAHK has started collecting the ACF from departing passengers through airlines on tickets issued since 1 August 2016 when 3RS construction works commenced. The ACF collected for each year is published in AAHK's annual and interim reports (2016/17: HKD1,944 million; 2017/18: HKD3,974 million.).

16. In general, the financial situation in the past few years has been in line with that projected by AAHK's financial adviser when devising the financial arrangement plan for the 3RS project. AAHK will continue to monitor the financial situation and stay vigilant.

**Airport Authority Hong Kong  
June 2019**



## Appendix I

### Three-Runway System Project An Overview of the Major Construction Works (as at 10 April 2019)

	Construction Works Contract	Works Contract Award Date	Contract Sum (HKD)
1.	Contract No.: 3201 Deep Cement Mixing Works (Package 1)	28 July 2016	3,686,890,096
2.	Contract No.: 3202 Deep Cement Mixing Works (Package 2)	28 July 2016	2,813,918,000
3.	Contract No.: 3203 Deep Cement Mixing Works (Package 3)	28 July 2016	2,120,914,933
4.	Contract No.: 3204 Deep Cement Mixing Works (Package 4)	28 July 2016	1,800,000,000
5.	Contract No.: 3205 Deep Cement Mixing Works (Low Headroom)	27 September 2016	3,314,806,000
6.	Contract No.: 3206 Main Reclamation Works	27 September 2016	15,263,960,097
7.	Contract No.: 3301 North Runway Crossover Taxiway	3 April 2017	356,277,178
8.	Contract No.: 3302 Eastern Vehicular Tunnel Advance Works	28 November 2018	682,000,000
9.	Contract No.: 3303 Third Runway and Associated Works	8 April 2019	6,273,725,171
10.	Contract No.: 3501 Antenna Farm and Sewage Pumping Station	9 June 2017	67,628,000
11.	Contract No.: 3503 Terminal 2 Foundation and Substructure Works	28 November 2017	2,435,123,581
12.	Contract No.: 3601 New Automated People Mover System (TRC Line)	13 June 2017	1,668,324,457
13.	Contract No.: 3602 Existing APM System Modification Works	30 March 2017	843,430,000
14.	Contract No.: 3603 3RS Baggage Handling System	28 November 2017	3,076,491,885
15.	Contract No.: 3801 APM and BHS Tunnels on Existing Airport Island	14 June 2017	2,370,896,942
16.	Contract No.: P560(R) Aviation Fuel Pipeline Diversion Works	29 July 2015	1,289,000,000
<b>Total:</b>			<b>\$48,063,386,340</b>

## Appendix II

	Key Milestones	Completion Date
<b>1</b>	<b>RECLAMATION</b>	
	Commence DCM works	Achieved
	Land Available to Commence Taxiway / Runway Construction	Achieved
<b>2</b>	<b>AIRFIELD</b>	
	Award New North Runway / Taxiway Pavement Works Contract	Achieved
	Substantially Complete New North Runway Pavement	2021
<b>3</b>	<b>THIRD RUNWAY PASSENGER BUILDING (TRPB)</b>	
	Award TRPB Foundation & Sub-structure Works	2019
	Substantial Completion of TRPB	2024
<b>4</b>	<b>T2 EXPANSION</b>	
	Award T2 Main Building Works Contract	2020
	Substantial Completion of T2 Expansion	2024
<b>5</b>	<b>APM SYSTEMS</b>	
	Award APM (TRC Line) Design & Build Contract	Achieved
	Obtain APM TRC Line Certification	2024
<b>6</b>	<b>BHS SYSTEMS</b>	
	Award BHS Design & Build Contract	Achieved
	Substantial Completion of BHS	2024
<b>7</b>	<b>AIRPORT SUPPORT INFRASTRUCTURE, UTILITIES AND LOGISTICS</b>	
	Complete New APM Depot Structure	Achieved
	Substantially Complete APM/BHS Tunnel Structure	2023
	Complete 3RS Construction	2024