

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

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**FIRST WITNESS STATEMENT OF RONALD LEUNG**

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

1. I was, at the times relevant to this statement, a Site Agent employed by Leighton Contractors (Asia) Limited (“**Leighton**”), the main contractor for the Hung Hom Station Extension contract (Contract SCL 1112) (the “**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 hold a degree in civil engineering. Prior to joining the Project, I had around 15 years professional work experience as an engineer. I was qualified as TCP T4 for the purposes of supervision on the Project, but I was not a TCP in any package of works in the Project.

**My role and responsibilities**

4. I was employed by Leighton in October 2013 as a Site Agent. I started working on the Project around the end of May 2015 and left in June 2018. I then worked on other projects for Leighton but recently returned to work on the Project again in early 2019.
5. During the construction phase of the Project, I was a member of Leighton’s construction engineering team. The construction engineering team was responsible for (among other things) method statement programming, procurement, management of resources,

coordination, supervision and inspection of the works, sequencing of the works and worker safety.

6. I worked on the Stable Sidings (“HHS”) from the end of May 2015 until I left the Project in early June 2018. The major works (such as rebar fixing and concrete pours) in the HHS began shortly before I arrived on the Project and were concluded around April 2017.
7. I also worked on the South Approach Tunnel area (“SAT”) from around May 2017 until I left the Project. However, the rebar fixing or concrete pours in the SAT had been completed by that time.
8. My role as Site Agent in the HHS involved managing Leighton’s team of “frontline” engineers for this area. They were part of the construction engineering team. These engineers would supervise the subcontractors and conduct both routine and formal inspections of the reinforcement and the formwork for concreting. These formal inspections were conducted by one of Leighton’s engineers and either MTRCL’s engineer or Inspector of Works (“IoW”) at the “hold points” specified in the Inspection Test Plans (“ITP”). After completing these formal inspections and obtaining MTRCL’s approval of the works, Leighton’s engineers would arrange and supervise the pouring of concrete.

#### **My daily routine**

9. My usual working hours on the Project were from 8am to 7pm with a one hour lunch break. Having said that, I sometimes worked longer hours in order to complete all of my tasks and to manage my team.
10. I would usually visit the site at least once every working day. I would typically spend around 2 to 3 hours on site on each working day. I would walk around my areas of the site during my visits. I would usually see the engineers in my team and MTRCL’s engineers/IoWs conducting both routine and formal inspections of the works. I would also sometimes conduct inspections of the works myself, including to visually inspect the reinforcement that was installed (or in the process of being installed) by the rebar fixing subcontractor (Wing & Kwong Steel Engineering Co Ltd for the HHS) and the

pre-pour work that was conducted (or in the process of being conducted) by the concreting subcontractor (Bik Hoi Civil Engineering Company Ltd for the HHS).

### **Supervision and inspection**

11. There were various levels of supervision and inspection conducted on the works in my areas of the Project. As noted above, this included routine inspections and formal inspections which were jointly conducted by Leighton's frontline engineers and MTRCL's engineers/IoWs. My team of frontline engineers spent at least 4 to 5 hours on site each day completing both routine and formal inspections of the works.
12. Routine inspections were informal and conducted by Leighton's frontline engineers whenever they were on site. These happened on a daily basis in the HHS area. The MTRCL's engineers and IoWs also conducted their own routine or informal inspections every working day.
13. As part of their routine and formal inspections, my team of frontline engineers would visually inspect the connections between rebar and couplers. The same visual inspection would also be done by MTRCL's engineers and IoWs.
14. The usual process and details involved in the formal inspections were as follows:
  - (a) There were two key formal inspections of the reinforcement. The first was the rebar fixing inspection with MTRCL's engineer. The second was the pre-pour check with MTRCL's IoW;
  - (b) The subcontractors knew that their work would need to be inspected and approved by Leighton and MTRCL before they could proceed to the next stage of the works. These inspections happened at a "hold point". The two key hold points were at the completion of the rebar fixing (i.e. when the formal inspection for rebar fixing would occur) and the completion of pre-pour work (such as the erection of formwork and cleaning) to prepare the area for the concrete pour (i.e. when the formal inspection for the pre-pour check would occur). These hold points were set out in the ITP and included in the Method Statements. Once a hold point was reached, the subcontractors would stop work and only resume

again after the formal inspection was conducted by Leighton and MTRCL and only if both parties gave their approval;

- (c) Before or around the time of a formal inspection, Leighton's engineer would issue a Request for Inspection and Survey Check ("RISC") form to MTRCL;
  - (d) Once the rebar fixing work was completed, MTRCL's engineer and Leighton's engineer would jointly conduct the formal inspection for rebar fixing;
  - (e) The practice was to arrange for rebar fixing and pre-pour work to be completed simultaneously to reduce delay. If that happened, the formal inspection for the pre-pour check could proceed shortly after the formal inspection for the rebar fixing (i.e. if both Leighton and MTRCL approved the rebar fixing work). MTRCL's IoW and Leighton's engineer would jointly conduct the formal inspection for the pre-pour check;
  - (f) It was standard practice for MTRCL's engineer/IoW to verbally approve the works after the formal inspections and to verbally authorise Leighton to proceed with next stage. The only exception would be if MTRCL required rectifications to be made to any of the works. If possible, Leighton would ensure that any rectifications were completed immediately by the subcontractor during the inspection. Otherwise, if more time was required to complete the work, Leighton's staff would check the work later before arranging a further inspection with MTRCL. Thereafter, MTRCL's engineer/IoW would inspect the rectification and give their verbal approval; and
  - (g) It was standard practice for work to proceed after verbal approval was obtained from MTRCL following a formal inspection. This allowed works to continue without delay. MTRCL's engineer/IoW would then complete the RISC form to record their approval and return it to Leighton at a later date.
15. The formal inspections for rebar fixing usually involved checking the arrangement of the rebar, the size of the rebar, the spacing of the rebar, the lap length of the rebar and

the connections between rebar and couplers. I instructed the frontline engineers in my team to perform these tasks.

16. I spoke with my team of engineers frequently throughout each working day and closely monitored their work. I believe that they diligently and properly conducted their routine and formal inspections. Our team also supported each other to ensure that routine and formal inspections were completed. For example, I conducted a few of formal inspections in the HHS when members of my team were unable to do so.

### **RISC Forms**

17. Leighton has disclosed a table summarising the records of the formal inspections for rebar fixing and pre-pour checks for the HHS (numbered **LCAL.HHS.2.01**) in the Index). This table shows that Leighton's engineers in the HHS submitted some but not all of the RISC forms for these formal inspections.
18. I spoke to the frontline engineers in my team regularly throughout each working day. As a result, I knew that they were completing the formal inspections and obtained MTRCL's approval of the rebar fixing and pre-pour works before they allowed the subcontractors to proceed with the next stage. I know that these frontline engineers also obtained MTRCL's approval to proceed with any concrete pours.
19. I did not know during the period of construction of the HHS that some of the RISC forms of the formal inspections in the HHS had not been completed by the frontline engineers in my team. It was only brought to my attention a few weeks after the construction of the HHS had been completed. In particular, MTRCL's Senior IoW (Mr. Victor Tung) told me at that time that some of my team members still needed to complete some of the RISC forms for the formal inspections that had been completed for the HHS works. Victor spoke to me on two further occasions to remind me to get my team members to complete the RISC forms. On each occasion that Victor spoke with me about this matter, I told my team to submit any outstanding RISC forms. I also asked my team at that time why they had not completed some of their RISC forms promptly. They informed me that they were very busy and had to prioritise their substantive work (i.e. conducting routine and formal inspections of the works, supervising the subcontractors etc.) instead of completing their RISC forms.

20. Unfortunately, one of the members of my team (Matthew Tse) left the Project and stopped working for Leighton before he had completed the outstanding RISC forms for the formal inspections for rebar fixing and pre-pour checks that he had conducted.
21. I have also recently learned that I was responsible for one outstanding RISC form for a formal inspection for rebar fixing. I was not aware that I had omitted to complete this RISC form. I must have forgotten to complete it at the time. Despite this, I recall that I completed this formal inspection with MTRCL's engineer and we both approved the works after the inspection.
22. I can confirm from my personal experience and from communications with my team and MTRCL's engineers/IoWs during the construction of the HHS that:
- (a) the engineers in my team and MTRCL's engineers/IoWs conducted the formal inspections for rebar fixing and pre-pour checks for all relevant concrete pours in the HHS;
  - (b) the engineers in my team and MTRCL's engineers/IoWs approved the works after each formal inspection (or at a subsequent inspection if rectifications were required) and approved the pouring of concrete for all relevant concrete pours in the HHS; and
  - (c) any defects in the reinforcement that were identified by my team and MTRCL's engineers/IoWs were rectified before concrete was poured.
23. This is supported by the MTRCL's site diary entries, which typically record the rebar fixing works, preparation work for concrete pours and the concrete pours. It is also consistent with the concrete cube test results for relevant areas, which record the date of the relevant concrete pour and show that MTRCL was aware that the pour was happening at that time. These site diary entries and concrete cube test results have been disclosed to the Commission (at number **LCAL.HHS.2.02** in the Index). Generally, the formal inspection for rebar fixing occurred on the day (or shortly after) when the rebar fixing was completed and the formal inspection for the pre-pour check occurred either on the day before or on day when the concrete was poured.

24. The engineers in my team also obtained TW4 (permit to load) forms to be the extent that they were required for the formwork. These TW4 forms would be signed and issued by a Temporary Works Coordinator after they had inspected and approved the formwork. Typically, the TW4 forms were given to the MTRCL's IoW to show that the formwork had been approved. A copy of these TW4 forms has been disclosed to the Commission (at number **LCAL.HHS.2.02** in the Index). These TW4 forms provide further evidence that the engineers in my team were supervising and inspecting the works.

### **Testing of rebar and couplers**

25. The engineers in my team were responsible for ordering batches of rebar to install in the HHS and arranging for those batches to be tested when they arrived on site. The engineer who ordered the batches was usually responsible for arranging the testing.
26. During the period of construction, I understood that all of the tests for the batches of rebar ordered by my team had been completed and the results were satisfactory. I have recently learned that some batches of rebar ordered by a member of my team (WC Lam) were not tested after arriving on site. I understand that he was very busy at the relevant time and overlooked the tests.
27. Having said that, I understand that all of the rebar that was tested for the Project passed the tests. In addition, Mill Test Certificates were provided for all of the rebar that was ordered for the Project. These Mill Test Certificates confirm that the rebar used on the Project was tested by the manufacturers and passed such tests.
28. The testing of couplers was arranged by another Leighton engineer who was not in my team. This work was not handled by my team of engineers. I understand that all of the couplers used in the Project were tested and passed such tests.

### **Use of couplers on the Project**

29. At some locations in the Project, it was necessary to connect some rebar by using couplers (instead of lapping) at some construction joints in order to follow the construction sequence agreed with MTRCL. The main locations where couplers were installed in the HHS was at construction joints that were built along access routes. It

would not have been possible to keep these access routes clear if continuous lapped rebar was used at those construction joints.

30. MTRCL's staff was well aware of the use of couplers instead of continuous lapped bars at the construction joints. For example, Leighton's Construction Manager for the HHS discussed the use of couplers with MTRCL's staff before they were installed. MTRCL's staff never objected to the use of couplers. In addition, the MTRCL's engineers/IoWs would have seen the couplers being installed. They would also have inspected the couplers during the formal inspections for rebar fixing and pre-pour checks.

**The works are safe**

31. In the areas that I was responsible for on the Project (which is all that I can comment on), I am satisfied with Leighton's and my supervision of the Project. We implemented a thorough system of supervision and inspection.
32. In my personal opinion, I believe that the works that were supervised by me and my team of engineers are safe and properly constructed.

Dated the 17<sup>th</sup> day of May 2019.

Signed: \_\_\_\_\_



**Ronald Leung**