

**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**

**WITNESS STATEMENT OF HO HO PONG JAMES
FOR
MTR CORPORATION LIMITED**

I, **HO HO PONG JAMES**, of MTR Corporation Limited, MTR Headquarters Building, Telford Plaza, 33 Wai Yip Street, Kowloon Bay, Hong Kong, **WILL SAY AS FOLLOWS:**

1. I am a Senior Construction Engineer – Civil ("**SConE**") of the Shatin to Central Link Project ("**SCL Project**") of MTR Corporation Limited ("**MTRCL**"). I am duly authorised by MTRCL to make this statement on its behalf.
2. I joined MTRCL in 2010 as a Construction Engineer ("**ConE**") I – Civil. During my tenure with MTRCL, I worked on the West Island Line Project as ConE I – Civil in the period June 2010 to November 2011 and then as SConE from December 2011 until January 2015. I was assigned to the SCL Project as SConE from February 2015 onwards, and have had personal involvement in the SCL Project ever since.
3. I have a Master's degree in Infrastructure Project Management from the University of Hong Kong and a Bachelor's degree in Environmental Engineering from the Hong Kong Polytechnic University. I am a registered professional civil engineer in Hong Kong, and I am also registered with the Engineers' Registration Board under the Engineers' Registration Ordinance. I am a Chartered Engineer of the Institution of Civil Engineers in the UK, and a Member of the Hong Kong Institution of Engineers.
4. I am providing this witness statement in response to various matters raised in a letter dated 27 July 2018 from Messrs Lo & Lo ("**Letter**"), who I understand are the solicitors acting for the 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 ("**Commission of Inquiry**"). In this statement, I shall address the matters listed as items 4, 5, 7, 8(a), 8(d), 8(e), 8(i), 11(b), 11(d), 11(f), 11(p), 11(r), 12(a)-(e), 13(b), 13(c) and 18 of the Letter.

5. While I am aware of the matters raised in items 4, 5, 7, 8(a), 8(d), 8(e), 8(i), 11(b), 11(d), 11(f), 11(p), 11(r), 12(a)-(e), 13(b), 13(c) and 18 of the Letter based on my first-hand observations and personal involvement in the SCL Project from February 2015 to this date, and I confirm that the contents of this statement are true to the best of my knowledge and belief, there are occasions when I can only speak to matters by reference to MTRCL's documents due to the lapse of time, in which case I believe the contents of those documents are true and correct.

Item 4: Please provide as an exhibit to the witness statement a list of the managers, supervisors and inspectors (with names and contact details) employed or engaged by Your Company who were involved in the steel fixing works and the construction of the steel structures within the diaphragm walls and platform slabs. Identify the type of work and duties undertaken by such managers, supervisors and inspectors.

(i) General responsibilities of the SConE and ConE team

6. By the time I joined Contract 1112 on the SCL Project in February 2015, I recall that the diaphragm walls were around 80% complete. Therefore, my involvement as a SConE (insofar as relevant to this Commission of Inquiry) includes the preparation of the as-built BA-14 submissions to the Buildings Department ("BD") for the diaphragm walls, as well as the supervision of the East West Line ("EWL") slab and North South Line ("NSL") slab works.
7. As a SConE for Contract 1112, I am responsible for supervising the ConE team reporting directly to me, which consisted of three ConEs I and three ConEs II at the time of the construction of the EWL and NSL slabs. My ConE team and I were responsible for the construction of the pre-bore H-piles, diaphragm walls, underpinning, excavation and lateral support ("ELS") works, reinforced concrete ("RC") works in the HUH, and the Concourse Modification Stage 2 works.
8. More generally, I am responsible for everything construction-related. This includes implementation, environmental matters, planning, safety, review of

various Leighton Contractors (Asia) Limited (“LCAL”) submissions, and the preparation of various MTRCL submissions to the BD. In fact, submissions made by LCAL (including the Site Supervision Plans (“SSPs”)) relating to my areas of responsibility would come through me. I would often delegate to the ConEs in my team the review of these submissions, and upon my approval the submission would be passed to the Construction Manager for his final sign-off.

9. In summary, my role and responsibilities can be broken down generally into the following aspects:

- 9.1. Considering safety as the number one objective at all times.
- 9.2. Managing safety issues arising on site to ensure that they are in compliance with the statutory and corporate requirements (e.g. the Project Health and Safety Manual).
- 9.3. Supporting the contractor as much as possible to enable the works to be successfully implemented.
- 9.4. Managing the works programme to monitor, to the extent possible, the critical dates in Contract 1112.
- 9.5. Cost control of the works (i.e. preparation of Engineer’s Instructions and the assessment of claim and Value Engineering proposals).
- 9.6. Ensuring that the site works will not adversely affect the Operating Railway.
- 9.7. With respect to technical and quality issues ensuring the works are in compliance with the working drawings and technical specifications.
- 9.8. Consider the impact of the works on adjacent stakeholders and facilitate and support the stakeholder engagement activities being implemented on the SCL Project.
- 9.9. Managing interface issues with Government departments, utilities companies and interfacing with designated contractors to ensure smooth delivery of the SCL Project.

10. The ConE and Inspector of Works (“**IOW**”) team would generally conduct site inspections according to the SSP. Specifically, I am one of the Technically Competent Persons (“**TCPs**”) identified in the SSPs for the External and Lateral Support (“**ELS**”) and EWL slab works – more precisely, I am a TCP of grade T5 plus T4¹ under the Competent Person (“**CP**”) stream, and I conducted site inspections according to the level of frequency specified in the SSPs.² In particular, Mr Derek Ma and Mr Louis Kwan were TCP alternatives of grade T3 under the SSP for the ELS and EWL slab works for Areas B and C.
11. The site inspections which I personally attended included the following:
- 11.1. Weekly site inspections with the Construction Manager, representatives from LCAL, and at times subcontractors such as China Technology Corporation Limited (“**China Technology**”) (including Mr. Jason Poon). Indeed, from around mid-2016 onwards, I have carried out site visits with LCAL and/or China Technology almost every week until the completion of the concrete pours for all RC structures.
- 11.2. Bi-weekly/monthly site visits with the General Manager – SCL Civil – EWL, Mr Jason Wong.
- 11.3. Weekly site inspections with MTRCL’s General Manager – SCL Civil – NSL, Mr Aidan Rooney, when the Construction Manager was not available.
12. My focus during site inspections was usually on general safety issues (for example, the safety of temporary works). I do not recall asking LCAL to rectify significant defects which would affect the structural integrity of the diaphragm walls or EWL/NSL slabs. As far as I can remember, the coupler installation and rebar fixing works which I visually observed on site were satisfactory.
13. As far as I am aware from the general practice which had been accepted since the commencement of the diaphragm wall works (i.e. long before I joined Contract

¹ I refer to paragraphs 9.1 of the witness statement of Mr Louis Kwan for a brief explanation of the grades of TCPs.

² In particular, fortnightly visits for Area A; weekly visits for the Hong Kong Coliseum; two visits every week for Areas B and C.

1112 in February 2015), a consensus had been reached between the ConEs and IOWs as to the division of labour for the site surveillance and site inspections in respect of the supervision of the EWL slab works. In general terms:

13.1. The ConEs (particularly Mr. Louis Kwan, Mr. Kingsley Lam and Mr. C.K. Cheung, who were ConEs II at the time) were assigned to inspect the rebar fixing works for the EWL slab at the requisite hold points, and to sign off the relevant Request for Inspection / Survey Check ("**RISC**") forms.

13.2. The IOWs were on site almost full-time and were responsible for carrying out general site surveillance³ in respect of the EWL slab works (i.e. including, amongst other things, the coupler installation and rebar fixing works). I expected the precise division of labour among the IOWs to be managed by the Senior IOW ("SIOW") – for instance, I understand from my discussions with the IOW team at the time that the IOWs, under their SIOW Mr. Dick Kung, have countersigned the inspection record sheets prepared and signed by LCAL for the diaphragm walls.

Item 5: Describe and explain the steps, procedures and timeline in the construction and completion of the steel fixing works in the diaphragm walls and platform slabs. With reference to the said steps, procedures and timeline, please describe and explain the respective roles and involvement of the Government, Your Company, Leighton, Fang Sheung, Intrafor and China Technology and elaborate on the interaction and relationship between Your Company and these parties on site and on a day-to-day working basis.

14. The construction of the diaphragm wall was carried out from around July 2013 to June 2015, the rebar fixing and concreting works in respect of the EWL slab were carried out between May 2015 and August 2016, and the rebar fixing and concreting works in respect of the NSL slab were carried out between December 2015 and May 2016. I refer to the schedules of dates relating to the rebar fixing and concreting works for the diaphragm walls, EWL slab and NSL slab respectively, which will be included in the documents disclosed by MTRCL to the Commission of Inquiry.

³ Site surveillance is discussed in more detail below at paragraph 19.

15. The steps and procedures of the relevant rebar fixing works are described and explained in the following approved Method Statements and the respective ITPs attached thereto, which I understand will be included in the documents disclosed by MTRCL to the Commission of Inquiry:

Slab	Area	Method Statement (CSF no.)	ITP (CSF no.)	Paragraph Reference
EWL	A	1112-CSF-LCA-CB-000155	1112-CSF-LCA-CS-000433	5.5
EWL	B and C1	1112-CSF-LCA-CS-000454A	1112-CSF-LCA-CS-000454A	4.3.4 and 4.3.5
EWL	C2 and C3	1112-CSF-LCA-CB-000182	1112-CSF-LCA-CB-000182	5.3.4 and 5.3.5
EWL	C-1875	1112-CSF-LCA-CS-000434	1112-CSF-LCA-CS-000434	5.2
EWL	HKC	1112-CSF-LCA-CS-000821	1112-CSF-LCA-CS-000821	6.3.4
NSL	A	1112-CSF-LCA-CS-000621	1112-CSF-LCA-CS-000621	5.7.2
NSL	B and C	1112-CSF-LCA-CS-000639	1112-CSF-LCA-CS-000639	5.5.2
NSL	HKC	1112-CSF-LCA-CS-000664	1112-CSF-LCA-CS-000664	5.7.3

Item 7: Describe and explain Your Company's system and measures in place at the material time to ensure that the steel bars in the diaphragm walls and platform slabs were properly installed and connected in compliance with Requirements, Standards and Practice and that any irregularities, non-compliances and defects will be reported and addressed by the appropriate parties and/or persons.

(i) PIMS

16. The nature and scope of the duties of MTRCL's managers, supervisors and inspectors involved in the steel fixing works and construction of the diaphragm walls/platform slabs are generally set out in the Project Integrated Management System ("PIMS") documentation. I understand that this is addressed in some detail in paragraphs 9 to 38 of the witness statements of Mr Carl Wu.
17. I confirm that I have reviewed and understood the PIMS documents relevant to my role as a SConE, particularly the PIMS documents on Construction

Management,⁴ Site Meetings and Reports,⁵ and on Monitoring of Site Works⁶. These documents act as general, high-level guidelines in my own and my ConE team's day-to-day activities.

18. I am confident that members of my ConE team to be familiar with the relevant practice and key standards embodied in the PIMS, especially since they are all qualified engineers and members of relevant professional bodies. This is because an induction session is given to every staff member (i.e. including the ConEs) when he/she joins MTRCL, and that induction covers (amongst other things) the nature and requirements of the PIMS. Furthermore, when a PIMS document is updated, company-wide mass emails are sent to all staff members drawing their attention to the updates, and staff members have access to all PIMS documentation through the MTRCL intranet. As explained in paragraphs 15 to 20 of the witness statement of Mr C. K. Yeung (Senior Quality Assurance Engineer), internal audits are regularly carried out to monitor (amongst other things) compliance with the PIMS guidelines, which is consistent with my recollection.

(ii) Routine site surveillance

19. As per the PIMS Procedure for '*Construction Management*'⁷ and the Practice Note on '*Monitoring of Site Works*',⁸ site surveillance is to be carried out by the site inspectorate teams to monitor the contractor's day-to-day site works. The intention is to have site issues (particularly safety hazards and improper practices which may result in non-conforming works) identified early for prompt resolution with the contractor on site, in addition to and prior to the formal inspection of the works.
20. The frequency and requirements of routine site surveillance by TCPs were set out in the respective SSPs for the diaphragm wall, EWL slab, NSL slab and ELS works, as I have already mentioned above. The SSPs were prepared based on the BD's Code of Practice for Site Supervision 2009 ("**CoP**") and the Technical

⁴ PIMS/P/11.

⁵ PIMS/PN/11-1.

⁶ PIMS/PN/11-4.

⁷ PIMS/P/11, paragraph 10.1.3.

⁸ PIMS/PN/11-4/A5, paragraph 5.7.1.

Memorandum for Supervision Plans 2009 (“TM”), and have all been submitted to the BD by MTRCL.

21. The assignment of TCPs under the CP stream in the respective SSPs and the calculation of the frequency level of site inspection for each site supervisor assigned were prepared by the ConEs II, in accordance with the CoP and the TM. I understand that this is discussed in more detail in paragraphs 8 to 13 of the witness statement of Mr Louis Kwan.

(iii) Hold points and RISC forms

22. In accordance with the PIMS Procedure for ‘Construction Management’⁹ and the Practice Note on ‘Monitoring of Site Works’¹⁰, LCAL must submit an Inspection and Test Plan (“ITP”) containing appropriate quality control and hold points for critical activities. In practice, the ConE team as a whole was responsible for ensuring that the ITPs are submitted and agreed to prior to the commencement of the construction activities, and the SConE approved these ITPs.
23. A hold point in the ITP is a point in time when a notice of permission, consent or no objection by an MTRCL ConE and/or IOW is required or an approval or consent by a relevant authority or utility undertaker is required before the contractor can commence, proceed with or terminate an activity.¹¹
24. The requests for inspection at each hold point and the granting of permission to proceed to the next stage of the works are typically recorded using MTRCL's RISC forms. These RISC forms have to be submitted by LCAL in respect of each hold point, and MTRCL is required to inspect and sign off the works carried out, following which the form would be endorsed by the SIOW and returned to LCAL to be uploaded to the electronic project management system (“ePMS”).
25. The RISC forms in respect of the diaphragm wall and EWL slab works were largely handled by the IOWs. However, the ConE team was specifically responsible for the inspection and signing off of the rebar fixing works for the EWL slab, which were hold points pursuant to the Inspection and Test Plan

⁹ PIMS/P/11, paragraph 10.1.1.

¹⁰ PIMS/PN/11-4, paragraph 5.1.1.

¹¹ PIMS/PN/11-4, paragraph 3.1.

appended to the Method Statement for Excavation and EWL Slab Construction as prepared by LCAL.

26. I did not personally deal with the RISC form inspections for the rebar fixing works in the EWL slab, as this was delegated to the ConEs reporting to me – mainly, Mr. Louis Kwan (ConE II responsible for Areas B and C) and Mr. C.K. Cheung (ConE II responsible for Area A and the Hong Kong Coliseum (“HKC”)).¹² The process of these inspections is explained in detail in paragraphs 46 to 61 of the witness statement of Mr Louis Kwan.
27. In respect of the inspection of rebar cages for the diaphragm walls, the practice of the IOWs, Assistant IOWs (“AIOW”) and Works Supervisors included the checking and countersigning the shop drawings issued by LCAL/Intrafor Hong Kong Ltd (“Intrafor”), as explained in paragraphs 37 to 38 of the witness statement of Mr Kobe Wong (which I have reviewed). As far as I am aware, all the rebar cages and diaphragm wall panels were properly inspected by MTRCL, as each and every panel of the diaphragm walls was covered by a RISC form and/or a countersign shop drawing.

(iv) Non-Conformance Reports

28. Where significant and/or recurring non-conforming works are identified by MTRCL, a Non-Conformance Report (“NCR”) would usually be issued to LCAL in accordance with the PIMS Procedure for ‘Construction Management’¹³ and the Practice Note on ‘Monitoring of Site Works’¹⁴.
29. The issuance of a NCR by MTRCL typically relates to problems or defects in the final product (i.e. a ‘nonconforming product’, as referred to in the PIMS), rather than issues relating to ongoing works in progress which can usually be dealt with on site – in fact, Exhibit 7.9 of the Practice Note on ‘Monitoring of Site Works’ specifically states that NCRs should not be issued for ‘minor defects reported in routine inspections’. I would ask one of the ConEs to follow up regularly on each

¹² I am also aware that Mr Kingsley Lam (ConE II) inspected bays A-1, A-5 and A-7, and Mr Jeff Cheung (ConE I) inspected bays C3-2 and C3-3.

¹³ PIMS/P/11, paragraphs 10.3.1 to 10.3.5.

¹⁴ PIMS/PN/11-4, paragraphs 5.1.2(g), 5.3.4, and Exhibit 7.9.

NCR and ensure that all proposed remedial works are satisfactorily completed before an NCR can be closed out.

30. My ConE team and I were involved in the initial drafting and review of the NCRs, and the NCRs were ultimately issued to LCAL by the Construction Manager. I understand that the witness statement of Mr Kit Chan (which I have read in draft) contains a list of NCRs relevant to the diaphragm wall and EWL slab works, which includes the final close-out of some of these NCRs.
31. To my mind, the NCRs issued in relation to the diaphragm walls and EWL slab clearly show that MTRCL has duly identified and escalated significant non-conformances where they existed, and that MTRCL has monitored the close-out of these NCRs as appropriate. As far as I am aware from the documents I have managed to review to the date I signed this statement, there were no significant issues (be it in the coupler installations, rebar fixing works or otherwise) which have not been resolved immediately on site or under an NCR.

(v) Site Meetings and reports

32. For Contract 1112 on the SCL Project, there were numerous different meetings which I had to attend at the time of the construction of the EWL and NSL slabs – these meetings were generally concerned with the monitoring of the progress, safety and technical/design issues of the works being carried out.
33. As far as I can recall having looked back at various meeting minutes within the limited time available to date, I consider that the key meetings included (without being exhaustive) the following:
 - 33.1. Internal weekly team meetings known as ‘1112 CM Team Meeting’, attended by MTRCL’s Construction Manager, the ConE team, the SIOW. These meetings concerned the progress and safety of the works generally.
 - 33.2. Internal weekly meetings known as ‘1112 Weekly Discussion’ with Mr. Brendan Reilly (Project Manager), and after Mr Reilley left the SCL Project, with Mr. Aidan Rooney (General Manager – SCL Civil –

EWL). These meetings were attended by the Construction Manager and myself as the SConE, and again concerned the progress and safety of the works generally.

- 33.3. Weekly DM/CM Coordination Meetings, which were chaired by the MTRCL's Construction Manager and attended by the ConE team and the design management team. These meetings discussed requests for information ("RFI") and various other submissions from LCAL, as well as the progress of the works on site generally.
- 33.4. Work Proposal Group Meetings, which took place once or twice a month. These meetings were mostly attended by Mr. Kit Chan (Construction Manager) and Mr. Andy Leung (Design Manager), and I attended from time to time when there were work proposals relevant to the work of the ConE team.
- 33.5. Bi-weekly/monthly Planning and Development Department and Operations Meetings, which concerned the progress of the works in each area and reporting of site incidents. When I was not available, I usually asked a ConE I to attend the meeting on my behalf.
- 33.6. Weekly safety walks on site attended by MTRCL and LCAL's respective construction management and safety teams, which were concerned with site safety generally.
- 33.7. Weekly Works Meetings with LCAL on the general progress of the works, which were attended by the Construction Manager, myself as SConE, all ConEs, the SIOW, as well as LCAL's Construction Manager, Site-Agent and engineers. Representatives from the subcontractors (e.g. China Technology) also attended some of these meetings.
- 33.8. High-level weekly meetings with LCAL known as '*1112 Progress Review*', which were attended by (amongst others) LCAL's Project Director and Construction Manager, and MTRCL's General Manager –

SCL Civil, Project Manager, and the Construction Manager (until Mr Kit Chan left the SCL Project, after which I attended in his stead).

- 33.9. Technical Meetings between MTRCL and LCAL's respective design management and construction management teams, which primarily focused on design issues and related submissions such as Technical Queries ("TQ") and RFIs. I recall that issues arising from the BA-14 as-built submissions for the diaphragm walls were also discussed at some of these meetings.
 - 33.10. Monthly Progress Meetings, which were attended by MTRCL's Construction Manager and SConEs, and LCAL's Mr. Ian Rawsthorne (Project Manager). These meetings discussed the progress and safety of the works generally, environment and risk management, and also co-ordination between stakeholders. MTRCL also responded to areas of concern arising from LCAL's Monthly Progress Reports.
 - 33.11. Monthly Risk Review Meetings, which were generally attended by MTRCL's Construction Manager and SConEs and also LCAL's representatives to discuss risks issues entered into the risk register.
 - 33.12. Site Safety and Environmental Management Committee ("SSEMC") Meetings, which were generally attended by (amongst others) MTRCL's SIOW (Mr Dick Kung), ConE II (Mr Louis Kwan) and Construction Manager (Mr Kit Chan), and after Mr Chan left the SCL Project, I also attended these meetings. Representatives from LCAL were also in attendance, including its Project Director and Project Manager.
34. Generally, the focus at these meetings was the progress and safety of the works at the time, and my recollection is that the issue of cutting of threaded ends of rebars was not brought up at any of these meetings. I refer to paragraph 13 of the witness statement of Mr Kit Chan, where he observes a number of examples of issues which were addressed during the meetings described above.

35. In terms of regular reports, some of the key reports which I was involved in preparing/reviewing included:

35.1. SConE's Weekly Reports, which were prepared by my ConE team for my review and approval. These reports were submitted to Mr Brendan Reilly (Project Manager) and later to Mr Aidan Rooney (General Manager – SCL Civil – NSL), and were generally copied to the Construction Manager as well. They generally covered safety, progress, problems and solutions, and instrumentation monitoring.

35.2. Monthly Progress Report for Contract 1112, which was prepared by the SConEs (i.e. myself and Mr Joe Tsang at the time of the construction of the EWL/NSL slabs) and issued by the Construction Manager. This report covered the progress of the works generally and critical issues at the time.

Item 8:

- (a) Explain and confirm whether Your Company has any knowledge of the Defective Steel Works (whether undertaken by LCAL and/or its sub-contractors) and if so, identify and describe the relevant events and occasions.**
- (d) If the events and occasions were reported to you by your managers, supervisors, inspectors and/or other persons, identify the person(s) who made the reports to you.**
- (e) Following Your Company's knowledge of the relevant events and occasions, please describe and explain what steps and measures were taken by Your Company to (i) investigate the Defective Steel Works; (ii) alert and report the matter to the Main Parties and the Government or any of them and (iii) rectify the Defective Steel Works.**
- (i) Provide Your Company's confirmation that, other than the events and occasions cited in Your Company's reply to this paragraph, Your Company is not aware of any other Defective Steel Works in the diaphragm walls and platform slabs.**

36. I have not personally observed any defective steelworks or coupler installations in the diaphragm walls or EWL slab. In fact, I was not made aware of any such issues until I received the letter from LCAL to Fang Sheung in respect of LCAL's NCR no. 157 dated 18 December 2015, which was copied to me by Mr. Kit Chan, the Construction Manager at the time.

37. I was very surprised when I learned about the incident, and I spoke to LCAL's Construction Manager, Mr. Gary Chow, about the issue subsequently and he said LCAL would discuss and resolve this issue with Fang Sheung. Thereafter, I

followed up with MTRCL's Mr. Kobe Wong to monitor the situation and see if there were any recurrences. As far as I am aware, there were no further incidents of rebar threaded ends being cut or shortened on site.

38. Subsequently, I received the email from China Technology's Mr. Jason Poon to LCAL in or around January 2017, as it was forwarded to me by Mr. Michael Fu who took over as Construction Manager from Mr. Kit Chan in May 2016. That email alleged that China Technology had '*found plenty of records concerning malpractice use [sic] of coupler in this project SCL 1112*', although it was unclear what records he was in fact referring to.
39. Having received China Technology's email through Mr. Fu, I asked Mr. Kobe Wong (SIOW II) about the follow-up actions in relation to this issue, and I was informed that these issues had immediately been fixed on site. Mr. Wong considered that he and his IOW team were very much capable of dealing with and resolving these issues on site. I also understood from him that there were a few other similar incidents but they all occurred in 2015 and had been resolved. I have now seen the account in paragraphs 66 to 88 of the witness statement of Mr Wong, and that is consistent with my recollection.
40. In relation to item 8(e), I address the steps and measures taken after the first media reports on 30 May 2018 under items 11(b) and 11(d) below.

Item 11(b): Please identify the person or persons responsible for preparing the MTRCL Report.

41. I was involved in the preparation of the MTRCL report of 15 June 2018 ("**MTRCL Report**"). Immediately after the media reports of 30 May 2018 alleging defective coupler installations and rebar fixing works, and the Railway Development Office's ("**RDO**") letter dated 31 May 2018 to Mr. Philco Wong requesting a formal report on such issues, Mr. Aidan Rooney assigned Mr. Michael Fu, Mr. Carl Wu and myself to prepare the MTRCL Report.
42. I was responsible for drawing up the first draft of the MTRCL Report, which I then provided to Mr. Aidan Rooney, Mr. Michael Fu and Mr. Carl Wu to flesh out. Mr. Wu and myself were also tasked with collecting the relevant information

(with the help of other colleagues in the construction management team, including Mr. Louis Kwan, Mr. Derek Ma and Mr. Arthur Wang) for the preparation of the MTRCL Report, including the attachments to the report and raw factual data e.g. the relevant RISC forms and calculations as to the number of couplers incorporated into the EWL slab.

43. I presented the relevant information to Mr. Aidan Rooney and Mr. Carl Wu, the latter of whom acted as a co-ordinator by uploading the relevant materials to an attachments folder on the MTRCL server. To be clear, I was not involved in the determination as to which information and attachments would be appended to the MTRCL Report.

Item 11(d): Confirm whether Your Company has any additional information and materials to supplement the MTRCL Report and if so, please adduce such additional information and materials by way of a supplemental report.

(i) *Quality supervision of couplers*

44. In respect of the requirement for MTRCL to provide supervision in respect of at least 20% of the coupler splicing assemblies (or 50% where the structure acts as a transfer plate), this was expressly stated in:

44.1. The conditions set out in the BD's acceptance letters ("**BD Acceptance Letters**"); and

44.2. The '*Quality Supervision Plan on Enhanced Site Supervision & Independent Audit Checking By MTRC & RC for Installation of Couplers*', as prepared by LCAL/BOSA and submitted by MTRCL to the BD on 12 August 2013 ("**QSP**").

45. In practice, I am confident that the site surveillance carried out by the IOWs covered more than 50% of the splicing assemblies in the diaphragm walls and the EWL slab, as the IOW's role was to carry out site surveillance on site every single day. This is because I was informed by Mr. Kobe Wong (SIOW II) that he and his team of IOWs have inspected far more than 50% of the couplers in both the diaphragm walls and the EWL slab.

46. According to the provisions in the QSP, the quality control supervisor record sheets referred to in the QSP should be kept by LCAL in an inspection logbook on site for inspection, and MTRCL's SLOW would monitor compliance with this requirement. These record sheets have to be prepared, maintained and signed by LCAL's quality control supervisors in respect of all splicing assemblies, and MTRCL's site supervisors have to countersign these record sheets for 20% of the splicing assemblies (50% if the structure acts as a transfer plate, in accordance with the BD Acceptance Letters). However, at the time of the EWL slab works, LCAL has not provided any record sheets or inspection log book to MTRCL to be countersigned.
47. In or around early February 2017, Mr. Carl Wu, Mr. Peter Fung, Mr. Kobe Wong and myself took part in an internal quality assurance & quality control review ("**Internal Review**"), as a result of the email from China Technology to LCAL which I have referred to in paragraph 38 above. At the time, it came to light that LCAL did not keep any record sheets or inspection logbook, and the IOWs also confirmed that they had not been provided with any record sheets for countersigning.
48. After the Internal Review, a report was issued on 8 February 2017 (which was circulated to Mr Michael Fu and Mr Aidan Rooney), paragraph 5.1 of which recommended, as a follow-up action, that the construction team had to *'[c]onfirm the frequency of LCAL and MTRCL supervision were in compliance with the requirement of the QSP, and were recorded on the Record Sheet'*. I instructed Mr Jeff Cheung and Mr Kobe Wong to implement the recommendations made, and Mr Wong was specifically responsible for obtaining the inspection log book from LCAL. I subsequently followed up on this issue with Mr Cheung and Mr Wong, and I was told by Mr Wong that LCAL was unable to provide any such inspection log book because it had not maintained the requisite record sheets.
49. In or around early June 2018, after the media reports on 30 May 2018 alleging defective steelworks and coupler installations in the diaphragm walls and EWL slab, LCAL provided MTRCL with folders containing RISC forms for each of 32 bays, which attached certain checklists entitled *'As-Built For On Site Assembly of EWL Slab to D-Wall/Slab Couplers'* – these were similar to (but not the same as)

the template in Appendix B of the QSP, and were plainly based on the information contained in the as-built BA-14 drawings for the diaphragm wall as submitted to the BD. LCAL's checklists were only formally submitted to MTRCL for the first time on 13 June 2018 by means of a Contractor's Submission Form.

50. Given that LCAL had never prepared any record sheets or inspection log book as required by the QSP, there was simply nothing for MTRCL to countersign to fulfil the requirement under the QSP. Mr Aidan Rooney was aware of LCAL's omission to provide the required record sheets, and I was therefore instructed by Mr. Rooney to urgently obtain information as to MTRCL's compliance with the relevant supervision and inspection requirements for Contract 1112.
51. Based on my discussions with Mr Kobe Wong, MTRCL's IOW team had carried out sufficient quality control supervision in respect of the splicing assemblies in the EWL slab (although there is no contemporaneous paper-trail), and I therefore asked Mr. Derek Ma to assist Mr. Kobe Wong with the preparation of a set of checklists to record the areas/bays where the IOW team carried out the requisite site surveillance.
52. The draft checklists were therefore provided by Mr. Derek Ma to Mr. Kobe Wong for his review. Mr. Wong was satisfied that he and his team of IOWs/AIOWs had carried out site surveillance in respect of far more than 50% of the coupler splicing assemblies, based on the relevant site photos and his recollection. I was also aware that the checklists were expressly marked as a '*retrospective record of coupler installation*' for the avoidance of doubt.
53. After discussions with Mr Michael Fu, Mr Derek Ma and Mr Kobe Wong, the checklists were dated 10 February 2017 because these checklists were prepared in response to the follow-up action recommended in the Internal Review report. To be clear, the purpose of the checklists was to act as an internal reference point to record the areas/bays where the coupler splicing assemblies were covered by the IOW team's daily site surveillance. The checklists were not intended to form part of any submission to the BD or RDO.
54. Accordingly, I provided the finalised version of Mr. Kobe Wong's signed checklists to Mr. Aidan Rooney on 15 June 2018. As I have noted in paragraph 46

above, there is no requirement in the QSP to physically submit any inspection log book to the BD. Indeed, as demonstrated by the previous BA-14 as-built submissions for the diaphragm wall, a high-level *'Inspection Record Summary for Quality Control Supervisor'* for the CP and RC streams respectively was sufficient.

55. During the preparation of the coupler checklists, the construction team did not have the opportunity to check the information in those checklists against the final as-built condition of the joint between the east diaphragm wall and the EWL slab, as the final amendments to the as-built drawings for the diaphragm walls had not at that stage been submitted by LCAL (even though LCAL is contractually obliged to do so¹⁵). Due to the lapse of time, we had to rely on the information in the BA-14 as-built drawings for the diaphragm wall in respect of the relevant areas/bays.
56. Around July 2018, upon reviewing site photos documenting the rebar fixing works in progress for the purposes of the BA-14 as-built submissions for the EWL slab, my ConE team (including Mr. Derek Ma, Mr. Louis Kwan, Mr. Arthur Wang) and I recalled a change in construction detail back in 2015 which involved the replacement of couplers with through-bars at the top of the east diaphragm wall in Areas B and C. This was because back in 2015, we did not consider this to be a major issue, and there were numerous more pressing matters which I had to deal with on a day-to-day basis. It was only at that point that we became aware of the inaccuracies in the coupler checklists. I will explain all this in more detail below.

(ii) Change in construction detail from couplers to through-bars

57. I understand that this issue is explained in detail in paragraphs 29 to 57 of the witness statement of Mr Kit Chan, and I agree with his account of the events surrounding the change in the construction detail from couplers to through-bars for the slab-to-wall connections in Areas B to C of the east diaphragm wall (with

¹⁵ The Particular Specification for Contract 1112 (Ref. D/MTRCL/SCL/1112/PS/001/WD) ("PS") defines as-built drawings as the *'drawings which are the as-built record of the Works incorporating all dimensioned amendments, changes modification and alterations to the Works'*. The obligation of LCAL to submit construction records after the completion of a work activity and as-built drawings/records prior to substantial completion of the works is set out in (amongst other things) paragraphs P28.6, P28.9 and P32.2 of the PS.

the exception of certain panels as pointed out in paragraph 39 of the witness statement of Mr Louis Kwan). I would like to add a few observations of my own on this issue.

58. Part of the context of this change in construction detail was, as pointed out by Mr. Kit Chan, the technical queries ("TQ") issued by LCAL on 27 July 2015 to its design consultant, Atkins (China) Limited ("Atkins"). I should point out at this juncture that Atkins is also the Detailed Design Consultant engaged by MTRCL, but there is supposed to be an information barrier between Team A of Atkins (which handles MTRCL matters) ("Atkins A") and Team B of Atkins (which handles LCAL matters) ("Atkins B").
59. As Mr Kit Chan explains in paragraphs 34 to 37 of his witness statement, the original design as accepted by the BD was that the cast-in couplers at the top of the east diaphragm wall would be arranged in two rows with uniform 150 mm centre-to-centre spacing in the east diaphragm wall. However, the cast-in couplers at the top and bottom of the east diaphragm wall were subsequently rearranged (in or around 2013 / 2014) to three/four layers, in order to avoid clashing with the 300mm tremie pipes which were temporarily inserted into the diaphragm wall for concreting purposes. This was reflected in the BA-14 as-built submissions for the diaphragm walls and was ultimately accepted by the BD.
60. This revised arrangement of three/four rows of top layer couplers in the east diaphragm wall resulted in an apparent clash with the rows and spacing of the top layer of rebars in the EWL slab, which typically consisted of two rows of rebars with 150 mm centre-to-centre spacing. I recall that this clash was raised by LCAL in June 2015 in Technical Queries TQ-LCA-0012/TQ-LCA-0013 ("TQs 12 and 13") to Atkins B, and also in RFIs no. 1112-RFI-LCA-CS-000959 and 1112-RFI-LCA-CS-000960 to MTRCL:
- 60.1. Atkins B's response was that this could be reconciled whilst keeping the typical two-row arrangement of the top layer slab rebars as per the working drawings for the EWL slab. Drill-in dowel bars were added where the spacing between the couplers in the diaphragm wall was more than 300 mm, as shown in **Image 1** below.

down the top of the diaphragm wall (along with the cast-in couplers therein), and this was implemented accordingly on site.

RESPONSE: The maximum number of layer of rebar in the top section of 3m slab is 3, so adding the bending radius for T40 and the gap of 100mm) between layer as shown on the as-built drawings provided by your team, so the top rebar would require a distance from the face of the d-wall is 600+160+100 (layer 1) + 100 (layer 2) a total of approx. 1000mm for comply with the design requirement. For any OTE with horizontal distance small than 1100mm (from the face of d-wall) to the outer face of the OTE wall, the top layer of rebar in the 3m EWL slab will have to be bend upward to ensure full tension anchorage as shown in page 1/2 sketches. Please be reminded that in order to comply with the design assumption, the OTE wall must be concrete / pour together at the same time (monolithically) with the 3m EWL slab and the wall to extend to 300mm above the chamfer section of the wall to provide the kicker for the OTE wall above.			
Response by:	Name: <i>W.C. Lee</i>	Signature: <i>W.C. Lee</i>	Date: 22.7.2015

Image 2: Atkins B's response to LCAL's TQ 33 (N.B. there is a typographical error in the date, as the response came after the TQ was issued on 27 July 2015).

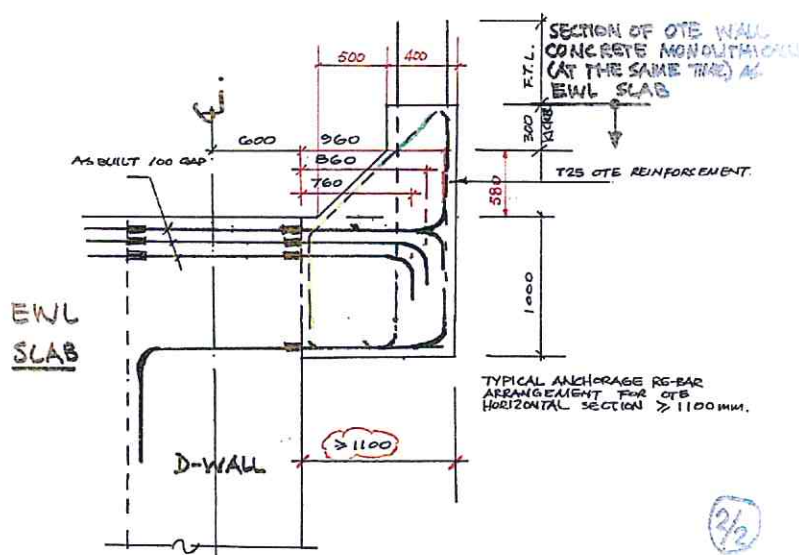


Image 3: extract from drawing attached to Atkins B's response to LCAL's TQ 33.

63. Further, in TQ-URS-0034 dated 27 July 2015 ("TQ 34"), LCAL informed Atkins B that they were having difficulties with installing rebars into the uppermost layer of couplers in panel EH 74 of the east diaphragm wall, as a result of a vertical misalignment (by 70 mm) of the couplers in the uppermost row (T1) of the top layer. As a result, Atkins B had no adverse comment on LCAL's remedial proposal to trim the top of the diaphragm wall and use a 'full length bar (without any coupler)' for row T1 of the top layer in that panel, with the hacked off portion of the diaphragm wall to be cast together with the OTE and the EWL slabs in one go – see **Image 4** below.

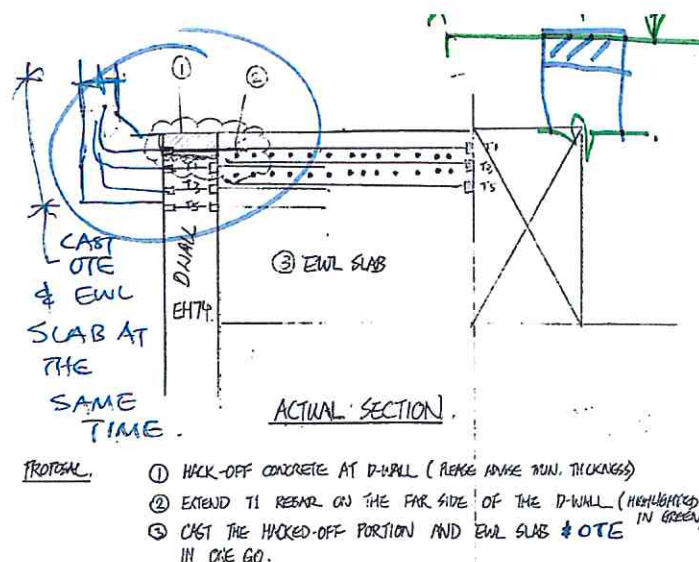


Image 4: extract from sketch SK-0034-001 attached to LCAL's TQ 34.

64. The design assumption regarding the monolithic casting of the OTE and EWL slabs was further discussed in a number of email chains between MTRCL and Atkins, and I kept my subordinates and the SIOW apprised of these developments:

64.1. By email dated 24 July 2015 (timed at 16:20), Mr. Wan Cheung Lee of Atkins B attached a 'copy of the 3m EWL slab full tension rebar anchorage arrangement (3m EWL slab into OTE) for your advance information and this corresponding detail will incorporate on to Contractor drawings for construction'. Mr Lee further 'reminded that in order to comply with the design assumption, the OTE wall must be concrete/pour together at the same time (monolithically) with the 3m EWL slab [...]' (my emphasis). This was forwarded by LCAL's Mr. Justin Taylor (Risk Manager) to MTRCL (including myself, Mr. Andy Leung, Mr. Kevin Yip and Mr. Brendan Reilly) and, on 25 July 2015 at 09:43, I forwarded the email chain to MTRCL's Mr. Derek Ma (ConE I) and Mr. Louis Kwan (ConE II) for their information.

64.2. By email dated 25 July 2015 (timed at 14:05), Mr. Rob McCrae of Atkins A informed MTRCL's Project Manager, Mr. Brendan Reilly, that the OTE slab could only be cast after the EWL slab if that was done before future activities would further load the structure. Again, that was copied to

me by Mr. Reilly, and on 27 July 2015 at 08:46, I forwarded the email chain to MTRCL's Mr. Derek Ma (ConE I), Mr. Louis Kwan (ConE II), Mr. Wing Chen (ConE I), Mr. Kingsley Lam (ConE II), Mr. C.K. Cheung (ConE II), and Mr. Dick Kung (SIOW) for their information.

65. Following the above email exchanges, the implications of TQ 33 and TQ 34 for the east diaphragm wall generally were expressly discussed and reported in a Contract 1112 Weekly Report to Mr Brandon Reilley (Project Manager) (and copied to the Construction Manager, Mr Kit Chan) for week 31 of 2015 (i.e. 24 July to 30 July) ("**Weekly Report for Week 31/15**"), which I prepared with the assistance of my ConE team at the time:

'PROBLEMS AND SOLUTIONS

[...]

3.11 The alignment between couplers at D-wall panels and rebar at EWL slab are deviated by 40mm to 75mm were found in Area C1. Breaking out of D-wall to remove the installed couplers is the short term solution. A longer solution is still being sought to overcome this problem especially for the NSL slab.

3.12 LCAL Atkins recently advised that the OTE wall and EWL slab must be cast together, which was not the original plan since such criteria was not stated on the drawing. Therefore OTE wall and EWL slab will have to be cast in one go for future pours.' (My emphasis)

66. Therefore, I had discussions at the time with the ConEs regarding the changed details surrounding paragraphs 3.11 and 3.12 of the Weekly Report for Week 31/15, although these other discussions were verbal and not documented in writing as far as I can gather from my records and files to this date. On this basis, I confirm that the other ConEs and also the IOW team were aware of the need to trim the top of the east diaphragm wall to monolithically cast the OTE and EWL slabs, and the consequential replacement of coupler connections with through-bars.
67. Moreover, I recall being copied into an email dated 25 July 2015 (timed at 10:49) from MTRCL's Design Manager, Mr. Andy Leung, to LCAL's Mr. Justin Taylor, stating that '*[p]ortion of the wall should be cast together with the OTE slab as a good practice. Otherwise, one more CJ is introduced between them*'. This was in

direct response to the email chain forwarded by Mr. Taylor to MTRCL as mentioned in paragraph 64.1 above. Given the context of the preceding email chain, I understood Mr. Leung to be acknowledging that the top of the east diaphragm wall must be cast monolithically with the OTE and EWL slabs on the soil and excavation sides respectively, and that he was aware of the necessary modification to (i.e. the hacking off of) the top of the east diaphragm wall.

68. In any event, at the time of the discussions in 2015, I considered the hacking off of the top of the diaphragm wall and the use of full-length through-bars in the top layer to be a minor change in the construction detail. From an engineering perspective, I believe that a through-bar is a far better construction detail than the use of couplers – structurally, the use of a through-bar is the same as, if not better than, the use of rebars spliced together with couplers because it reduces the risk of connection failures at the coupler splicing assemblies and thus improves the integrity of the steel reinforcement structure. At the same time, the clash between the number of rows of top layer slab rebars and the connection detail in the east diaphragm wall (raised in TQs 12 and 13) was naturally resolved by this improved construction detail, without the need to introduce drill-in bars in those panels.
69. I am confident that the principle and rationale of the change in construction detail was also understood on site by the ConEs and IOWs, which can be summarised as follows:
- 69.1. As mentioned above, the original design as submitted to the BD adopted two rows (T1 and T3) of top layer rebars/couplers, but a change was necessitated by the need to accommodate tremie pipes (for concrete pouring), which clashed with the uniform 150 centre-to-centre spacing of the rebars in the original design. The cast-in couplers at the top of the east diaphragm wall were therefore rearranged into three layers to allow more space for the tremie pipes, whilst keeping the number of rebars the same.
- 69.2. The above change was reflected in Intrafor's shop drawings at the time of the construction of the diaphragm walls, and was further discussed in e.g. the Technical Meetings dated 10, 17 and 24 June 2015 attended by MTRCL's construction management and design management teams

(which recorded a design review of the couplers relocated from the 2nd row to the 3rd/4th rows in the top layer). As a result of this process, the change was reflected in the BA-14 as-built submissions to the BD for the diaphragm walls which were finally accepted by the BD on 5 May 2017.

- 69.3. The monolithic casting of the EWL and OTE slabs as mentioned in the response to TQ 33 in late July 2015 meant that the top of the east diaphragm wall had to be hacked off by around 500 mm. It followed that the top layer of cast-in couplers (i.e. the three to four top layers of couplers as per the amended details reflected in the BA-14 as-built submissions to the BD for the diaphragm walls) had to be hacked off with the concrete.
- 69.4. Given that the three/four rows of cast-in couplers at the top of the east diaphragm wall had been hacked off, and there was no longer any clash with any tremie pipes necessitating the rearrangement of the rebars, the construction team simply used two rows (T1 and T3) of top layer through-bars to connect the EWL slab to the east diaphragm wall, with a uniform spacing of 150 mm centre-to-centre. This was consistent with the design of the top layer slab rebars reflected in the working drawings current at the time when the rebar fixing works for the EWL slab commenced, and the clash raised in TQs 12 and 13 also fell away naturally.
70. I understand from paragraphs 46 to 61 of the witness statement of Mr Louis Kwan that based on the discussions outlined above, the ConEs responsible for the RISC inspections of the rebar fixing works simply based their inspections on the working drawings for the EWL slab which were current at the time. I agree with Mr Kwan's approach, and I consider that he has properly carried out the RISC inspections whilst giving effect to the agreed change in construction detail.
71. I am now aware that section 4.6 of the MTRCL Report submitted to the RDO on 15 June 2018 and the two sketches attached to MTRCL's letter to the RDO dated 13 July 2018 are inaccurate in that the construction details had been changed as described above, but the report was based on the information in the BA-14 as-built submissions which has now been superseded.

72. In respect of the MTRCL Report, the focus of the construction team (myself, Mr. Derek Ma, Mr. Louis Kwan, and Mr. Arthur Wang) at the time was on the as-built BA-14 drawings as submitted to the BD, which formed the basis of our exercise (although we now know those drawings were ultimately superseded by the change in construction detail). We were under immense time pressure to complete the MTRCL Report, and we were specifically asked by Mr. Aidan Rooney to confirm the total number of couplers used by counting each individual coupler in every single as-built drawing for the diaphragm walls. It was a laborious and virtually robotic process, and there was little, if any, time for anyone to reflect given the tight deadline.
73. Although I was clearly aware at the time of the change in construction detail, this was really a minor change from an engineering perspective, which was resolved within a short timeframe given that it did not affect the structural stability of the diaphragm walls and EWL slab. In contrast, there were other more pressing issues and concerns which the construction management team had to deal with at the time, including:
- 73.1. Significant issues with the BA-14 as-built drawings prepared by LCAL/Intrafor and submitted to the BD, which had to be resolved over the course of 2015 and 2016. Those as-built drawings contained various non-conformances with the original design, and MTRCL issued NCR-CM(SCLC)-QUM-000021 dated 9 April 2015 and NCR-CM(SCLC)-QUM-000026 dated 18 June 2015 to LCAL to document these non-conformances¹⁸, and to ensure that they were all properly closed out. It was only after an extensive and time-consuming exercise of reviewing the as-built drawings and liaising with the BD (over the course of 2015 to 2016) that all the BA-14 as-built submissions for the diaphragm walls were accepted by the BD on 5 May 2017.
- 73.2. Issues relating to underpinning and re-levelling works at the time.

¹⁸ Namely: (i) the missing T40 u-bars at the top of steel cages; (ii) use of T25 instead of T40 u-bars at the top of steel cages; (iii) missing shear keys in conjunction with EWL/NSL slab; (iv) arrangement of slab starter bars / couplers which did not comply with the original design; and (v) reinforcement arrangement in conjunction with the OTE slab, and the relocation of main bar reinforcement to adjacent panels.

- 73.3. Site logistics such as the delivery of materials to the site and disposal of spoil during the ongoing excavation works.
- 73.4. Issues with construction sequencing and coordination of numerous work activities in the different areas / bays of the EWL slab.
- 73.5. Protection and support of the underground tunnel (three metres in diameter) belonging to CLP Group (“CLP”) when excavating down to the NSL level (which was below the CLP tunnel).
- 73.6. Monitoring the progress and labour resources of the works at the time, as Contract 1112 was in delay back in 2015 (although the delays were subsequently mitigated and recovered from).
- 73.7. Numerous site safety issues which the construction management team had to address day in day out, including, amongst other things, improper scaffolding and working platforms, issues with working at height issues, access issues (e.g. working in confined spaces e.g. shafts), flood protection, and general housekeeping issues on site. When I observed these issues during my site visits, I asked the workers to stop their works immediately in order to rectify the issue, and these issues were also discussed in the SSEMC Meetings.
74. Consequently, given the sheer amount of issues we had to deal with throughout the years and the lapse of time, it did not occur to our team in June 2018 that the information shown in the BA-14 as-built drawings for the diaphragm walls has subsequently been superseded by the actual as-constructed details on site.
75. It is important to note that after the construction management team had counted the total number of couplers, the figures were passed on to Mr. Clement Ngai and Mr. Andy Leung of the design management team, and they confirmed that our figures were correct. Separately, LCAL also counted the total number of couplers upon MTRCL’s request, and LCAL’s Mr. Jon Kitchin and Mr. William Holden provided me with essentially the same figures. As such, I genuinely believe that it was an honest mistake in those circumstances.

76. All in all, the inaccuracies in the 15 June 2018 report and the sketches attached to the RDO letters are due to the lack of as-built drawings for the EWL slab and the incredible time pressure the construction team was facing, and it is unfortunate that our team only realised the discrepancies after the event whilst preparing the as-built submissions for the EWL slab in July 2018. However, this oversight should not detract from the substance of the agreed change in construction detail, which is principled, structurally sound, and shown to be implemented by the frontline staff.
77. As for the sketches attached to our letter to the RDO, I was instructed by Dr. Philco Wong and Mr. Aidan Rooney in early July 2018 to create simplified and rough sketches showing the change in construction detail outlined in the paragraphs above. However, I am now aware that those sketches were not entirely accurate, as they were not prepared based on any as-built drawings for the EWL slab. In particular, having reviewed the site photos in the time available to date with the assistance of Mr. Louis Kwan (ConE II), Area C 1-1 kept its coupler connections except for panel EH 74, whereas the 1875 culvert adopted the through-bar solution.
78. I should emphasise that under Contract 1112, LCAL is obliged to provide us with as-built drawings, which we would then review based on the RFIs, working drawings and site photos. The initiative is on LCAL and Atkins B to provide the as-built drawings to MTRCL. However, as I have previously noted in paragraph 55 above, LCAL had not provided MTRCL with any such as-built drawings for the EWL slab at the time of the preparation of the MTRCL Report in June 2018.

Item 11(f): Explain the reasons for the existence of cracks and water leakage on the diaphragm walls as reflected in the Press and Media Reports, and explain whether it is related to the steel bar fixing works.

79. The diaphragm walls are built in full compliance with the stringent requirements under Contract 1112. The need to control underground water and seepage has been taken into consideration in the design and construction.
80. Since the diaphragm wall is an underground structure, it is technically difficult to achieve full watertightness. MTRCL's Materials and Workmanship Specification

for Civil Engineering Works dated February 2009 (“M&W Specification”), Volume 2, provides at section 19.77 (Diaphragm Wall, Secant Pile Wall and Contiguous Pile Wall) that:

‘(1) The Contractor is responsible for constructing a watertight wall, such that leakage is restricted to damp patches with no visible flow of water in any area of the wall. Single leaks indicated by jetting or spraying shall not be present.

(2) Upon initial excavation of panels/piles, the total inflow over a given area shall not exceed 0.12 litre/m² per day overall, and 0.24 litre/day on any separate square metre. No leakage occurring in the form of a water jet or spraying of water shall be allowed.’

81. Therefore, it is not uncommon that underground water would come from the soil and rock strata through the joints of the diaphragm wall panels, causing damp patches on the concrete faces. This is acceptable provided that the tolerance level specified in the M&W Specification is not exceeded, and as at the date of signing this statement, this tolerance has not been exceeded in Contract 1112.
82. Grout injection, which is a common and standard practice in the construction industry, is generally used where necessary to manage cracks and seepage issues in walls. This was applied to the diaphragm walls on the NSL level as a remedial measure in or around early 2018, in various localised areas of seepage identified by MTRCL and marked up on sets of drawings. I followed up with LCAL daily on the progress of the remedial works, and on top of the daily site surveillance carried out by the IOWs, I personally carried out inspections of the remedial works in March, June and July 2018.
83. My recollection is that after the grout injections in Contract 1112, there was only minimal water seepage in the diaphragm walls such that the relevant tolerances have not been exceeded, and as at my last inspection on 20 July 2018, the seepage points previously identified by MTRCL had all been closed out.

Item 11(p): Explain whether it is common in the construction of diaphragm walls and platform slabs for steel bars to be shortened and cut and confirm whether such shortening and cutting of steel bars within the diaphragm walls and platform slabs is acceptable and in compliance with Requirements, Standards and Practice.

84. The trimming down of the 12-metre rebars as delivered to site in order to achieve the appropriate length for the rebar fixing works in the EWL/NSL slab is acceptable and, indeed, it is part and parcel of the normal construction process. This was typically done using a bar bending machine.
85. It is neither normal nor common to cut the threaded end of a rebar, as the threaded ends of rebars were specially fabricated by BOSA. Moreover, the cutting of the threaded end of a rebar would cause the threaded end to flare, and without the requisite chamfering, the splicing of the trimmed threaded end into a coupler would be very difficult. In other words, I believe that the cutting of the threaded end of a rebar is not permissible under and not compliant with the QSP.

Item 11(r) In cases where steel bars were shortened and/or inserted into the couplers but not to the full extent as specified under the Requirements, Standards and Practice, explain and confirm whether: [...] (ii) it would be apparent on a visual inspection to supervisors and/or inspectors that the steel bars were shortened and cut and not properly inserted into the couplers.

86. If the threaded end of a rebar had been cleanly cut and then screwed into a coupler, it may not be apparent visually to the inspectorate staff, although I am aware that the inspectorate staff would ask LCAL on occasions to unscrew the rebars from the couplers for spot-checking, as explained in the witness statements of Mr Kobe Wong (paragraph 92) and Mr Louis Kwan (paragraph 59) respectively. However, I should emphasise that under the QSP, there is no specific torque required for this type of coupler splicing assemblies, which means that in order to check that the rebars are satisfactorily connected to the couplers, the inspectorate staff on site only had to visually inspect the coupler connections and ensure that not more than 1 to 1.5 full pitch of threading is exposed.

Item 12: On the same page 36 of the MTRCL Report, Fang Sheung “further confirmed that their steel fixing works were regularly checked by Leighton and MTRCL” and Fang Sheung would not proceed to next stage of works unless permission was given. With reference to the steps, procedures and timeline in the construction and completion of the steel fixing works in the diaphragm walls and platform slabs as stated in your answer to paragraph 5 above, please:

- (a) **describe at which stage the steel fixing works would be inspected by Your Company and Leighton.**

- (b) state how frequently Your Company and Leighton would carry out the inspections.
- (c) identify the supervisors and persons in Your Company and Leighton who carried out the inspections.
- (d) describe and explain how the inspections would be carried out, whether they were visual inspections only or equipment was used or both.
- (e) confirm whether reports or records were kept following the inspections and if so, please produce such reports and records.

(i) *Relevant site supervisors for rebar fixing works in EWL slab*

87. The MTRCL ConEs involved in the site surveillance and inspection of the rebar fixing works at the time of the construction of the EWL and NSL slabs respectively are as follows:

EWL Slab	
Name	Position within MTRCL
Derek Ma	ConE I
Jeff Cheung	ConE I
Chen Wing	ConE I
Louis Kwan	ConE II
Kingsley Lam	ConE II
CK Cheung	ConE II

NSL Slab	
Name	Position within MTRCL
Derek Ma	ConE I
Jeff Cheung	ConE I
Nick Tse	ConE I
Louis Kwan	ConE II
Kingsley Lam	ConE II
CK Cheung	ConE II

(ii) *Inspection of rebar fixing works in EWL slab*

88. In accordance with the ITPs applicable to the respective areas of the EWL slab works, the rebar fixing works had to be inspected by MTRCL's ConEs as a hold point for each of the 32 bays of the EWL slab. As I have mentioned at paragraph 27 above, Mr. Louis Kwan (ConE II responsible for Areas B and C) and Mr. C.K.

Cheung (ConE II responsible for Area A and Hong Kong Coliseum) carried out the majority of the hold point inspections for the rebar fixing works in the EWL slab. Mr. Kingsley Lam (ConE II) inspected bays A-1, A-5 and A-7, whereas Mr. Jeff Cheung (ConE I) inspected bays C3-2 and C3-3.

89. Mr. Kwan explains the details of his inspection method in paragraphs 55 to 61 of his witness statement. Broadly speaking, I would expect Mr. Kwan to carry out the hold point inspection for each bay in at least two stages – the first stage inspection would cover the bottom layer, and the second stage would cover the top layer.
90. In respect of RISC forms, one form typically covers all the rebar fixing works (both top and bottom layer) in each bay. However, in addition to the hold point inspections and sign-off of the RISC forms, the ConEs and the IOWs all carried out regular site surveillance activities, and directly dealt with LCAL on site to resolve issues on an ongoing basis.
91. Further, inspections were often requested informally by LCAL for, say, the bottom layer of the rebars, even before the formal submission of a RISC form. This is why Mr. Kwan and the other ConEs were able to inspect both the bottom and the top layers of rebars in each and every bay.
92. In addition to the RISC forms which record the hold point inspections carried out by the ConEs and IOWs, I should add that regular site surveillance in respect of the construction of the diaphragm walls and EWL/NSL slabs has continuously been documented by site diaries and site photos prepared/taken by the IOW team on a daily basis.
93. The IOW team are required to prepare and fill in daily site diaries to record their routine site surveillance activities, and I understand that the site diaries for the relevant period of the works will be disclosed to the Commission of Inquiry. The site diary entries mainly concern labour resources and progress of the works (rather than quality matters), and Mr Joe Tsang was responsible for endorsing

these site diaries until he left the SCL Project. To be clear, there is no requirement for ConEs to keep site diaries as part of their site inspection activities.¹⁹

94. In Contract 1112 on the SCL Project, the taking of site photos for MTRCL's record-keeping forms part of the IOWs' responsibility, and I am aware that site photos were taken of the rebar fixing works and coupler splicing assemblies. It was precisely these site photos which were used by Mr. Kobe Wong in order to ascertain the areas where he and his IOW team had carried out site surveillance in respect of coupler splicing assemblies. These site photos have also been used by the ConE team since July 2018 to verify the as-built condition of the slab-to-wall connections for the purposes of the BA-14 as-built submissions for the EWL slab.

Item 13:

(b) Confirm whether Your Company was aware that steel bars were being shortened or cut by hydraulic cutters on site, and if so, what were the reasons for using a hydraulic cutter to carry out such work.

(c): Confirm whether workers engaged by Leighton and/or its subcontractors had used hydraulic cutters to shorten and cut the steel bars embedded or to be embedded within the diaphragm walls and platform slabs and if so, please identify the works and/or entities who carried out such shortening or cutting work by hydraulic cutters, and the persons and/or entities who gave instructions (i) for such work to be carried out and (ii) for hydraulic cutters to be acquired.

95. If the cutting of threaded ends was done on a large scale as alleged in the media reports, I would expect specialised equipment or plant to be used by LCAL/Fang Sheung as it would otherwise be difficult and time-consuming. However, I do not recall seeing any such equipment or plant (whether hydraulic cutters or otherwise) on site, and as far as I am aware, no rebars were cut or shortened by LCAL and/or its sub-contractors using hydraulic cutters on site.
96. I am aware that there are allegations that the cutting of the threaded ends may have been surreptitiously carried out at night. However, I would point out that MTRCL's IOWs were on site on both day and night shifts, and if threaded ends were cut during the night, I would expect the relevant IOWs to notice and address the issue on site, and to escalate the matter if it was a recurrent problem.

¹⁹ PIMS/PN/11-4, Exhibit 7.15.


97. In any event, as project manager, MTRCL did not have the obligation or the resources to inspect the works of LCAL and its sub-contractors for each and every construction sequence. It is LCAL who is responsible for providing full-time site supervision, and I would expect LCAL to ensure that there were no improper and/or unsafe work practices on site.

Item 18: Apart from the Defective Steel Works, please confirm whether, in respect of the diaphragm wall and platform slab construction works at the Hung Hom Station Extension under Contract 1112 of the SCL Project, Your Company has knowledge of any other works which raise concerns about public safety and if so, describe and set out all the facts and circumstances surrounding such other works.

98. I would take this opportunity to clarify that I was aware of the use of mass concrete for backfilling in Area A, in the space between the in-situ wall and the diaphragm wall on the NSL level. This was LCAL's initiative, and MTRCL and LCAL jointly agreed to this proposal because this was to reduce the cost of the works (i.e. as a value engineering exercise) and to be environmentally friendly.
99. The type of concrete used to backfill the area is mass concrete – the same type of concrete as the concrete to be poured. What Mr. Jason Poon alleged during at the Legislative Council subcommittee meeting on 13 July 2018, that we had used lightweight concrete (being concrete of a different density) to backfill the area, is simply untrue.
100. According to my engineering judgment, as we are using the same material for backfilling as the material to be poured into the area, there is no public safety or structural concern arising from the backfilling. MTRCL has requested and is still awaiting further details from LCAL in relation to this particular issue.
101. Finally, I would like to mention the following:
- 101.1. The events in question and which form the subject matter of the Commission of Inquiry took place several years ago and my recollection of every detail is not therefore perfect.
- 101.2. Accordingly, in preparing this witness statement I have reminded myself of the events in question by reference to various hard copy and electronic

documents and materials, including contemporaneous email correspondence, meeting minutes and contractual documents and other records. I understand these materials were retrieved by MTRCL's Legal Department, with the assistance of the MTRCL's external lawyers, Mayer Brown.

Dated 14th September 2018



HO Ho Pong James