

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

FIRST WITNESS STATEMENT OF JEFF LII

I, Jeff Lii 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 senior engineer 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 3.5 years professional work experience as an engineer.
4. I was employed by Leighton in 2011 as a graduate engineer and was part of the construction engineering team on the Project. In or around November 2016, I was promoted and became the senior engineer. The construction engineering team is 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.
5. From February 2015 to May 2018, I worked on the Stable Sidings area (“**HHS**”).

My role and responsibilities

Duties and responsibilities

6. One of my main duties on the Project was to supervise and coordinate the subcontractors and conduct both routine and formal inspections of the reinforcement and the formwork that was erected prior to concreting. For the HHS, the subcontractor responsible for rebar fixing was Wing & Kwong Steel Engineering Co Ltd (“**Wing & Kwong**”), and the subcontractor responsible for concreting works (including formwork and falsework erection and cleaning the area prior to concrete pouring) was Bik Hoi Civil Engineering Company Ltd (“**Bik Hoi**”).
7. I was generally responsible for supervising the work of the subcontractors in my area, including the rebar fixing and concreting works. As part of this work, I conducted formal joint inspections with MTRCL’s engineer/Inspector of Works (“**IoW**”) at each “hold point” under the Inspection Test Plans (“**ITP**”). I discuss this in greater detail below.
8. I worked with a team of engineers which was managed by a senior site agent and included a site agent, sub-agent and another engineer at or around my level.

Working hours and daily routine

9. My usual working hours on the Project were from 8am to 6pm. I also worked on Saturdays and sometimes worked overtime into the evening on days when construction works continued in the areas that I was responsible for on the Project.
10. I would start my day in the site office. I would then normally go down to the construction site and do the first of my “rounds”. I would typically spend 2 to 3 hours on site in the morning. I would then return to the site office shortly before lunch. After lunch, I would return to the construction site for another “round”. I would typically spend 2 to 3 hours on site in the afternoon. If I worked overtime, I would also visit the site again in the evening occasionally for some specific activities. I estimate that I spent around 4 to 5 hours on site on average each day.
11. During my rounds, I conducted routine inspections in order to check that the work was being carried out in accordance with safety standards, approved or agreed drawings and

the required workflow process. I also ensured that the subcontractors were aware of the work schedule and would be able to meet target completion dates.

Supervision and inspection

12. There were various levels of supervision and inspection conducted on the works in my areas of the Project. This included routine inspections (as mentioned above) and formal inspections which were jointly conducted by Leighton and MTRCL at “hold points”.
13. I set out below a description of my routine inspections and the formal inspection process.

Routine and informal inspections

14. I would often undertake informal inspections during my “rounds” on site by myself and sometimes with a foreman. I would also conduct informal inspections together with MTRCL’s engineers/IoWs. This would happen if we met each other on site or arranged to look at the works before the formal inspections. Sometimes, MTRCL’s engineers/ IoWs would conduct informal inspections on their own and would inform Leighton’s engineer/foreman of any defects in advance of the formal inspections.
15. In these informal inspections (which were very similar to the formal inspections noted below, but not documented), we would check coupler connections (if any), the arrangement of the rebar, the condition of the formwork and falsework and other miscellaneous items prior to concreting.

Formal inspections

16. The usual steps involved with the formal inspections were as follows:
 - (a) There were two key formal inspections of the reinforced concrete structure (i.e. the “RC” structure). 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, if there were any defects, the subcontractors knew that they would have to rectify them) before they could proceed to the next phase. The subcontractors also knew that they had to stop (as “hold points”) when they completed certain

phases of work (e.g. when they finished the rebar fixing). The hold points were set out in the ITP and included in the Method Statements. Once a hold point was reached, work could only re-commence after a formal inspection was conducted by Leighton and MTRCL and only if both parties approved the works;

- (c) Prior to or around the time of a formal inspection, Leighton's engineer would issue a Request for Inspection and Survey Check ("RISC") form to MTRCL and inform MTRCL of the expected time of the formal inspection;
- (d) MTRCL's engineer and Leighton's engineer would jointly conduct the formal inspection for rebar fixing (which I discuss further below);
- (e) Once MTRCL's engineer had approved the rebar fixing works after a formal inspection, Leighton would inform the subcontractor to conduct formwork closing. Leighton's engineer may then conduct further checks to ensure that the area was ready for concreting. Generally, the practice was to arrange the concreting preparation work after rebar fixing work and formwork closing, and then inspection would be conducted;
- (f) Once the preparation works for concreting were completed, MTRCL and Leighton would jointly conduct the formal inspection for the pre-pour check. MTRCL's IoW would conduct this inspection;
- (g) It was normal practice for the Project that MTRCL's engineer/IoW would verbally approve the inspected works and authorise Leighton to proceed immediately after the formal inspections. The only exception would be if MTRCL required rectifications to some of the works. If the defect was minor, Leighton would ensure that the rectification was completed immediately by the subcontractor during the inspection. Otherwise, if more time was required to complete the rectification, Leighton's staff would check the completed work later before arranging a further inspection with MTRCL. MTRCL's engineer/IoW would then inspect the rectification and give their verbal approval of the works; and

- (h) It was normal practice for work to proceed after verbal approval was obtained from MTRCL following a formal inspection. This allowed the works to continue without delay. Thereafter, MTRCL's engineer/IoW would complete the RISC form to record their approval and return it to Leighton later.
17. The practical aspects of the formal inspection for rebar fixing were as follows:
- (a) For the HHS, the track slabs that I was responsible for were shallow (approximately 500mm to 600mm in thickness) and normally two layers of rebar were installed at the bottom (i.e. B1 and B2) and two layers were installed at the top (i.e. T1 and T2), depending on the RC drawings;
 - (b) The formal inspection for rebar fixing involved Leighton's engineer and MTRCL's engineer checking the arrangement of the rebar, the spacing of the rebar, the lap length of the rebar and the connections between rebar and couplers. The following steps would be taken:
 - i. physically measure the spacing and lap length of reinforcement in the area to be inspected and check whether the as-built works complied with the working or agreed drawings; and
 - ii. with reference to the measured samples, conduct general visual checks across the area to ensure that there was consistency of the spacing and lapping of the rebar;
 - (c) For the connections between rebar and couplers, I would conduct a general visual check to confirm that the threads of the rebar were screwed into the couplers and not exposed. Both MTRCL's engineer and IoW would conduct the same check during their formal inspections; and
 - (d) We had an agreed practice with MTRCL's IoW for arranging formal inspections for my area. This practice involved Leighton's engineers communicating every morning with the MTRCL's IoW (usually via WhatsApp) to request inspections during that day (i.e. to inform MTRCL of the time, location and item(s) to be inspected). Then, MTRCL's IoW would allocate their resources to conduct the inspection.

RISC Forms

18. I was one of the engineers who was responsible for the formal inspections for rebar fixing and pre-pour checks at the HHS area.
19. I would submit RISC forms for each formal inspection. While I tried to submit RISC forms before a formal inspection, there were times when I submitted RISC forms soon after a formal inspection. As noted, it was common and normal practice for Leighton to continue working once it obtained the MTRCL's verbal approval after a formal inspection. This allowed work to continue without delay. MTRCL's staff was aware, and approved, of this normal practice.
20. I acknowledge that I did not submit some of the RISC forms for the formal inspections for rebar fixing and pre-pour checks in the HHS that I conducted with MTRCL's engineers/IoWs. The reason why I did not submit these RISC forms was that both MTRCL and Leighton expected the inspections to proceed without delay. As noted, Leighton's engineers and MTRCL's IoW for my area would arrange inspections every morning in advance. This was enhanced flexibility in procedure. During the construction period, both parties received great pressure from management to achieve progress and did not want to wait until they had received the RISC forms before conducting the formal inspections. In my opinion, generating a RISC form using the required system was not user friendly and took a lot more time than was necessary.
21. I therefore proceeded to arrange and conduct these formal inspections before I had the chance to submit the RISC forms. I was very busy during my time working on the Project. I was fully occupied supervising the works, completing inspections and attending to other necessary tasks. While I had intended to complete the outstanding RISC forms, I did not have the chance to attend to this task before I left the Project.
22. For those formal inspections for rebar fixing and pre-pour checks where I did not issue a RISC form, I confirm that:
 - (a) MTRCL's engineers/IoW was contacted when each hold point was reached and a time for the formal inspection was arranged with them;
 - (b) MTRCL's engineer/IoW conducted the formal inspection with me;

- (c) I obtained the MTRCL's engineers/IoWs formal approval before work was allowed to proceed or concrete was poured. The only exception was if the MTRCL's engineer/IoW required rectification work to be done. If the defect was minor, the rectification work was completed immediately by the subcontractor during the inspection. Otherwise, if more time was required to complete the work, a further inspection would be arranged with the MTRCL. In those cases, the MTRCL's engineer/IoW subsequently inspected the rectification and gave their verbal approval; and
 - (d) It was agreed and understood with the MTRCL's engineer/IoW that the lack of a RISC form should not hold up the progress of the works.
- 23. This is supported by the MTRCL's site diary entries, which 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 concrete pours and show that MTRCL were aware that the pours were happening. 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 or shortly after the day when the rebar fixing was completed and the formal inspection for the pre-pour check occurred either the day before or on the day when the concrete was poured.
- 24. I generated a request for a TW4 (permit to load) form to the extent that they were required for the formwork in the HHS. The TW4 form would be signed and issued by a Temporary Works Coordinator after they had inspected and approved the formwork. I would then provide a photocopy of the issued TW4 to the MTRCL's IoW to show that the formwork had been approved. A copy of these TW4 forms have been disclosed to the Commission (at number **LCAL.HHS.2.02** in the Index).
- 25. For the areas that I was responsible for, I can therefore confirm that:
 - (a) all formal inspections for rebar fixing and pre-pour checks were carried out and approved by the MTRCL; and
 - (b) no concrete was poured without formal inspections being carried out and the MTRCL authorising Leighton to proceed with the concrete pour.

Testing of rebar

26. I was not responsible for the ordering of the rebar for use in the HHS. I was also not involved in arranging the testing of rebar.

Use of couplers on the Project

27. At some locations in the Project, it was necessary to connect some rebar by using couplers (instead of lapping to connect the bars) at some construction joints. The decision to use couplers was made by my seniors. There were various legitimate reasons why couplers were used instead of lapping. For example, couplers had to be used at the construction joints that were built along access routes. These access routes needed to be kept clear in order to allow people and vehicles to move down them at different stages of construction or to allow access to designated contractors. It would not have been possible to keep these access routes clear if continuous lapped rebar was used at the construction joints along those routes.
28. MTRCL's staff was well aware of, and agreed with, the use of couplers instead of continuous lapped bars at the construction joints. These agreements were made by my seniors with MTRCL. I was not involved in the decision to use of couplers. The MTRCL's engineers/IOWs were on site for many hours each day and would have seen the couplers being installed. They would also have inspected the couplers during the formal inspections for those construction joints.

The works are safe

29. 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 to ensure that the procedures were followed.

30. In my personal opinion, I believe that the works that I supervised are safe and properly constructed.

Dated the 17 day of May 2019.

Signed: 

Jeff Lii