

**立法會**  
***Legislative Council***

LC Paper No. CB(4)341 /17-18  
(These minutes have been seen  
by the Administration)

Ref : CB4/PL/TP/1

**Panel on Transport**

**Minutes of special meeting held on  
Monday, 5 June 2017, at 2:30 pm  
in Conference Room 3 of the Legislative Council Complex**

**Members present :** Hon CHAN Han-pan, JP (Chairman)  
Dr Hon KWOK Ka-ki (Deputy Chairman)  
Hon Abraham SHEK Lai-him, GBS, JP  
Hon Jeffrey LAM Kin-fung, GBS, JP  
Hon Starry LEE Wai-king, SBS, JP  
Hon CHAN Hak-kan, BBS, JP  
Hon Mrs Regina IP LAU Suk-yee, GBS, JP  
Hon Claudia MO  
Hon Michael TIEN Puk-sun, BBS, JP  
Hon Frankie YICK Chi-ming, JP  
Hon WU Chi-wai, MH  
Hon YIU Si-wing, BBS  
Hon Charles Peter MOK, JP  
Hon CHAN Chi-chuen  
Hon LEUNG Che-cheung, BBS, MH, JP  
Dr Hon Fernando CHEUNG Chiu-hung  
Dr Hon Helena WONG Pik-wan  
Hon POON Siu-ping, BBS, MH  
Hon Alvin YEUNG  
Hon Andrew WAN Siu-kin  
Hon CHU Hoi-dick  
Hon LAM Cheuk-ting  
Hon Wilson OR Chong-shing, MH  
Hon CHAN Chun-ying

Hon Tanya CHAN  
Hon LUK Chung-hung  
Hon LAU Kwok-fan, MH  
Hon Kenneth LAU Ip-keung, MH, JP  
Dr Hon CHENG Chung-tai  
Hon KWONG Chun-yu  
Hon Jeremy TAM Man-ho  
Hon Nathan LAW Kwun-chung  
Dr Hon YIU Chung-yim

**Member attending :** Dr Hon LAU Siu-lai

**Members absent :** Dr Hon Priscilla LEUNG Mei-fun, SBS, JP  
Hon WONG Kwok-kin, SBS, JP  
Hon Paul TSE Wai-chun, JP  
Hon LEUNG Kwok-hung  
Ir Dr Hon LO Wai-kwok, SBS, MH, JP  
Hon CHUNG Kwok-pan  
Dr Hon Junius HO Kwan-yiu, JP  
Hon HO Kai-ming  
Hon YUNG Hoi-yan

[According to the Judgment of the Court of First Instance of the High Court on 14 July 2017, LEUNG Kwok-hung, Nathan LAW Kwun-chung, YIU Chung-yim and LAU Siu-lai have been disqualified from assuming the office of a member of the Legislative Council, and have vacated the same since 12 October 2016, and are not entitled to act as a member of the Legislative Council.]

**Public Officers attending :** **Agenda item I**

Professor Anthony CHEUNG, GBS, JP  
Secretary for Transport and Housing

Ms Rebecca PUN, JP  
Deputy Secretary for Transport and Housing  
(Transport) 1

Ms Judy CHUNG  
Principal Assistant Secretary for Transport and  
Housing (Transport) 5

Mr Daniel CHUNG Kum-wah, JP  
Director of Highways

Mr Albert LEE Wai-bun  
Project Manager/Hong Kong- Zhuhai-Macao Bridge  
Highways Department

Mr Vincent MAK Shing-cheung  
Deputy Secretary for Development (Works) 2

Mr LAM Sai-hung, JP  
Director of Civil Engineering and Development

Mr PUN Wai-keung, JP  
Head of Geotechnical Engineering Office  
Civil Engineering and Development Department

Mr Philip CHUNG Wai-keung  
Deputy Head of Geotechnical Engineering Office  
(Planning and Standards)  
Civil Engineering and Development Department

Dr SUN Hepn-wing  
Chief Geotechnical Engineer/Geotechnical Projects  
Civil Engineering and Development Department

**Clerk in attendance:** Ms Doris LO  
Chief Council Secretary (4)6

**Staff in attendance :** Ms Macy NG  
Senior Council Secretary (4)6

Ms Emily LIU  
Legislative Assistant (4)6

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Action

**I. Alleged falsification of concrete test reports associated with the works under the Hong Kong-Zhuhai-Macao Bridge Hong Kong and related projects**

(LC Paper No. CB(4)1140/16-17(01) - Administration's paper on follow-up actions by

Transport and Housing  
Bureau and Highways  
Department on the alleged  
falsified concrete tests  
incident

- LC Paper No. CB(4)1148/16-17(01) - Administration's paper on quality assurance system for use of concrete in public works programme projects
- LC Paper No. CB(4)1140/16-17(02) - Information note on alleged falsification of concrete test reports associated with the works under the Hong Kong-Zhuhai-Macao Bridge Hong Kong and related projects prepared by the Legislative Council Secretariat
- LC Paper No. CB(4)1119/16-17(01) - Letter from Dr Hon KWOK Ka-ki
- LC Paper No. CB(4)1119/16-17(02) - Letter from Dr Hon CHENG Chung-tai
- LC Paper No. CB(4)1119/16-17(03) - Letter from Hon LAM Cheuk-ting
- LC Paper No. CB(4)1119/16-17(04) - Letter from Hon Jeremy TAM Man-ho)

At the invitation of the Chairman, Secretary for Transport and Housing ("STH") delivered opening remarks on the incident of alleged falsification of concrete test reports associated with the works under the Hong Kong-Zhuhai-Macao Bridge ("HZMB") Hong Kong and related projects ("the falsification incident"). With the aid of powerpoint presentations (LC Paper Nos. CB(4)1180/16-17(01) and (02)), Director of Highways ("DHy"), Deputy Secretary for Development (Works) 2 and Head of Geotechnical Engineering Office of the Civil Engineering and Development Department ("CEDD") then respectively briefed members on the latest progress of the relevant follow-up actions and investigation findings, and the

quality assurance system for the use of concrete in public works programme ("PWP") projects.

*(Post-meeting note: The speaking note of STH was issued to members on 6 June 2017 vide LC Paper No. CB(4)1164/16-17(01).)*

Defects in quality assurance and monitoring

2. Most members including Ms Claudia MO and Ms Tanya CHAN were gravely concerned that there were defects in the quality assurance system for the use of concrete in PWP projects that had given rise to the falsification incident. Further, they were disappointed that the replacement of concrete samples for testing was not revealed before Independent Commission Against Corruption ("ICAC")'s investigation.

3. Dr Helena WONG expressed concern that the falsification incident had adversely affected the good reputation of Hong Kong in respect of quality assurance. She asked whether the five Public Works Regional Laboratories ("PWRLs") were operated by the same engineering consultant as that involved in the falsification incident, as well as the responsibilities of the on-site officers from CEDD in overseeing the operation of these laboratories. Mr CHU Hoi-dick also opined that due to the falsification incident, the public had lost confidence in the performance of consultant-manned government laboratories and the responsible government departments. He doubted if there were more of such falsification cases that were not yet unveiled but under investigation by ICAC.

4. Having regard to the wide public concern over the quality of infrastructural works aroused by the falsification incident, Mr LUK Chung-hung asked if the Administration would review the quality assurance and monitoring systems to avoid recurrence of similar incidents.

5. The Deputy Chairman demanded the Administration to actively review the existing monitoring system on government laboratories operated by outside consultants. He also queried whether any public officers should be held accountable for the falsification incident.

6. STH assured members that the Administration would keep on improving the related quality assurance and monitoring systems. As a matter of immediate priority, the Administration would take prompt actions to ensure the structural safety of the affected infrastructure.

7. Director of Civil Engineering and Development ("DCED") supplemented that CEDD had put in place the laboratory quality management system for an effective on-site control of consultant-manned government laboratories. Of the five PWRLs, one was manned by government officers, and the others were outsourced to three engineering consultant companies. The consultant involved in the falsification incident was responsible for manning two PWRLs, including the concerned PWRL (Siu Ho Wan ("SHW")) that had been in operation since late 2012. In the falsification incident, the anomalies in the concrete compression test reports were found out by the on-site CEDD officer while auditing the test results. Other than the tampering of the testing time, there was no sign of other malpractices by then.

8. Mr Tanya CHAN and Mr Jeremy TAM asked if HyD/CEDD had tested the concrete samples again after knowing that the testing time had been altered. Mr Nathan LAW enquired if, other than altering the display time in the concrete cube compression machines, there was a possibility that the raw testing data were also falsified. He also asked whether CEDD had found the original sample concrete cubes which were replaced with other materials.

9. DCED advised that the rate of gain in compressive strength of concrete would have slowed down significantly when the cubes attained at around the age of 28 days. As the longest delay time resulting from the tampering was believed to be just within five days, it would not have significant difference on the concrete strength. Further, he said that it was unlikely that the raw data were falsified as they were directly retrieved from the computer system. However, he said that the specimen of concrete cubes had already been crushed and disposed of after testing and could not be found.

10. Mr LAU Kwok-fan doubted why CEDD was not aware of the replacement of concrete samples by the staff of PWRL(SHW) before the problem was discovered by ICAC. He was worried that the falsification incident was only the tip of an iceberg. He urged the Administration to enhance its monitoring over PWRLs manned by outside consultants to plug loopholes, and comprehensively review the operations of such PWRLs, with a view to finding out any potential issues such as insufficient manpower to cope with the assigned testing load.

11. DCED advised that CEDD had taken immediate actions, as detailed in the paper submitted to the Panel by the Development Bureau, after having found out that the testing time of some concrete compression tests were tampered with. After ICAC had informed CEDD in May 2017 about the suspected malpractice of replacing the concrete cubes to be tested with other

materials, CEDD had taken further measures to enhance the quality assurance system of concrete compression tests. For example, it was arranging for the installation of additional closed-circuit television for detailed monitoring of concrete compression tests. As regards the manpower issues of PWRLs, DCED advised that there were relevant requirements in the consultancy agreement for operating PWRLs. The staffing requirements for each PWRL were determined based on the peak testing workload. CEDD would also make suitable re-distribution of the testing task assignments among the laboratories if necessary.

12. The Chairman agreed with many members' views that the Administration should strengthen its monitoring over those PWRLs manned by outside consultants. Noting that each PWRL had to conduct tests for about 300 concrete cube samples each day, he doubted if the manpower in PWRLs was sufficient to cope with the workload, and whether it was adequate to assign only one to two officer(s) from CEDD to oversee a PWRL. When assessing the tenders for the service contracts of PWRL, he asked if CEDD would look for the lowest bidding prices, or would take into account the capacity of the bidders in terms of their manpower provision and testing hardware. Given the crucial gatekeeping role of PWRLs in ensuring the quality of materials used in PWP projects, he considered that in the long run, the Administration should critically review whether it was appropriate to outsource the operation of these PWRLs.

13. In response, DCED explained that bidders for the service contracts of PWRLs would be required to submit both technical and financial proposals. Assessment on the technical proposal would cover the consultants' experience and performance, skills and experience of staff, proposals of operating laboratories, etc. The service contract would be awarded to the bidder that met the essential requirements in full and obtained the highest overall combined score on both technical and financial aspects. He advised that the consultant of PWRL(SHW) could generally meet the manpower requirements. Also, CEDD provided 10 concrete cube compression machines at PWRL(SHW). It was estimated that the time required to conduct a concrete compression test was around two to three minutes. He further said that outsourcing the operation of laboratories was a common practice in many overseas countries, and was proved to be effective if under a vigorous quality assurance system.

#### Reporting mechanism and coordination among government departments

14. The Chairman, Ms Claudia MO, Mr LAM Cheuk-ting, Mr YIU Si-wing and Dr Helena WONG criticized the ineffective communication and

coordination among the Transport and Housing Bureau, the Highways Department ("HyD") and CEDD in handling the falsification incident. Despite the serious implications of the tampering of testing time in some concrete compression tests, neither HyD or CEDD had brought the issue to the attention of STH when this was uncovered in July 2016 and reported to ICAC subsequently. Ms MO and Mr LAM asked if any public officers were derelict of their duties. The Chairman, Mr LAM and Mr YIU took the view that if the relevant parties were timely informed at an early stage, appropriate measures could have been taken before the batches of concrete that might have quality problem were used in the HZMB Hong Kong Section and related projects.

15. STH responded that given the load of issues being dealt with every day, it was natural that department heads had to exercise judgments in selecting issues for reporting to bureau secretaries regarding whether an issue should warrant their special attention. He said that he was informed of the falsification incident on 19 May 2017 and was keenly concerned about the matter. He undertook to review the internal notification procedures where appropriate.

16. DCED explained that when anomalies in testing time in some concrete compression test reports were found in mid-2016, CEDD had at once investigated into the incident and at the same time requested the consultant to submit a detailed investigation report. After investigation, CEDD assessed at that time that inaccuracy of the testing time would not have significant implications on the test results, and would unlikely cause material impact on the quality of the batches of concrete for use in the HZMB Hong Kong Section and related projects. CEDD had then informed HyD of the assessment. When CEDD was notified by ICAC in mid-2017 about the suspected replacement of concrete cube test samples with other materials by the laboratory staff to falsify the tests, CEDD had relayed the matter to HyD immediately and at the same time commenced a follow-up investigation by examining the raw data of the concrete compression test records of PWRL(SHW). HyD had also immediately started to conduct structural examinations for the relevant works projects likely to be affected.

17. In response to some member's enquiry about the ICAC's statement which declared that there was no information or evidence to suggest that any public officers were involved in the malpractice, STH said that as investigation of the case by ICAC was currently underway, it was inappropriate for him to give responses or comments at this stage.



Structural examinations for the relevant works projects

18. On the scope of conducting core tests as recommended by the professional organization engaged by HyD, Mr CHAN Chun-ying took a further view suggesting that to better ensure structural safety, a minimum number of core tests should be conducted for all structures of the bridge regardless of the results of the non-destructive concrete strength tests (commonly known as "Schmidt Hammer Tests"), and more core tests should be conducted on top of the minimum number at locations which failed the "Schmidt Hammer Tests".

19. Mr Michael TIEN noted that while it was specified in all related works contracts that the contractors had to take full cores at 5% of the bored piles to ensure that the quality of the piles was up to standard, he considered that more core tests should be conducted. Likewise, Dr Fernando CHEUNG considered that if the malpractices that were unveiled in the falsification incident were commonplace in the industry, the Administration should review whether the contractual requirement of 5% of the bored piles to be tested should be raised.

20. Dr LAU Siu-lai mentioned that according to some expert opinion, not all cracks in concrete could be revealed through visual inspections or "Schmidt Hammer Tests". She and Mr CHAN Chi-chuen considered that the Administration should conduct core tests for all the 159 suspected fraud cases involving stress-critical locations to ensure the structural safety and durability of HZMB Hong Kong Section and related projects. The Deputy Chairman doubted how HyD could lightly concluded that the structures of the HZMB Hong Kong Section and related projects were sound based on mere visual inspections.

21. As it was suspected that the concrete cube samples tested were replaced, Dr Helena WONG was gravely concerned about the potential structural safety problems of the related works projects. Mr KWONG Chun-yu urged the Administration to actively conduct more core tests at all affected locations of the works projects. He asked about when HyD would complete the testing.

22. STH responded that the Administration was very concerned about the impact of the falsification incident and would conduct a series of tests to ensure structural safety. He advised that visual inspection was commonly adopted worldwide as a direct and efficient means of initial checking to identify signs of abnormalities, and "Schmidt Hammer Test" was a commonly recognized method in the industry for testing the strength of concrete. He

fully understood the public concern, and said that HyD would conduct core tests in accordance with the recommendation of the professional organization they engaged.

23. DHy supplemented that HyD was conducting "Schmidt Hammer Tests" on all the stress-critical locations of bridge decks, bridge piers, buildings and tunnel structures, etc. under the three relevant projects. Additional core tests would be conducted at the locations which failed the "Schmidt Hammer Tests". For structures constructed underground or below sea-level, the professional organization recommended to first carry out compressive strength tests on the core samples taken from the full cores at 5% of the bored piles, and depending on the results of the compressive strength tests, whether additional cores had to be tested would be further considered. Up to the moment, the results of "Schmidt Hammer Tests" revealed that the compressive strengths of the tested concrete structures were all up to standard and no abnormalities were found. On the other hand, HyD had just received information from CEDD on 210 suspected falsified concrete cube tests and they would prioritize the "Schmidt Hammer Tests" and follow up works to be carried out at the relevant locations. HyD aimed to complete all "Schmidt Hammer Tests" at the stress-critical locations by the end of June 2017.

24. In response to Mr CHAN Chun-ying's further enquiry, DHy advised that HyD had followed the established procedures in engaging the professional organization to give advice, monitor and review the tests conducted and to be conducted. He said that the professional organization concerned had proven experience in providing services for many government departments and private firms on the examination of concrete structures.

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25. Dr YIU Chung-yim requested the Administration to provide site plans with clear illustrations to indicate all the affected works locations corresponding to the suspected falsified concrete cubes; and among these locations, which were stress-critical/underground/below sea-level respectively; provide some sample copies of the Quality Scheme for the Production and Supply of Concrete Certificates in respect of the concrete supplied for the works of the HZMB Hong Kong Section and related projects; and upon completion of the "Schmidt Hammer Tests" at all the affected works locations corresponding to the suspected falsified concrete cubes, supplement the probability distribution in terms of the characteristic strength of the concrete, and a data comparison against the corresponding alleged falsified concrete test results. Mr LAU Kwok-fan suggested that the Administration might consider inviting members to observe the process of various tests.

26. DHy agreed to provide the information requested by Dr YIU once they were available. He explained that visual inspections had been completed and no signs of abnormalities were found. "Schmidt Hammer Tests" had already been conducted at around 2 000 stress-critical locations of the relevant projects. After receiving information from CEDD on the 210 suspected falsified concrete cube tests, "Schmidt Hammer Tests" had already been conducted at 13 out of the 210 corresponding locations. He said that HyD would give priority to the testing and follow up works at the remaining locations.

27. Mr LAM Cheuk-ting asked if more falsified concrete cube test records would be found. As the falsified records made up about 0.1% in all the concrete compression test records of PWRL(SHW), Mr YIU Si-wing expressed concerns that the figure was not minimal, and asked whether the Administration had looked into the gist of the problem.

28. DCED advised that based on the information provided by ICAC, CEDD had examined the raw data of all concrete compression test records of PWRL(SHW) from January 2015 to June 2016. A total of 210 suspected falsified concrete cube test records had so far been identified. CEDD would continue to render assistance to ICAC in its investigation. It would also learn from the experience in this incident and look for room for improvements in the existing monitoring mechanism.

29. Ms Tanya CHAN asked if the Administration would suspend the works of the HZMB Hong Kong Section and related projects until the completion of all tests. STH and DHy stressed that the structural works of the Hong Kong Boundary Crossing Facilities and Hong Kong Link Road projects had largely been completed and installation of bridge decks of the HZMB Main Bridge was completed. Visual inspections had been completed and no signs of abnormalities were found. In addition, the results of "Schmidt Hammer Tests" conducted at about two-thirds of all stress-critical locations of structures of the three relevant projects had shown that the concrete strengths of the tested structures were all up to standard and no anomaly was found. Therefore, the work of the HZMB Hong Kong Section and related projects would continue.

#### Penalties imposed on the consultant concerned

30. The Chairman considered that heavy penalty should be imposed on the consultant involved in the falsification incident. He agreed that the consultant concerned should be suspended from tendering for all categories of

architectural and engineering consultancy agreements within the jurisdiction of the existing two consultant selection boards for one year.

31. Mr LUK Chung-hung, however, took the view that the above penalty did not serve a sufficient deterrent effect. Ms Tanya CHAN considered that tampering with testing time was a serious misconduct and heavier penalty should be imposed. Mr Michael TIEN and the Deputy Chairman queried why, after reporting to ICAC regarding the malpractice of tampering with testing time by the consultant, CEDD had continued to award contracts to the consultant concerned in August 2016 and March 2017.

32. DCED advised that according to the established guidelines, follow up actions to malpractices of consultants should be taken based on the information available and the seriousness of the malpractices. CEDD assessed that the inaccuracy in the testing time did not have significant implications on the concrete strength results. Subsequently, an adverse performance report was given to the consultant concerned and the consultant was required to follow up and take improvement measures.

33. Mr LUK Chung-hung asked whether the falsification incident would cause delay to the HZMB Hong Kong Section and related projects and cost overrun. The Chairman, Mr YIU Si-wing and Mr LUK asked whether the Administration would recover the financial loss from the consultant concerned.

34. DCED advised that CEDD was seeking legal advice from the Department of Justice on whether claims could be made from the consultant concerned for recovering the financial loss arising from the falsification incident. CEDD would take follow up actions according to the legal advice.

35. STH advised that according to the assessment of the Administration, the falsification incident would not cause delay to the relevant projects. It would strive to conduct the various tests within the scheduled timeframe of the relevant projects. He added that although the additional tests would incur additional costs, the Administration had no plan to revise the approved project estimates of the relevant projects.

#### Other issues

36. The Deputy Chairman, Dr Fernando CHEUNG and Dr CHENG Chung-tai were aware that apart from conducting concrete tests for the HZMB Hong Kong Section and related projects, the consultant concerned had also been engaged by the Administration in other projects such as the Hong Kong

Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link ("XRL") project. They asked whether the Administration would review all the concrete test reports prepared by the consultant and conduct structural examinations for those projects. Dr CHENG requested the Administration to at least review the relevant records in the past five years.

37. DCED advised that from early 2015 to 2016, PWRL(SHW) was mainly tasked to conduct the concrete tests for HZMB Hong Kong and related projects. The laboratory was also responsible for conducting a few concrete tests for other public works projects. CEDD had assessed those test reports and considered in order. STH and DHy clarified that the consultant concerned were engaged by the Administration as the monitoring and verification consultant under the XRL project. It was not involved in conducting concrete tests under the XRL project.

## **II. Any other business**

38. There being no other business, the meeting ended at 4:30 pm.

Council Business Division 4  
Legislative Council Secretariat  
7 December 2017