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31 December 2015

Legislative Council Secretariat
Legislative Council Complex
1 Legislative Council Road
Central
Hong Kong
(Attn: Mr Jason KONG)

Dear Mr KONG,

**Legislative Council
Establishment Subcommittee**

**Follow-up action arising from the discussion
at the meeting on 16 December 2015
EC(2015-16)9**

Regarding the matters to be followed up on EC(2015-16)9 relating to the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”) project raised by Members at the Establishment Subcommittee (“ESC”) meeting on 16 December 2015, our reply is as follows –

Item (a)

Details of railway construction projects currently undertaken by the MTR Corporation Limited (“MTRCL”) in Hong Kong, the Mainland and overseas are set out in the Annex. The Mainland and overseas railway projects undertaken by the MTRCL were not monitored by the Highways Department (“HyD”). The relevant

information is provided by the MTRCL.

Item (b)

In early 2008, HyD commissioned the Lloyd's Register Rail (Asia) Limited ("Lloyd's") to review the institutional arrangements of monitoring of the XRL project to ensure that the MTRCL would implement the XRL project efficiently. Lloyd's considered that the MTRCL's project management procedures were known to be robust and in line with industry best practice, and had been proven through the delivery of many high quality railway projects in Hong Kong and overseas. Therefore, Lloyd's recommended that the MTRCL's project management procedures for the delivery of the XRL project should be adopted, but there should be Government representation in key control processes, and the Government should be able to conduct monitoring and verification ("M&V") of its interests in the design and construction process of the XRL project. This M&V role would effectively be "check the checker", i.e. verifying that the MTRCL was implementing its process as specified. It entailed a risk based sampling approach to verify delivery of the requirements of the project scope and authorised expenditure. Lloyd's also advised that the Government's resources should be utilised effectively to avoid repetition and micro management of the project.

On the basis of the above considerations, Lloyd's suggested establishing a dedicated division under the Railway Development Office ("RDO") of HyD for the M&V and coordination works of the XRL project. The recommendation was adopted by the Government. Pursuant to Lloyd's suggestions on the monitoring works, HyD introduced a three-level monitoring mechanism. Under this mechanism, HyD, with the assistance of M&V Consultant, monitors systematically the implementation of the XRL project by MTRCL and undertakes coordination works.

The First Report by the Independent Board Committee ("IBC") of MTRCL pointed out that the MTRCL's project team did not report the delay to the management level in a timely manner and withheld key information on progress from HyD. Therefore, the dedicated division under RDO of HyD has to enhance the monitoring on MTRCL.

Under the framework of three-level monitoring mechanism and risk-based approach, the dedicated division of RDO of HyD has implemented the following measures to enhance the monitoring work since mid-2014:

- (i) **Since April 2014, the number of staff in the dedicated division for the XRL project under RDO has increased from 13 to 18 at present. The current staff set-up includes one Chief Engineer, six Senior Engineers, ten Engineers and one Assistant Engineer**

The newly deployed **five staff** members include two Senior Engineers, two Engineers and one Assistant Engineer. They are specifically dedicated to monitor project cost and project programme. With the addition of these staff members, those HyD staff members in charge of cost and programme monitoring are no longer required to handle other duties of the XRL project. As such, the teams under the dedicated division could concentrate their effort solely on the matters related to **cost and programme of the XRL project and other critical issues**, which they could put more focus on their works in a more efficient way.

On the cost aspect, the newly deployed Senior Engineer was mainly responsible for reviewing the Cost to Complete (“CTC”) submitted by the MTRCL in July 2014 and June 2015, monitoring of the cashflow and the use of contingency. With the dedicated involvement of this Senior Engineer and the assistance of M&V Consultant, HyD was able to critically complete the review of CTC. This Senior Engineer, who is responsible for financial monitoring, will continue to closely monitor the financial situation of XRL project.

Regarding the programme monitoring work, it will be addressed in details under Item (vii) of the enhancement measures.

- (ii) **Submit monthly progress reports to the Transport and Housing Bureau (“THB”) for the XRL project with the adoption of “traffic light” system to facilitate THB’s understanding of current project status**

HyD submits to THB monthly progress reports of XRL project. Before July 2014, the report format which was commonly adopted by works departments, e.g. the actual percentage completion in comparison of the planned progress, was used to present the progress status of critical activities or the overall project at a particular time. This presentation approach is targeted for professional engineering officers. However, it might impose difficulty for non-professional officers in the THB to understand, especially for complicated projects like the XRL project. As such, HyD adopted a **“traffic light” system** to indicate that status of key indicators of the project, e.g. green represents that

the progress is satisfactory; red indicates a delay which will have impact on the completion date; and other colours represent different degrees of delay. Based on the situation or alert as indicated by the “traffic light”, THB officers would be more easily and directly understand the status and progress of works, such as Key Performance Indicators, progress of critical activities etc., and facilitate them to report to the management level of THB and enable them to understand the situation more easily. If a delay occurs, the management level of THB will be able to understand the degree of delay more quickly and make early instructions.

(iii) **Request the MTRCL to submit detailed reports on critical construction activities including the production rates of critical contracts**

HyD and the M&V Consultant prioritise their M&V works based on the risks in individual contracts in different areas. HyD and its M&V Consultant update the risk assessment regularly and based upon which adjust the target and direction of the subsequent M&V works. In mid-2014, HyD requested the M&V consultant to **enhance the verification works on the critical contracts with high risks**. HyD also requested **the MTRCL to provide more in-depth and detailed project information**, including the actual production rates of critical construction activities, so that HyD could make timely suggestions or carry out coordination for any problems so arose. For examples, one of the critical construction activities for West Kowloon Terminus (“WKT”), i.e. blasting and excavation of rock, commenced in mid-2014. Through risk assessment and our routine site visits, HyD observed that the progress of this construction activity born a high risk. As such, HyD strengthened the monitoring in this area including the monitoring of the daily blasting and excavation volumes and, at the same time, the impacts to surrounding buildings due to blasting. After strengthening of monitoring and coordination by HyD, the progress of blasting and excavation at WKT had improved. Besides, the construction of Steel Entrance Building of WKT, being another construction activity having a higher risk of delay, came to a critical stage in 2014. HyD took up the corresponding stringent monitoring measures, including the monitoring of the fabrication, delivery and erection of the steelwork, as well as the planning, implementation and production rates of the temporary works. Upon repeated urges, the MTRCL implemented improvement measures as to arrange with the contractor to set up two additional fabrication yards in the Mainland to expedite the fabrication of temporary supporting steel structure for the steelwork. At present, the temporary supporting steel structure of WKT has

been completed thus allowing the installation of permanent steel structure in full swing.

- (iv) **Monitor the achievement of milestones established by the MTRCL's IBC through the monthly progress reports and the Project Supervision Committee ("PSC") meetings chaired by the Director of Highways**

We consider that using milestones to monitor project progress is one of the effective monitoring tools. In so far, as part of the monitoring process, HyD have been reviewing the status of milestones for critical construction activities of the XRL project in the Contract Review Meetings chaired by their Chief Engineer. In October 2013, HyD requested the MTRCL in the PSC meeting to establish a set of key milestones for the purpose of monitoring the completion of XRL project in 2015. Since then, HyD had repeatedly followed up with the MTRCL the setting of these milestones. However, the proposal for the milestones put forward by the MTRCL was not entirely satisfied by HyD. In mid-2014, the experts engaged by the IBC of MTRCL in their report for XRL project identified a set of **key milestones**, with a view to facilitating the MTRCL to monitor the remaining works in a more efficient and more focus manner. HyD also understood that MTRCL project management team adopted this recommended set of milestones to monitor the progress of XRL project. As such, HyD requested MTRCL to report the progress details under the respective key milestones in the monthly progress reports and the PSC meetings, so as to enable HyD to monitor the status of these key milestones more effectively. If deviation from milestones is identified, HyD could immediately raise issues to the MTRCL senior management at the PSC level and request for improvement measures.

- (v) **Liaise more closely with the MTRCL's project team and request the MTRCL to provide more detailed information**

HyD and the M&V Consultant update their Risk Register through regular risk assessment of the XRL Project. In mid-2014, HyD identified a set of high risk and critical construction activities or that requiring HyD's coordination based on their impact on the project completion. Accordingly, HyD requested the MTRCL's project team to provide more frequent and detailed briefing sessions to enable HyD's officers to understand the details of all critical and high risk construction activities, including the implementation programme, cost-effectiveness, risks, impacts to the overall project etc. These critical

construction activities include the construction of structure steel work at WKT, rock excavation at WKT using blasting and the proposal for temporary closure of Lin Cheung Road etc. Through the detailed briefing by the MTRCL, HyD's officers could understand and get control of these construction activities, and could provide timely assistance, e.g. to coordinate with the concerned government departments and institutions to discuss the possibility of introducing blasting process, and facilitate the early approval of the temporary traffic arrangement for the closure of Lin Cheung Road. This allowed the concerned construction activities to commence smoothly.

(vi) **Arrange the M&V Consultant to attend the PSC meetings**

In so far, HyD raised their and the M&V consultant's concerns to the MTRCL at the PSC meetings, and requested for follow-up actions and corresponding measures. Since February 2015, HyD arranged **the M&V Consultant to personally attend the PSC meetings** under which the M&V Consultant could raise queries and follow-up actions with the MTRCL direct. The representative from the M&V Consultant attending the PSC meetings is its Project Director. Besides, in certain cases, the M&V Consultant reflected that the working level of the MTRCL did not provide timely responses. Arranging the M&V Consultant to attend the PSC meetings could allow the M&V Consultant to directly raise queries and follow up actions with the MTRCL, thus making the communication more direct and utilising the monitoring role of the M&V Consultant.

(vii) **Establish a working group amongst HyD, M&V Consultant and MTRCL with members from the respective specialised teams to review the programme and progress of the XRL project in details on a regular basis with all aspects and level of works covered**

The review and monitoring of the overall project programme is one of the important monitoring roles of HyD. Since the commencement of the project, a Senior Engineer was responsible for coordinating this part of work. He compiled and analysed the project programme submitted with the MTRCL's monthly progress reports and reported to HyD management to enable the follow-up action with the MTRCL at PSC level. At the same time, this Senior Engineer would need to take charge of other matters under XRL project. In view of the increasing risk in project completion and the complex and inter-related construction activities involved, HyD deployed an additional

Senior Engineer to take charge of **the project programme and progress** since January 2015. He, together with the M&V Consultant and the MTRCL, set up a working group with the specialised staff members from the parties concerned. The establishment of the working group enables in-depth discussion between HyD and MTRCL about the critical construction activities and their inter-relationship, in order to ensure that MTRCL can identify any problems among the large number of inter-related construction activities and follow up in a timely manner.

(viii) **Arrange the M&V Consultant to conduct more frequent and focus audits on critical contracts**

According to the M&V Consultancy Agreement, the M&V Consultant will conduct audits on major construction contracts and review whether the MTRCL has implemented the project in accordance with their own management system and procedures. The frequency depends on the criticality and risk level of the individual construction contracts. The audits will cover project programme, cost, site safety, quality control and environmental protection matters etc. In mid-2015, in view of the individual construction contracts that might affect the overall project completion, HyD requested the M&V Consultant to **conduct more frequent and focus audits on those critical and high risk construction contracts**, e.g. the frequency of audits on the construction contracts of WKT is revised from half-yearly to quarterly. The scope of the audits focuses on the issues that need special attention, such as the project progress and cost control. While the audit report of M&V Consultant revealed that the MTRCL was implementing the XRL project generally in accordance with their management system and procedures, the M&V Consultant did notice some minor areas for improvement and concern, such as the M&V Consultant observed that there was concern in site safety including the improvement of accident reporting and the prevention of near misses on site. Through more frequent and more focus audits, HyD could monitor the implementation of XRL project more effectively.

Yours sincerely,



(Chris NG)

for Secretary for Transport and Housing

c.c.

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**Construction and management projects currently undertaken by the
MTR Corporation Limited in Hong Kong, the Mainland and overseas**

Project name	Scope of the projects	Estimated construction cost	Length of rail lines (kilometres)	Number of MTRCL staff members deployed for management of the project	Any delay in delivery and cost overrun	
<i>Hong Kong</i>						
1.	The Hong Kong section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”)	The XRL is a 26-kilometre long underground rail corridor. It will run from the terminus in West Kowloon, going north passing Yau Tsim Mong, Sham Shui Po, Kwai Tsing, Tsuen Wan, Yuen Long to the boundary south of Huanggang, where it will connect to the Mainland section of XRL seamlessly for through train services. ^{Note 1}	\$84.42 billion (in money-of-the-day (“MOD”) prices)	Approximately 26	748 ^{Note 2}	On 30 June 2015, MTRCL notified the Government of its latest review results regarding the progress of the XRL. The commissioning target of the XRL would have to be delayed further to the third quarter of 2018, which includes a six-month contingency period. As regards the Cost to Complete (“CTC”), the MTRCL

						<p>advised that the amount would be revised to \$85.3 billion, including a sum of \$2.1 billion for contingency.</p> <p>With the assistance by its Monitoring and Verification Consultant, the Highways Department critically assessed the Corporation's works progress and its revised CTC. The Government announced the review result on 30 November 2015. We agreed to adjust the Programme to Complete to the third quarter of 2018, including a six-month contingency period, and to revise the CTC to \$84.42 billion,</p>
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						<p>\$0.88 billion less than what the Corporation proposed. The major reduction items were Project Management Cost, contingency, and taking out of Day 2 Works.</p> <p>The Government will seek approval of additional funding by the Legislative Council according to established procedures so as to increase the Entrustment Cost by \$19.42 billion to \$84.42 billion (from the original \$65 billion). The related government costs will also go up by \$0.1825 billion, to \$2 billion. Hence a total increase of \$19.6025</p>
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						billion is required.
2.	Shatin to Central Link (“SCL”)	<p>SCL, with a total length of 17 kilometres, consists of the following two sections –</p> <p>(a) Tai Wai to Hung Hom section: this is an extension of the Ma On Shan Line from Tai Wai via Southeast Kowloon to Hung Hom where it will join the West Rail Line; and</p> <p>(b) Hung Hom to Admiralty section: this is an extension of the East Rail Line from Hung Hom across the Victoria Harbour to Wan Chai North and Admiralty.</p> <p>SCL will have ten stations. Apart from bringing improvements to the existing Tai Wai Station, the SCL</p>	\$79.8 billion (in MOD prices)	Approximately 17	684 ^{Note 2}	<p>According to the agreement signed between the Government and the MTRCL in 2012, the target commissioning date for the Tai Wai to Hung Hom Section was December 2018 and that for the Hung Hom to Admiralty Section was December 2020. It is estimated that the Tai Wai to Hung Hom Section of SCL may have a delay of about 11 months arising from the archaeological works, archaeological discoveries and conservation options for archaeological features at To Kwa Wan Station. HyD will coordinate and</p>

		<p>project will involve construction of new stations or extension of existing stations at Hin Keng, Diamond Hill, Kai Tak, To Kwa Wan, Ma Tau Wai, Ho Man Tin, Hung Hom, the Hong Kong Convention and Exhibition Centre, and Admiralty. It is a territory-wide strategic railway project. Admiralty Station and Ho Man Tin Station will become integrated stations providing interchange service to passengers of SCL and SIL(E), as well as passengers of SCL and KTE respectively.</p> <p>Note 3</p>				<p>oversee the construction of SCL so that MTRCL could try to recover some of the delay to the Tai Wai to Hung Hom Section, with a view to commissioning the Tai Wai to Hung Hom Section in 2019 as far as possible. For the Hung Hom to Admiralty Section, the commissioning date will be deferred to 2021 to allow flexibility for the topside development of the convention centre at Exhibition Station, to cater for the reclamation works under Wanchai Development Phase II (“WDII”) including the construction of the CWB tunnel thereof, and the</p>
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						<p>impact due to the large metal object found on the seabed within the reclamation area under WDII.</p> <p>MTRCL is conducting a cost review of the entire SCL in phases, including the additional construction costs in Admiralty Station and Ho Man Tin Station, and the additional costs arising from the archaeological and conservation works, the enabling works to cater for the topside development, as well as the deferred site handover. The review is expected to be completed in the first quarter of 2016. MTRCL will then</p>
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						submit the cost review to HyD for scrutiny. As the current contingency of SCL will not be sufficient to meet the additional cost, we will seek additional funding from the Legislative Council in due course in order to proceed with the works.
3.	Kwun Tong Ling Extension (“KTE”)	KTE is an approximately 2.6-kilometre long railway extension of the existing Kwun Tong Line running from Yau Ma Tei Station to the new Ho Man Tin Station and Whampoa Station. ^{Note 3}	\$7.2 billion (in MOD prices)	Approximately 2.6	134 ^{Note 2}	According to the agreement signed between the Government and MTRCL in 2011, the target commissioning date for KTE was August 2015. MTRCL reported to the LegCo Subcommittee on Matters Relating to Railways (“RSC”) in early August 2015 that the target to

						<p>commission KTE would be in the third or fourth quarter of 2016.</p> <p>In 2011, the estimated capital cost of KTE was \$5.3 billion (in December 2009 prices). Owing to the complexity of the project and persistent challenges encountered, in the report submitted by MTRCL to the LegCo RSC in August 2015, the estimate of the construction cost of KTE was adjusted upward to \$7.2 billion (in MOD prices).</p>
4.	South Island Line (East) ("SIL(E)")	SIL(E) is a new railway corridor running from South to North of Hong Kong Island. It starts from South Horizons	\$16.9 billion (in MOD prices)	Approximately 7	178 ^{Note 2}	According to the agreement signed between the Government and MTRCL in 2011, the

		<p>on Ap Lei Chau to Admiralty via Lei Tung, Wong Chuk Hang and Ocean Park with a total length of about seven kilometres. SIL(E) will connect the MTR Island Line, Tsuen Wan Line and the future SCL at Admiralty Station. The existing Admiralty Station will be expanded to form an integrated station for the four lines to provide seamless interchanges for passengers.</p> <p>Note 3</p>				<p>target commissioning date of SIL(E) was December 2015. MTRCL reported to LegCo RSC in November 2014 that its target was to commission SIL(E) at the end of 2016.</p> <p>In 2011, the estimated capital cost of SIL(E) was \$12.4 billion (in December 2009 prices). MTRCL advised in November 2014 that the cost increased to \$15.2 billion (in MOD prices). According to the report submitted by MTRCL to the Legislative Council RSC in August 2015, the estimate of the construction cost of SIL(E) was further</p>
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						revised upward to \$16.9 billion (in MOD prices) due to the complexity of the project and persistent challenges encountered.
5.	West Island Line (“WIL”)	WIL is an approximately three-kilometre long railway extension of the existing Island Line running from Sheung Wan Station to Kennedy Town Station with two intermediate stations at Sai Ying Pun and the University of Hong Kong. Note 3	\$18.5 billion (in MOD prices)	Approximately 3	56 ^{Note 2}	According to the agreement signed between the Government and MTRCL in 2009, the target commissioning date for WIL was August 2014. WIL, together with HKU Station and Kennedy Town Station, was commissioned on 28 December 2014 whilst Sai Ying Pun Station (except Ki Ling Lane Entrance) was subsequently completed and opened on 29 March 2015. All the three stations of WIL are now

						<p>opened to the public. All essential public infrastructure works related to WIL have also been completed.</p> <p>In 2009, the estimated capital cost of WIL was \$15.4 billion (in December 2008 prices). According to the estimation of MTRCL in November 2014, the latest capital cost of WIL is \$18.5 billion (in MOD prices).</p>
<i>Mainland</i>						
1.	Beijing Metro Line 14	A metro line with 37 stations which connects the southern and eastern parts of Beijing. Beijing MTR Corporation Limited (“Beijing MTR”), of which MTRCL is a	Total capital cost: approximately RMB 50 billion Investment from Beijing MTR: approximately	Approximately 47.3	Beijing MTR participates in the construction and is responsible for the operation of	The planning and construction of metro lines in Beijing are being led and coordinated by the Beijing Municipal Government. The

		shareholder, is responsible for the project's electrical and mechanical systems as well as rolling stock, while the project's civil construction is being undertaken by the Beijing Infrastructure Investment Corporation Limited.	RMB 15 billion		a number of railway lines in Beijing, including Beijing Metro Line 14 and Line 16. As of December 2014, there were about 5 500 employees under Beijing MTR, with 22 of them seconded by MTRCL.	works undertaken by Beijing MTR are being implemented in accordance with the timeframe and budget determined by the Beijing Municipal Government.
2.	Beijing Metro Line 16	A metro line with 29 stations running through three major districts in the western part of Beijing. Beijing MTR, of which MTRCL is a shareholder, is responsible for the project's electrical and	Total capital cost: approximately RMB 47.4 billion Investment from Beijing MTR: approximately RMB 15 billion	Approximately 50	Ditto	Ditto

		mechanical systems as well as rolling stock, while the project’s civil construction is being undertaken by the Beijing Infrastructure Investment Corporation Limited.				
<i>Overseas</i>						
1.	Sydney Metro Northwest	A rail line running between Chatswood and Rouse Hill at the northwestern region of Sydney. The Northwest Rapid Transit (“NRT”) Consortium, of which MTRCL is a shareholder, is responsible for the Operations, Trains and Systems (“OTS”) Public-Private Partnership (“PPP”) contract of the project. The Trains and Systems Joint-Venture (“TSJV”), of which MTRCL is also a shareholder, under NRT Consortium is responsible for	Total project cost: AUD 8.3 billion Value of OTS PPP contract: AUD 3.7 billion	Approximately 36	As of December 2015, there were about 90 employees under the TSJV, of which 11 were seconded by MTRCL.	Works responsible by TSJV are on track against the delivery programme and budget.

		<p>the project’s electrical and mechanical systems as well as rolling stock. Other civil works such as construction of tunnel and stations, as well as surface and viaduct of the project are separately procured by the local government.</p>				
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Note 1: For the complexity level of the XRL, please refer to the latest progress updates of the projects (as at 30 September 2015) submitted to LegCo (LC Paper No. CB(4)280/15-16(01)).

Note 2: As of end-November 2015.

Note 3: For the complexity level of the SCL, KTE, SIL(E) and WIL, please refer to the latest progress updates of the projects (as at 30 September 2015) submitted to LegCo (LC Paper No. CB(4)298/15-16(01) and LC Paper No. CB(4)298/15-16(02)).