

**COMMISSION OF INQUIRY INTO THE CONSTRUCTION
WORKS AT AND NEAR THE HUNG HOM STATION
EXTENSION UNDER THE SHATIN TO CENTRAL LINK
PROJECT APPOINTED PURSUANT TO SECTION 2 OF THE
COMMISSIONS OF INQUIRY ORDINANCE (CAP 86) ON 10
JULY 2018**

2nd WITNESS STATEMENT OF LI TSZ WAI, RALPH

I, Li Tsz Wai, Ralph, the Chief Engineer/Railway Development 1-1 of 1st Floor, Homantin Government Offices, 88 Chung Hau Street, Homantin, Kowloon, do say as follows:

1. I am the Chief Engineer/Railway Development 1-1 ("**CE/RD1-1**") since 21 February 2017. CE/RD1-1 is the divisional head of Railway Development Division 1-1 of the Railway Development Office ("**RDO**") of the Highways Department ("**HyD**") and is currently responsible for (i) the implementation of the Hung Hom Station ("**HUH**") Extension under the Shatin to Central Link ("**SCL**") Project as well as the SCL portion of the Admiralty Station Extension and Homantin Station; (ii) the vesting arrangement for SCL; and (iii) the finalisation of the Kwun Tong Line Extension project. I am the same Li Tsz Wai, Ralph who made a statement dated 7 September 2018 [G3/2088-2098] to the Commission of Inquiry into the Construction Works at and near HUH Extension under the SCL Project ("**the Commission**").

2. I make this statement pursuant to the request of the Commission set out in the letter from Messrs Lo & Lo to the Government dated 4 April 2019 in respect of the issues in relation to the works of the North Approach Tunnels ("**NAT**") ("**the NAT Letter**"). Save where otherwise appears, the facts deposed hereto are within my personal knowledge or are derived from office files and records and sources to which I have access, and are true to the best of my knowledge, information and belief. Save as otherwise specified, this statement adopts the same abbreviations and nomenclature used in the said letter.

3. The evidence requested in the NAT Letter concerns the following three issues: (i) three defective stitch joints were found at NAT

(“**Issue 1**”); (ii) non-compliance issues at the NAT Shunt Neck (“**Issue 2**”); and (iii) lack of RISC forms, inspection and supervisory records and deviation at NAT, South Approach Tunnels (“**SAT**”) and the Hung Hom Stabling Sidings (“**HHS**”) (“**Issue 3**”). This witness statement addresses the questions in the NAT Letter and is divided into the following parts:

- (1) Part I provides updates and supplemental information on Issue 1, i.e. the defective stitch joints, including water seepage, at NAT (Questions 1, 2, 3 and 12.6) .
- (2) Part II provides updates and supplemental information on Issue 2, i.e. non-compliance issues at the NAT Shunt Neck (Questions 1, 2 and 3).
- (3) Part III deals with the Government’s knowledge of and involvement in matters relating to Issue 3, i.e. lack of RISC forms, inspection and supervisory records and deviation at NAT, SAT and HHS (Questions 1, 2, 3, 6, 19 and 23).

4. To assist the Commission, the Government will provide a chronology of events (“**Chronology**”) updated up to 8 May 2019 setting out the involvement of HyD and relevant Government departments in relation to the above issues. For the purpose of this witness statement, I rely on the Chronology. I understand that the other questions raised in the NAT Letter will be addressed in the witness statements of other government officers.

Part I – Updates and supplemental information on Issue 1 (i.e. defective stitch joints at NAT)

(My response to Questions 1, 2, 3 and 12.6 of the NAT Letter)

5. HyD was first alerted to the water seepage with cracks at the stitch joints at Contracts 1111 and 1112 interface at NAT by the MTR Corporation Limited (“**MTRCL**”) when it submitted the SCL Monthly Progress Report dated 31 January 2018 [DD1/38.112]. This issue was also discussed in the Project Progress Meeting (“**PPM**”) held on 5 February 2018 [DD1/38.113].

6. On 28 February 2018, MTRCL submitted the SCL Monthly Progress Report [DD1/38.118-38.121] indicating that cracks were found on the surface of the trackform due to tunnel stitch joint separation at Contracts 1111 and 1112 interface. It was also recorded in the report that the movement and settlement were being monitored. This issue was then discussed in the PPM held on 2 March 2018 [DD1/38.122-38.123].

7. On 12 March 2018 [DD1/38.124–38.128], HyD received a media enquiry in relation to some alleged defects at NAT. On the same day, HyD requested MTRCL to provide background information in answer to the enquiry and also retrieve all details relating to this matter. On 14 March 2018, the Monitoring and Verification Consultant, namely PYPUN-KD & Associates Limited (“PYPUN”), conducted an ad-hoc site inspection of the stitch joints in question with MTRCL [item 5 of Chronology].

8. In response to HyD’s request of 12 March 2018, MTRCL provided a draft report on the incident at the interface of Contracts 1111 and 1112 on 16 March 2018 [DD1/39-57]. The report was commented on by BO Team¹ on 20 March 2018 [DD1/58-60]. On 27 March 2018, MTRCL submitted a “Report of Defective Works identified at Tunnel Stitch Joints” (“**the 27 March Report**”) [DD1/113–149].

9. According to the 27 March Report, the stitch joints in question were located at the following three locations: (i) NSL stitch joint between Contract 1111 and Contract 1112 (“**Joint 1**”); (ii) NSL stitch joint within Contract 1112 (“**Joint 2**”); and (iii) EWL stitch joint between Contract 1111 and Contract 1112 (“**Joint 3**”) (collectively referred to as the “**Stitch Joints**”). Their locations are shown in Appendix A of the 27 March Report. It was mentioned in Sections 2.4 and 2.5 of the 27 March Report that, upon removal of the concrete cover of a small area at three different locations of Joint 1, it was revealed that several re-bars embedded in concrete ‘not coupling to the couplers reserved by SCL1111 Contractor within the adjacent tunnel structures’. It is also reported that, upon further investigation by MTRCL, similar problem occurred in the other two Stitch Joints, i.e. Joint 2 and Joint 3. According to Section 2.6

¹ Staff from the Buildings Department are seconded to HyD to form a BO Team. The BO Team would advise on the building safety standards, practices and procedures of the Buildings Department.

of the report, MTRCL considered that the lack of proper re-bars connection at the Stitch Joints was due to defective workmanship. However, the 27 March Report did not come to any conclusion regarding the cause of water seepage.

10. Since February 2018, the issues regarding the Stitch Joints were repeatedly discussed at the monthly PPMs, Project Coordination Meetings (“PCM”s) and meetings of Project Supervision Committee (“PSC”) [DD1/38.113, DD1/165.1–165.2 & DD1/309.1–309.2]. In addition, during the period between March 2018 and July 2018, HyD wrote to MTRCL and requested the latter (i) to clarify how inspection, supervision and monitoring of the construction of Stitch Joints were carried out, (ii) to review its project management procedures and to propose enhancement measures, and (iii) to review and improve its site supervision and communication systems [DD1/154-156, DD1/180-181, DD1/195-196, DD1/313.57-313.58, DD1/324-325, & DD2/401-402].

11. While stitch joint re-construction works were reported to be completed on 18 July 2018, MTRCL has yet to (i) provide full explanation as to why, under MTRCL’s Project Integrated Management System (“PIMS”), non-conformance of such nature at the Stitch Joints could have happened; (ii) provide copies of the signed RISC forms and inspection records for the Stitch Joints; and (iii) advise the cause of the defective Stitch Joints. On 6 August 2018 [DD2/419–424], MTRCL provided a copy of its response to request of the Buildings Department (“BD”), in which HyD was informed that the RISC forms for the connection of threaded re-bars to the cast-in couplers at the original defective Stitch Joints had not been submitted to MTRCL and the corresponding inspection records were unavailable as the contractor (i.e. Leighton Contractors (Asia) Limited) (“Leighton”) had failed to comply with the administrative process to give notice of inspections to MTRCL.

12. Since August 2018, HyD had repeatedly requested MTRCL to provide outstanding information including the site inspection record and a full explanation on why non-conformances at Stitch Joints could have happened [DD2/425-427, DD2/443-444, DD2/446.3-446.5, DD2/455-456, DD2/1090-1091, DD2/1108-1109 & DD3/1121-1122].

13. On 1 February 2019 [DD3/1198], MTRCL further advised that it was unable to provide the requested information on the Stitch Joints as the staff responsible for the construction of the Stitch Joints were no longer employed by the MTRCL. In response, HyD issued a letter to MTRCL on 20 February 2019 [DD3/1214–1215] stating that reasons put forward by MTRCL to justify its inability to provide the requested information on the defective Stitch Joints were unacceptable.

14. In the letter from MTRCL to HyD dated 28 February 2019 enclosing, amongst others, a structural assessment report [DD3/1227-1249], HyD noted that water seepage was observed at Joint 2 within the NSL tunnel at NAT. HyD then conducted site visit on 1 March 2019 and observed that there was water seepage at Joint 1 and Joint 2 of the NSL tunnel at NAT. HyD urged MTRCL to investigate the cause of the water seepage and carry out remedial works immediately [DD3/1252-1253]. PYPUN conducted a further site inspection of the Stitch Joints on 5 March 2019 and reported that water seepage was still observed on the wall surface of Joint 2 [item 143a of Chronology]. On 28 March 2019, MTRCL advised HyD [item 174 of Chronology] that immediate action had been taken by applying injection grout and it would closely monitor the situation and carry out further grouting if required.

Part II – Updates and supplemental information on Issue 2 (i.e. non-compliance issues at the NAT Shunt Neck)

(My response to Questions 1, 2 and 3 of the NAT Letter)

15. In relation to the steps taken by BO Team, I understand that Mr. Lok Pui Fai of BO Team will make a witness statement to provide details. I only wish to add that on 10 April 2019, HyD issued a letter to MTRCL chasing for a response [item 195 of Chronology]. On 23 April 2019, MTRCL responded [item 212 of Chronology] to the comments from BO Team in its letter of 21 December 2018 [DD3/1118-1120] and resubmitted the remedial proposal on 29 April 2019 [item 222 of Chronology].

Part III – Government’s knowledge of and involvement in matters relating to Issue 3, i.e. lack of RISC forms, inspection and supervisory records and deviation at NAT, SAT and HHS

(My response to Questions 1, 2, 3, 6, 19 and 23 of the NAT Letter)

16. MTRCL’s PIMS defines a quality hold point as a point in time when a notice of permission, consent or no objection is required before the contractor can commence, proceed with or terminate an activity. At these hold points, upon receiving the RISC form from the contractor, MTRCL shall inspect the works and return the duly completed RISC form to the contractor. Thus, RISC forms serve as a tool to enhance quality assurance of construction works.

17. As I will further elaborate below, whilst MTRCL had submitted a list of non-conformance report (“NCR”) records (with some entries of ‘missing RISC forms’) to HyD for information in June 2018, the Government had not been fully or clearly informed of the real nature, extent and seriousness of the problem of missing RISC forms until December 2018 / January 2019.

18. In a letter dated 20 December 2018 [DD3/1115–1117], MTRCL advised HyD that there were problems of missing RISC forms, insufficient records for coupler installation, changes of steel reinforcement lapped re-bars into coupler connections and materials testing at NAT. MTRCL also advised that it was double-checking the latest design amendment drawings with objective evidence and would propose a holistic study to HyD for ascertaining the NAT as-constructed conditions and workmanship quality. At that time, MTRCL expected that there would be similar issues for the works of SAT. There was, however, no mention of HHS in the letter.

19. Subsequently, at a meeting among HyD, BD, Fire Services Department and MTRCL held on 23 January 2019, when asked about the production of as-built records of NAT, SAT and HHS, MTRCL advised that due to the insufficient construction records in these three areas, it would need more time to verify the as-constructed condition in order to produce the as-built records. It was the first time that MTRCL made known to the Government that there were also missing RISC forms for

the works of HHS as well and the impact of the missing RISC forms to the production of as-built records of the three concerned areas [item 120 of Chronology].

20. At a meeting among the Transport and Housing Bureau, HyD, BD and MTRCL held on 24 January 2019 [item 121 of the Chronology], MTRCL further advised that about 40% of the RISC forms for NAT were missing, but failed to provide the data for SAT and HHS. HyD urged MTRCL by letter dated 24 January 2019 [DD3/1128–1130] to (i) provide detailed account of the insufficient records in NAT, SAT and HHS including the scale and extent of the problems; (ii) advise any similar problems in other parts of Contract 1112; (iii) provide scope and implementation details of the holistic study on NAT and whether the holistic study would be extended to SAT, HHS and other parts of Contract 1112; and (iv) assess the programme implications on the full/partial opening of the Tai Wai to Hung Hom Section of the SCL.

21. MTRCL replied on 26 January 2019 [DD3/1131–1174]. In that reply, MTRCL sought to refer to the fact that NCRs for the missing RISC forms for NAT and SAT were “listed and issued to” RDO under a letter dated 26 June 2018 [DD1/335-353] and that RDO subsequently replied on 29 June 2018 [DD1/358-362] with specific questions.

22. On this, I should point out that by reading the MTRCL’s letters of 17 and 26 July 2018 together, MTRCL has categorized the NCRs for the missing RISC forms as “LOW” risk, non-works related, and without safety impact. In this respect, further relevant details are summarised as follows:-

- (1) By letter dated 26 June 2018 [DD1/335–353], MTRCL provided HyD with a list of NCRs of each major SCL civil construction contract, purportedly “[t]o enhance the communication between the Government and MTRCL on NCRs issued to the contractors”. No other explanation was given in this letter by MTRCL for sending it out to HyD.
- (2) By letter dated 29 June 2018 [DD1/358–362] to MTRCL, HyD provided general and contract-specific observations,

and requested MTRCL to review the format and level of details of the information on NCRs and provide statistical analysis of the NCR records for each contract on different level of severity of non-conformities issued, which may have impact on the programme, cost, structural integrity and/or system reliability, etc. The degree of severity should be classified, at least, in three levels, say, high, medium and low. MTRCL should provide regular updates on the NCR records on a monthly basis.

- (3) Specifically, in the updated NCR register submitted by MTRCL on 17 July 2018 [DD1/376-388], the “OPEN” NCRs (i.e. NCRs not yet closed) in relation to the missing RISC forms for NAT and SAT respectively were categorised as “LOW” risk and without safety impact. The said letter from MTRCL clearly stated that none of the NCRs had a safety concern, and enclosed an NCR management protocol, which was in place to deal with the nonconformity and NCRs.
- (4) Subsequently, MTRCL provided on 26 July 2018 an updated “works related” NCR Register as at 25 July 2018 that were “OPEN” [item 71b of Chronology], in which the NCRs in relation to the missing RISC forms under Contract 1112 were excluded.
- (5) HyD noted the discrepancy and by letter dated 3 August 2018 [item 76a of Chronology], HyD pointed out that there were 134 NCRs which were not included in the NCR Register as at 25 July 2018. Of these 134 NCRs, 133 are under Contract 1112 and they did not appear to be works related. HyD also requested MTRCL to provide, amongst others, a detailed account of NCRs categorised as “High” or “Medium” risk.
- (6) On 3 August 2018, MTRCL sent to HyD the updated “works related” NCR Register as at 30 July 2018 and stated that “none of them poses a safety hazard” [item 76b of

Chronology]. Again, the NCRs in relation to the missing RISC forms under Contract 1112 were excluded. In fact, those NCRs were excluded in all subsequent updated NCR Registers provided by MTRCL to HyD until January 2019.

- (7) At the PSC meeting on 6 August 2018 [G9/7242-7264], MTRCL briefed HyD on the status of the NCRs as at 13 July 2018. At the meeting, the Chairman (i.e. the Director of Highways) requested MTRCL to report at PSC meetings statistical data related to NCR issued by MTRCL to the contractors and any improving or deteriorating trend in the quality of the works. He further added that MTRCL should exercise its judgment as to which NCRs should be reported to HyD.
- (8) After the said PSC meeting, since 28 August 2018, MTRCL has stopped reporting the status of the missing RISC forms NCRs at subsequent PSC meetings. In response to an express specific request made by HyD, MTRCL resumed their briefing on the status of the missing RISC forms on 26 February 2019.

23. Further, in the above-mentioned reply dated 26 January 2019, MTRCL informed RDO that some of the requested information could be provided at an upcoming briefing session. Despite having only received limited information from MTRCL on the scale and impact of the issues, in view of the public's concern on the works of the HUH Extension, the Secretary for Transport and Housing, the Director of Highways and the Director of Buildings held a press conference on 30 January 2019 to inform the public of the issues of NAT, SAT and HHS in an open and transparent manner [DD3/1177.1-1177.18].

24. On 30 January 2019, HyD received from MTRCL a briefing on Issue 3 for the works of NAT, SAT and HHS [DD3/1182-1197]. The briefing materials were not adequate to inform the scale and extent of the problem though they showed the number and percentage of RISC forms available for each of the three areas. Therefore, HyD issued a letter on 1 February 2019 [DD3/1178-1197] requesting MTRCL to provide, among

other things: (i) an incident report for NAT, SAT and HHS with full explanation (including how the works could have been proceeded without the corresponding RISC forms properly endorsed by the relevant parties); and (ii) a holistic proposal with implementation programme to ascertain the as-constructed condition and workmanship of the works (as MTRCL offered in its letter of 20 December 2018 [DD3/1115-1117]). In the same letter, MTRCL was asked to identify the construction works that had deviated from the accepted structural plans and advise whether there was similar incident in other locations under Contract 1112. To allow sufficient time for MTRCL to prepare the incident report and required information, HyD set the submission deadline of end February 2019.

25. At the meeting of the Subcommittee on Matters Relating to Railways of the Legislative Council Panel on Transport on 1 February 2019, MTRCL disclosed via a slideshow the up-to-date status of the missing RISC forms at the three locations, indicating that only 27%, 64% and 37% of the RISC forms for steel bar fixing works of NAT, SAT and HHS respectively could be located [DD3/1177.86 -1177.113].

26. In response to HyD's request for an incident report on NAT, SAT and HHS, MTRCL provided on 28 February 2019 some of their investigation findings on NAT [DD3/1227-1249]. However, this submission did not include any incident report as requested. Hence, the scale of missing RISC forms could not be ascertained and the change of rebar connection details could not be quantified from MTRCL's limited information.

27. On 5 March 2019, HyD urged MTRCL [DD3/1254-1259] to provide an incident report and a holistic proposal as mentioned in MTRCL's letter to assess the structural condition of the NAT, SAT and HHS structures. HyD's letter also urged MTRCL to (i) substantiate the desktop structural assessment undertaken by the independent consultant; and (ii) provide the following: details of the required but missing RISC forms for each hold point for the works of NAT, SAT and HHS; detailed layout plan showing the locations where lapped bars are suspected to have been replaced with couplers; outstanding information on NCR reports and the corresponding information sheets; and outstanding information on stitch joint or coupler connection for the interface with

Contract 1121 at SAT (NSL section). As regards the Structural Assessment Report dated 22 February 2019 enclosed in the MTRCL's letter of 28 February 2019 [DD3/1227-1249], HyD's letter also urged MTRCL to review the adequacy of the assessment and provide substantiation on assessment based on two hold points, namely that for "rebar fixing" and "concrete pre-pour" respectively, instead of all hold points.

28. On 15 March 2019, HyD informed MTRCL [item 160 of Chronology] that as the information provided in MTRCL's letter dated 28 February 2019 [DD3/1227-1249] did not satisfactorily address HyD's comments provided in its letter dated 1 February 2019 [DD3/1178-1197] and furthermore MTRCL had not yet provided full responses to HyD's other comments set out in its letter dated 5 March 2019 [DD3/1254-1259], the submission made under MTRCL's letter dated 28 February 2019 was not acceptable and therefore rejected. MTRCL was then urged to urgently submit an incident report and a holistic proposal, as well as all other outstanding information/responses in relation to the works of NAT, SAT and HHS.

29. MTRCL submitted to HyD on 4 April 2019 [item 185 of Chronology] a draft Holistic Proposal for NAT, SAT and HHS. It is a two-stage study with (i) Stage 1a: to consolidate all available construction records as objective evidence of the as-constructed works; (ii) Stage 1b: to verify the as-constructed condition of the completed structures against the design amendment drawings based on objective records; (iii) Stage 2a: based on Stage 1b findings, to conduct an initial safety assessment of the as-constructed NAT, SAT and HHS structures; and (iv) Stage 2b: based on the Stage 1b findings, to conduct detailed structural assessment to assure structural integrity and performance. HyD provided the Government's initial comments on the draft proposal to MTRCL on 9 April 2019 [item 192 of Chronology] and the specific comments on 17 April 2019 [item 206 of Chronology].

30. While awaiting the outstanding information from MTRCL, HyD arranged PYPUN to conduct site inspection of NAT, SAT and HHS twice a week since 5 March 2019 in addition to the regular monthly site walks at HUH in respect of public safety. PYPUN reported so far that no sign

of distress in the structures was observed [items 143a, 149, 151, 158, 163, 168, 171, 176, 184, 188, 193, 201, 204, 211, 213, 217, 230, 231 & 233 of Chronology]. Besides, RDO and PYPUN conducted on-site checking of the availability of RISC forms for the works of NAT, SAT and HHS from 10 to 17 April 2019 [Items 194, 197, 200, 202, 203 & 205 of Chronology] based on the available information provided by MTRCL. PYPUN will provide HyD with a final report on the checking of the RISC forms for NAT (including the Stitch Joints and Shunt Neck), SAT and HHS in May 2019.

31. On 26 April 2019 [item 215 of Chronology], MTRCL submitted to HyD a draft Verification Proposal² in relation to NAT, SAT and HHS. HyD maintains close liaison with MTRCL and coordinates with the other Government departments concerned with a view to finalising the draft Verification Proposal and its final report in relation to NAT, SAT and HHS as per the agreed schedule submitted to the Commission on 27 April 2019. In this respect, a task force has been set up with members from the Expert Adviser Team for the SCL Project/BD/HyD/MTRCL to ensure smooth delivery of the Verification Proposal.

32. I confirm that the contents of this witness statement are true to the best of my knowledge, information and belief.

Dated this 10th day of May 2019.



LI Tsz Wai, Ralph

² As advised by MTRCL, the purpose of any review and checking is to verify the safety and integrity of NAT, SAT and HHS, and a Verification Proposal instead of a Holistic Proposal would be submitted.