

**Commission of Inquiry into the Diaphragm Wall and Platform Slab Construction Works  
at the Hung Hom Station Extension under the Shatin to Central Link Project**

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**WITNESS STATEMENT OF CHAN CHI KONG**

**FOR**

**ATKINS CHINA LIMITED**

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I, Chan Chi Kong, of 17/F, Two Harbour Square, 180 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong, do say as follows:

1. I am Executive Director of Arcadis Design & Engineering Limited ("**Arcadis**"). I worked for Atkins China Limited ("**Atkins**") from June 1995 to March 2016. I started work as a Senior Engineer and was promoted to Divisional Director of the Structure Division. Since 2012, I was Department Head of Structure Division, responsible for the profit and loss, allocation of resources, recruiting people and the preparation of budgets.
2. I graduated with Masters Degree in Civil and Structural Engineering from Polytechnic University of Hong Kong in 1996. I also graduated with Master in Business Administration from Wollongong University, Australia in 2005. I am a member of the HKIE, MICE, MStructE, a Registered Structural Engineer ("**RSE**") and a Registered Geotechnical Engineer ("**RGE**"). Before joining Atkins, I worked for a number of developers and contractors in Hong Kong and overseas. I have 33 years of experience in construction and design. I enclose my CV in attachment **CKC-1**.
3. As I was the Divisional Director, I was not involved in the day-to-day detailed design. However, I was responsible for managing the structural resources to support the Shatin to Central Link Hung Hom Station Extension Contract 1112 project (the "**Project**") for Mass Transit Railway Corporation Limited ("**MTRCL**"). I was also the RSE for the Structural (Alterations & Additions) work for Hung Hom Station Concourse above podium level of existing Hung Hom Station and the RGE for the new Hung Hom Station below podium level of existing Hung Hom Station. For the Project, there was an Atkins' project manager who managed the day-to-day design resources. The Atkins' project manager was Mr. Robert McCrae.

4. I have prepared this witness statement to address each of the Commission's requests as set out in Lo & Lo's letters dated 2 October 2018 [J1-J9], 15 October 2018 [J10-J12] and 17 November 2018. I refer to Lo & Lo's letter dated 17 November 2018, where I was asked to respond to Requests 2, 3 and/or 4 as set out in Lo & Lo's letter dated 2 October 2018 [J3-6].
5. Unless otherwise stated, the facts stated herein are within my personal knowledge and are true. Where the facts and matters stated herein are not within my own knowledge, they are based on the stated sources and are true to the best of my knowledge.

#### **Request 2 – Alleged Cutting of Rebars**

6. Request 2(a) from the Commission: *"Explain and confirm whether Your Company has any knowledge of the alleged cutting of threaded steel bars and existence of a gap at threaded steel bar/coupler connections for diaphragm walls to slab and slab to slab during construction period on site."*
7. I have no knowledge of the alleged cutting of threaded steel bars and existence of a gap at threaded steel bar / coupler connection for D-walls to slab and slab to slab during construction period on site.

#### *Rectification and Remedial measures*

8. Request 2(b) from the Commission: *"Comment on what rectification and remedial measures should have been taken by Leighton and/or other sub-contractors if threaded steel bars within EWL/NSL Slabs had been cut as alleged and there was a gap at threaded steel bar/coupler connections for diaphragm walls to slab and slab to slab, and explain and confirm whether rectification and remedial measures have been actually carried out on site."*
9. If there is a problem, the Contractor would need to prepare remedial measures such as trimming down the concrete and installing straight through bars / couplers for the connections or installing additional drill-in bars. The Contractor would have to demonstrate equivalent structural capacity to the original design.
10. I am not aware of threaded steel bars within EWL/NSL Slabs had been cut as alleged and there was a gap at threaded steel bar/coupler connections for diaphragm walls to slab and slab to slab and if any rectification and remedial measures were carried out on site.

#### *Knowledge of Cutting of Threaded Steel Bars and Existence of Gap without Rectification*

11. Request 2(c) from the Commission: "*Explain and confirm whether Your Company has any knowledge of any cutting of threaded steel bars and existence of a gap at threaded steel bar/coupler connections for diaphragm walls to slab and slab to slab in the as-built structures without any rectification.*"
12. I have no knowledge of any cutting of threaded steel bars and existence of a gap at threaded steel bar/coupler connections for D-walls to slab and slab to slab in the as-built structures without any rectification.

*Effects of Cutting of Threaded Steel Bars and Existence of Gap – Quality, Safety and Integrity of the D-walls and EWL / NSL Slabs*

13. Request 2(d)(i) from the Commission: "*On the basis of the evidence given by the witness as extracted above: comment on whether such shortening and cutting of the steel bars of EWL/NSL Slabs and the existence of a gap at threaded steel bar/coupler connections for diaphragm walls to slab and slab to slab would compromise the quality, safety and integrity of the diaphragm walls and EWL/NSL Slabs.*"
14. I have read the witness statement of Mr. Blackwood at paragraphs 51 to 54 and I agree with the comments stated there.

*Effects of Cutting of Threaded Steel Bars and Existence of Gap – Original Design Intent of the D-walls and EWL / NSL Slabs*

15. Request 2(d)(ii) from the Commission: "*On the basis of the evidence given by the witness as extracted above: Comment on whether cutting of threaded steel bars and the existence of a gap at threaded steel bar/coupler connections for diaphragm walls to slab and slab to slab would affect the original design intent of the diaphragm walls and EWL/NSL Slabs.*"
16. Depending on the extent of cutting of threaded steel bars and the existence of a gap at threaded steel bar/coupler connections for D-walls to slab and slab to slab, it may affect the original design intent of the D-walls and EWL / NSL slabs. However, it may still be possible for the structure to function as originally intended depending on the extent and distribution of cut reinforcement bars or gaps at couplers.

**Request 3 – Alleged Change of Connection Details between EWL Slab and East D-walls**

*Atkins' Role and Participation in the Process*

17. Request 3(a) from the Commission: "*Explain and describe Your Company's role and participation in this deviation in connection details.*"

18. As far as Atkins' role, I have read the witness statement of Mr. Blackwood at paragraphs 61 to 62 and I agree with the comments stated there.
19. I was not involved in the detailed structural issues for the below podium level (underground) works except for my role as the RGE.
20. I was the RSE for the Structural (Alterations & Additions) work for Hung Hom Station Concourse, which was not subject to the Instrument of Exemption ("IoE"). For the below podium level (underground) works, there was a competent person ("CP") from MTRCL who took the role of Authorized Person ("AP") / RSE for the underground IoE works. The CP was responsible for all submissions and amendments for below ground works to the Buildings Department ("BD") under the IoE.
21. I was aware of the U-bar issue in so far as it affected the geotechnical design as the RGE and the works above the podium level. I was not involved in the details of this issue. I was not involved in the preparation of the reports TWD-004B2, TWD-004B3 or PWD-059A3.

*Explain and confirm whether such Deviation in Connection Details requires the Expressed Approval of the BD*

22. Request 3(b) from the Commission: *"Explain and confirm whether such deviation in connection details requires the expressed approval of the BD. If it is required, state the procedures and identify the party or parties who should take steps to seek approval from the BD. If approval is not required, explain why not. Explain the role Your Company as the design consultant under Contract No.1112 would play in the procedures for seeking approval from the BD."*
23. I have read the witness statement of Mr. Blackwood at paragraphs 98 to 100 and I agree with the comments stated there.
24. However, I was the RSE for the Structural (Alterations & Additions) work for Hung Hom Station Concourse above podium level which were not subject to the IoE. For the below podium level (underground) works which were subject to the IoE, it was the responsibility of the CP.
25. Occasionally I was consulted on below podium level (underground) works. However, that was not my area of responsibility. For example, the email dated 25 July 2015 (timed at 14:05) [B7254-7255] regarding the necessity to cast the EWL slab and the OTE monolithically for the pour at EH72 and EM74. I considered that it was acceptable to cast the OTE slab after the EWL slab, in this case, providing it was cast before future activities that would result in loading of the connection between D-wall and EWL slab [B7255]. However, I recommended that Mr. Jason Wong, as CP,

should also be consulted to check that he agrees with this view on the BD requirement.

*Effect of the Alleged Deviation in Connection Details*

26. Request 3(c) from the Commission: *"Explain whether and how the deviation may affect the design intent of the east diaphragm wall. Comment on the effect of the alleged deviation in connection details on the EWL Slab and East Diaphragm Walls structures themselves and on the overall design scheme."*
27. I consider that the deviation does not change the original design intent of the east D-wall as it is a substitution of straight through bars in lieu of coupler connections.

*As-built Connection Details*

28. Request 3(d) from the Commission: *"Explain and confirm with the aid of drawings the as-built connection details between EWL Slab and east diaphragm walls. Provide a set of the relevant as-built drawings. If such as-built drawings are not available, explain why they are not available. Confirm whether it is Your Company's responsibility to provide as-built drawings."*
29. I have no knowledge of the as-built drawings for connection details between EWL Slab and east D-walls as I had already left Atkins at this time.
30. My involvement in the as-built drawings for the D-wall was restricted to signing the D-wall BA14 forms as the RGE. This was restricted to geotechnical aspects such as pre-drill record, interface coring, point load strength of rock, the design parameters, water seepage, grouting, settlement and instrumentation monitoring.

**Request 4 – Presentation to Professor David A Nethercot**

31. Request from the Commission:
- "(a) Explain and describe the contents of the presentation given to Professor David A Nethercot.*
- (b) Confirm who gave the presentation on behalf of Your Company.*
- (c) Explain, with the aid of any presentation materials given to Professor David A Nethercot, what is the overall design scheme of the diaphragm walls and EWL/NSL Slabs and the details of the slab/wall connections.*
- (d) Please produce the relevant paper, notes, power point, slides and/or video of the presentation."*

32. I had already left Atkins at the time of this presentation and therefore I am not in a position to comment on this request.

**Close**

33. I trust that the information provided in this witness statement and its exhibits are of assistance to the Commission. I will be pleased to supplement with any additional information which the Commission may find helpful.

Dated 30 November 2018



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Chan Chi Kong