

**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**

FIRST WITNESS STATEMENT OF STEPHEN LUMB

I, STEPHEN LUMB, of 39/F, Sun Hung Kai Centre, 30 Harbour Road, Hong Kong say as follows:

1. I am, and was at all material times, the Head of Engineering for the Hong Kong business of Leighton Contractors (Asia) Limited (“**Leighton**”), the main contractor for the Hung Hom Station Extension contract (Contract SCL 1112) (“**Project**”) under the Shatin-Central rail link project. The project manager for the Project is MTR Corporation Limited (“**MTRCL**”).
2. 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, information and belief.

My qualification and experience

3. I am a chartered civil engineer (CEng) and a registered structural engineer (RSE). I am a fellow of the Hong Kong Institution of Engineers (HKIE) and the Institution of Civil Engineers (ICE). I have over 25 years of experience in engineering and construction.
4. I was employed by Leighton in August 2010 as the Head of Engineering for the Hong Kong business. In this role, I lead an in-house team of around 50 engineers which predominantly provides design services to Leighton’s ongoing projects. I report to the Head of Pre-Contracts and the General Manager at Leighton. As I note further below, my team carried out various temporary design works for the Project.

My role and responsibilities

Involvement in the Project

5. The engineering design team operates as an internal consultant to Leighton, providing temporary works design services to any ongoing project that Leighton may be involved in. For this reason, I do not work full time on any one project. This was also the case with this Project.
6. I am based in the Hong Kong head office of Leighton. I was, and continue to be, responsible for leading and supervising the head office based engineering design team.
7. In relation to the Project, the head office engineering design team was, and continues to be, responsible for providing miscellaneous temporary works design services.
8. Atkins was appointed by MTRCL as the Detailed Design Consultant for the Project. Leighton also engaged Atkins to advise on the major items of temporary works design and to perform the computational analysis. The most significant temporary works designs that were prepared by Leighton's engineering design team on the Project was the design work for the steel strutting works constructed during the excavation works. This was based upon design analysis and loading information provided by Atkins.
9. The engineering design team did not undertake any design work relating to the reinforcement of the East West Line platform slab ("**EWL Slab**") and the North South Line platform slab ("**NSL Slab**").
10. In the initial stages of the Project, I would attend the project site office for weekly meetings with the onsite members of Leighton's engineering team (who are independent of my head office based team). The purpose for these meetings was for design co-ordination and to check on the progress of the temporary works design. This was well before construction commenced on the EWL Slab and NSL Slab. After that period, we had *ad hoc* design meetings from time to time.

11. Throughout the entire course of the Project to date, I have visited the actual site on a limited number of occasions. The only occasion I specifically recall was during the construction of the NSL Slab when I visited to site specifically to look at the steel struts that the engineering design team had designed and that had been installed.
12. I had no role whatsoever regarding the reinforcement of the EWL Slabs or NSL Slabs or, specifically, relating to the fixing of reinforcement bars (“rebars”) to couplers or the various inspections of those fixings. My only involvement came later when I was asked to undertake a review into allegations of malpractice that had been made by Jason Poon. I discuss this further below.

Relationship with subcontractors

13. I had no relationship or contact with the subcontractors on the Project. At the time, I was not aware that two of the subcontractors were China Technology Corporation Ltd (“**China Technology**”) and Fang Sheung Construction Company (“**Fang Sheung**”), nor had I heard of either company previously. I did not know the identity of the individuals responsible for managing those subcontractors, including Jason Poon and Joe Cheung. It was not relevant to the design work that the engineering design team were performing for the Project.

Allegations made by Jason Poon of China Technology

14. I first heard of the allegations regarding the cutting of the threaded ends of rebars in January 2017. I was contacted by either Anthony Zervaas, Project Director, or Paul Freeman, Operations Manager (I do not now recall which one).
15. I was told that there had been an allegation made in an email (I do not recall if I was specifically told that it came from Jason Poon), which attached various photographs. I was shown the photographs (but not the email). I cannot now recall exactly what was shown in the photographs, but I do recall that they showed the cut end of a threaded reinforcement bar.
16. I was advised that the allegations had been notified to MTRCL and that Leighton had proposed to MTRCL (and MTRCL had accepted) that it conduct an urgent review into the

quality systems on site to ascertain if there was any substance to the allegations. I was advised that, as the Head of Engineering at Leighton, I should lead that review. In addition to my position, I assume the fact that I had no day-to-day involvement in the construction process and therefore brought a level of independence and “fresh eyes” to the review was a factor in my selection.

17. In relation to onsite processes, supervision and workflow, I came into the review without any preconceptions of what I expected to find. I approached the review with an open mind.

Review process: 9th to 11th January 2017

18. My “brief” was to lead an internal review to gain an understanding of the construction processes and procedures, to speak to the engineers on site and to perform a verification of the quality control and inspection processes.
19. The review was carried out between 9th and 11th January 2017. One of my Design Managers attended the site in order to:
 - (a) Obtain and review relevant documentation (drawings, details, the method statement, the inspection and test plans (“ITP”) and the QA/QC records);
 - (b) Understand the site supervision and inspection regime and compare that to what was set out in the ITP;
 - (c) Review the non-conformance list and assess the close out procedures for those items; and
 - (d) Speak to the engineers that remained on site about these matters.
20. We prepared a draft report (as produced and marked **Exhibit “SL-1”**). This was finished on 17 January. The draft was provided to Anthony Zervaas who subsequently forwarded it to MTRCL. Following a review of the first draft, MTRCL asked for an additional section to be included entitled “*Statutory Requirements*” which specifically addressed Buildings Department approvals and conditions and the site supervision plan. This was done and the

final report was circulated on 17 February 2017 (as produced and marked **Exhibit “SL-2”**).

21. We concluded that the works appeared to have been carried out with an appropriate level of on-site supervision by Leighton’s own engineering and supervision staff, and MTRCL’s Inspectors of Work.
22. We found that the site operations team had prepared the method statement and ITP which had been approved by MTRCL. These documents were used as the basis for the construction of the EWL slab. The ITP contained a construction flowchart identifying hold points and witness points along the process, a schedule of submission, inspections and testing requirements and a cast-in situ concrete quality control checklist. I concluded that the relevant procedures were followed.
23. We analysed the construction process and workflow required under the ITP against actual site workflow of the rebar installation process and concreting work. For this purpose, we had met with various members of Leighton’s construction engineering and site supervision teams. We found that the actual work done was more rigorous than that required by the ITP.
24. In relation to the site supervision and inspection regime, I concluded that it was adequate and had been followed by Leighton. Similarly, I found that a MTRCL Inspector of Works was always present onsite whenever construction works were taking place.
25. We looked at the non-conformance records (“NCR”) and found that one had been raised in relation to the cutting of the threaded end of rebars. Our investigation confirmed that this issue had been rectified by the sub-contractor and the NCR had been closed out in accordance with the appropriate procedure.
26. In the course of the review process, we inspected the Buildings Department (“BD”) consultation letters which set out the conditions to be complied with in relation to coupler manufacture and installation. We reviewed these conditions and concluded that the evidence confirmed compliance with the BD conditions.

27. Our overall conclusions were that:


- (a) Suitable QA/QC documentation was prepared, submitted to and approved by MTRCL;
- (b) The construction and checking process was carried in accordance with the approved method statement and ITP;
- (c) Documents evidencing compliance with the BD approval letter conditions in relation to coupler supply, manufacture and installation were in order and complete;
- (d) Non-conformances were identified during the construction works and rectified through the established NCR processes; and
- (e) Other observations picked up during routine site inspections in relation to installed rebars not following the construction drawings were addressed directly at site level between MTRCL, Leighton and the sub-contractor.

28. I understand that the final report was shared with MTRCL and that no adverse comments were made and no requests for any follow up work were made to Leighton.

Knowledge of cutting of threaded ends of rebars

29. Other than in relation to the subject matter of the investigation report and the subsequent publicity given to the allegations, I have never heard of any person cutting off or shortening the threaded ends of rebars, giving instructions to do so or allowing it to happen (whether within or outside of Leighton). As a design engineer, I well understand the importance of reinforcement. I can see no good reason why it should ever be done.

Dated the ^{October} 20 day of ~~September~~ 2018.

Signed: 
Stephen Lumb