

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
APPOINTED PURSUANT TO SECTION 2 OF THE COMMISSION OF INQUIRY
ORDINANCE (CHAPTER 86) ON 10 JULY 2018

2ND WITNESS STATEMENT OF HO HON KIT

I, HO HON KIT, also known as Humphrey Ho, Assistant Director/New Buildings 2, Buildings Department, of 9/F Cityplaza Three, 14 Taikoo Wan Road, Taikoo Shing, Hong Kong, do say as follows:-

1. I am the Assistant Director/New Buildings 2 and in charge of the New Buildings Division 2 of BD. I make this 2nd Witness Statement pursuant to paragraph 10 of the Rules of Procedure and Practice made at the Preliminary Hearing on 24 September 2018. 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 2nd Witness Statement adopts the same abbreviations and nomenclature as my 1st Witness Statement filed on 13 September 2018 [H7/2167 – 2186].

2. This 2nd Witness Statement is made in response to the following issues covered by various Witness Statements filed on behalf of MTRCL and Leighton¹:

- (1) MTRCL and Leighton's failure to comply with the QSP and the requirements specified by BD in its letters of acceptance in relation to the qualified supervision of mechanical coupler works;
- (2) the alteration to the completed diaphragm wall and change to the reinforcing details at the connection between the east diaphragm wall, the OTE slab and the EWL slab of the HUH Extension without prior acceptance by BD; and

¹ Including the Witness Statements of Aidan Rooney [B1/181 – 217]; Chan Kit Lam [B1/262 – 287]; Ho Ho Pong James [B1/320 – 354]; Ma Ming Ching Derek [B1/355 – 372] and Kwan Pak Hei Louis [B1/373-416] on behalf of MTRCL; the Witness Statements of Brett Buckland [C27/20800 – 20811], Justin Taylor [C27/20831 – 20842] and 2nd Witness Statement of Stephen LUMB of Leighton [C27/20887 – 20891] on behalf of Leighton.

- (3) whether NSL track slab is an on-grade slab.

Non-compliance with QSP and the requirements specified by BD

3. In the two letters of acceptance dated 25 February 2013 and a third letter dated 25 June 2014 issued by BD to the CP in response to MTRCL's design proposals for "Hung Hom Station (Grid 1/15 and Grid I/N) – Substructure below EWL Platform Level" [H9/3873 – 3907], "Hung Hom Station (Grid 22/49 and K/N) – Substructure below EWL Platform Level (Response to Comments)" [H9/3908 – 3934] and "Hung Hom Station (Grid 15/22 and Grid K/N) – Substructure below EWL Platform Level" [H9/4029 – 4046] respectively, MTRCL was required, *inter alia*, to submit a QSP of the CP and the RGBC/RSC to BD prior to the commencement of the mechanical coupler works. The QSP should include the following details [H9/3903 §3, 3930 §3 & 4041 §3]:

- “(a) Assignment of quality control supervisor of the Competent Person and quality control co-ordinator of the RGBC/RSC to supervise the manufacturing process of the connecting ends of the steel reinforcing bars, and the installation of steel reinforcing bars to the couplers.*
- (b) Frequency of quality supervision, which should be at least 20% of the splicing assemblies by the quality control supervisor of the Competent Person and full time continuous supervision by the quality control co-ordinator of the RGBC/RSC of the mechanical couplers works.*
- (c) For couplers to be used at the top of pile cap and transfer plate, the frequency of quality supervision should be at least 50% of the splicing assemblies by the quality control supervisor of the Competent Person and full time continuous supervision by the quality control co-ordinator of the RGBC/RSC.”*

4. The letters of acceptance (as mentioned above) also required that (1) the names and qualifications of the supervisory personnel representing the CP, the RGBC/RSC respectively should be recorded in an inspection log book; (2) the date, time, items inspected and inspection results should be clearly recorded in the log book; and (3) the log book should be kept at the site office and, when

required, produced to the Building Authority for inspection.

5. Further, upon completion of the mechanical splice works, the CP is required to submit to BD, *inter alia*, a quality supervision report (signed by the CP) to confirm that quality supervision has been adequately provided with the inspection log book of the quality control supervisors representing the CP and the RGBC/RSC for the mechanical couplers works [H9/3904 §4(c), 3931 §4(c) & 4042 §4(c)].

6. By a submission dated 12 August 2013, MTRCL submitted to BD the required QSP, namely “*Quality Supervision Plan Submission of the Proposed Ductility Coupler for Diaphragm Wall Reinforcement Cage and Slab Construction at Hung Hom Station*” [H9/4263 – 4280]. According to paragraph 5 of the QSP for Installation of Couplers [H9/4269], MTRCL and Leighton will carry out the following additional inspection on top of the site supervision system as stipulated in the Code of Practice for Site Supervision:

“1. Supervision and Inspection by RC on site - installation works

- i. Quality Control Supervisors (RC) will [sic] responsible to carry out full time and continuous supervision of the splicing assemblies on site.*
- ii. Supervision and inspection will be recorded in the Record Sheet (appendix C) and write into the inspection log book by Quality Control Supervisors (RC).*
- iii. Checking includes length of thread and correct connection of 2 bars with couplers. Criteria are provided in appendix D.*

2. Supervision and Inspection by MTRC on site - installation works

- i. Frequency of quality supervision should be $\geq 20\%$ of the splicing assemblies by MTRC T3.*
- ii. Quality Control Supervisors (MTRC) will record the*

inspection by countersigning the inspection Record Sheet and put it in an inspection log book.

iii. Checking includes length of thread and correct connection of 2 bars with couplers. Criteria are provided in appendix D.”

7. A sample of the “MTRC TCP-T3 Independent Checklist for On-site Assembly of BOSA Seisplce Couplers in Any Location” is at Appendix B of the QSP [H9/4277]. According to the Checklist, the TCP concerned should check the following during his/her inspection:

- (1) Has coupler been fully screwed and fitted;
- (2) Has coupler been cleared of foreign materials (e.g. concrete gels);
- (3) Has thread been cleared of foreign materials (e.g. concrete gels);
- (4) Complete splice between couplers and rebar; and
- (5) Verticality checking for coupled rebars (10% per column).

Upon checking each of the aforesaid items, the TCP concerned will mark on the Checklist indicating whether each individual item has been satisfactorily carried out. The date of inspection needs to be specified next to each of the aforesaid items respectively.

8. Paragraph 6 of the QSP further provides that MTRCL and Leighton should maintain an inspection log book [H9/4270]. Specifically:

“Names and qualifications of the quality control supervisors of the MTRC and the RC respectively should be recorded in an inspection log book.

The details of quality supervision should be recorded in the log book. (I.e. This document of proposal)

The inspection records mentioned in the previous sections of this document are to be put in the log book.

Therefore, the Log Book shall include the followings:

- *The Site Supervision Plan*
- *This Proposal*
- *Quality Control Supervisors (MTRC) and Quality Control Supervisors (RC) Record sheet*
- *BOSA's Thread Preparation Check*

The log book should be kept at the site office and when required produced to officers of the buildings [sic] Department for inspection."

9. However, it appears from the Witness Statements of Chan Kit Lam (Kit Chan), Wong Chi Chiu (Kobe Wong), Ho Ho Pong James (James Ho) and Ma Ming Ching Derek (Derek Ma) that neither MTRCL nor Leighton had recorded the inspection as required by the QSP. This constitutes a material non-compliance with Parts 5 and 6 of the QSP and paragraph 1(d) of Appendix VIII to BD's acceptance letter dated 25 February 2013 [H9/3928]. While MTRCL produced a set of inspection records [B7/4537 – 4598], such checklists were only created retrospectively (almost 2 years after completion of the EWL platform slab) and purportedly based on the recollection of MTRCL staff. The accuracy, reliability and integrity of these retrospective records are therefore questionable. Such arrangement is improper and unacceptable, and could result in rejection of the Certificate of Completion (CoC) for HUH Extension.

10. In this regard, Section 7.9.2 of the PMP [H7/2389] provides that MTRCL should deal with any non-conformity in accordance with paragraph 10 of the Code of Practice for Site Supervision as necessary [H8/2727]. Further, the "Flow Chart for Construction Management and Assurance Procedure" at Appendix 7 to the PMP [H7/2494] requires the CP to issue instruction to rectify the non-conformity if appropriate. Therefore, the quality control supervisor should inform the CP and record such failure of keeping inspection log book as non-conformity and the CP should issue instruction to Leighton to rectify the non-conformity. If the non-conformity is considered to be causing material concern for safety and Leighton fails to comply with the rectification instruction, the CP should report the non-conformity to the BD.

11. At paragraph 54 of James Ho's Witness Statement, it was alleged that the inspection log book need not be submitted to BD and that "a high-level 'Inspection Record Summary for Quality Control Supervisor' for the CP and

RC streams respectively was sufficient.” This is not the case. Under paragraph 4(c) of the Appendix VIII to BD’s acceptance letter dated 25 February 2013 [H9/3930 – 3931], a report is required to be submitted to BD upon completion of the mechanical splice works, which should include “*a quality supervision report signed by the [CP] to confirm that the quality supervision has been adequately provided with, the inspection log book of the quality control supervisors representing the [CP] and the RGBC/RSC for the mechanical couplers works.*” (emphasis added)

12. Based on the above matters, we have good reasons to believe that the relevant CPs of MTRCL failed to discharge their supervisory duties properly in the implementation of the QSP and PMP.

The alteration to the completed diaphragm wall and change to the reinforcing details at the connection between the diaphragm wall and EWL slab without prior acceptance by BD

13. As explained in paragraphs 67 to 71 of Lok Pui Fai’s Witness Statement [H7/2205 – 2207], the connection details between the platform slab and the east diaphragm wall had been altered without prior acceptance by BD.

14. In relation to this issue, MTRCL and/or Leighton assert that:

- (1) the change in connection details was a “minor change in construction details” and need not be submitted to BD for acceptance before being implemented; and
- (2) the change in connection details was actually accepted by BD.

15. For reasons elaborated below, both assertions (which are contradictory to each other) are incorrect.

Deviation from the accepted design involving alteration to the completed diaphragm wall and changes to reinforcing details at the connection requires prior acceptance from BD

16. According to the Administrative Procedure for Consultation Submissions under IoE/IoC as stipulated in Appendix 9 of the PMP [H7/2498],

all designs of permanent work (be it new or amendment submissions) have to go through the consultation process under the IoE or IoC and acceptance by BD or HyD respectively ought to be obtained prior to the commencement of the works. No exception is provided for so-called “minor changes in construction details” as alleged by MTRCL and Leighton.

17. In paragraphs 14 to 17 of Brett Buckland’s Witness Statement [C27/20803 – 20804], it was alleged that “minor amendments” were exempted from prior approval or acceptance under PNAP ADM-19 [C13/8555 – 8580].² However, I would like to point out that PNAP ADM-19 referred to by Mr. Buckland provides for the administrative procedures and requirements for approval of plans and consent to commencement of works governed by the BO. As the process of approval of design and application for consent (required under BO) has been exempted under the IoE (see paragraph 6 of my 1st Witness Statement [H7/2168]), PNAP ADM-19 is not applicable to the works under Contract 1112. Under the IoE (which was issued having regard to the PMP proposed by MTRC: see paragraph 8 of my 1st Witness Statement [H7/2170]), MTRCL is required to follow strictly the procedures set out in Appendix 9 of the PMP [H7/2498].

18. For completeness, I wish to further point out that the exemption for prior approval and consent in respect of “Minor Amendments” provided for in PNAP ADM-19 is, in any event, not applicable to foundation works. Paragraph 20 of PNAP ADM-19 (February 2014 version)³, which is the version applicable at the time of the construction of the diaphragm walls and platform slabs at the HUH Extension, provides:

“Subject to a modification of Building (Administration) Regulation (B(A)R) 33(1) being granted by the Building Authority (BA) under section 42(1) of the BO, prior approval and consent to the minor amendments of building, superstructure (including curtain wall, cladding, space frame and similar superstructural elements) and drainage works, for which first consent has already been given, would not be required except for the following amendments ...

² See also Expert Opinion Report from MTRCL attached to the Police Statement of Aidan Rooney [B5/3027 – 3029] and Two Expert Reports from Leighton attached to their letter to DEVB [H14/35271 – 35374, H18/38876 – 38903].

³ The PNAP ADM-19 produced by Leighton at C13/8555 – 8580 is the latest version.

“(emphasis added)”

Moreover, paragraph 20(b) dealing with the question of whether the amendment in question would affect ‘*the overall structural stability of the building*’ (on which some of the potential witnesses of Leighton and MTRCL place reliance) expressly refers to superstructure and superstructure (A&A). A copy of the PNAP ADM-19 (February 2014 version) is produced at **Annex HHK-10**.

19. As mentioned above, the diaphragm walls are foundations of the HUH Station Extension structure. As such, PNAP ADM-19 is not applicable to the deviation in question.

20. In any event, the change to the design and construction of the connection between the east diaphragm wall and EWL slab in question cannot be regarded as a minor change or modification. It involves demolition of the top 420mm depth or portion of the completed diaphragm wall, which serves as the foundation or part of the foundation system of the HUH Station Extension structure. Further, the junction between the completed east diaphragm wall and to-be-constructed EWL slab is a critical portion of the structural system which would have a bearing on the overall stability of the HUH Extension structure.

21. In the circumstances, apart from the strict requirement set out in the PMP, BD should be consulted via submission of amendment plans for the proposed modification to structural details of the diaphragm wall and the EWL slab before the carrying out of the varied works.

BD has never accepted the changes made to the connection between east diaphragm and EWL slab

22. In paragraphs 27 to 39 of Brett Buckland’s Witness Statement [C27/20807 – 20810] and paragraphs 22 to 26 of Justin Taylor’s Witness Statement [C27/20837 – 20838], it was alleged that MTRCL made two submissions to BD on 29 July 2015 and 23 March 2016, and that BD accepted the submissions on 8 December 2015 and 28 April 2016 respectively.

23. Having checked the relevant records, details of the said two consultation submissions are set out below:

Submissions title	Date of MTRCL's letter	Date of BD's reply
Design Report for HUH Station Excavation & Lateral Support for Area C (Grid 22-40) – Excavation below +0.5mPD (Amendment Submission)	29 July 2015 [B12-13/8888 - 10607]	8 December 2015 [H14/35344 - 35351]
Design Report for HUH Station Excavation & Lateral Support for Area C (Grid 40-49) – Excavation below +0.5mPD (Consolidated Response to Comment)	23 March 2016 [C26/19996]	28 April 2016 [H14/35372 - 35374]

24. At the outset, I would like to point out that the two consultation submissions were made by MTRCL for the design of temporary works for excavation at Area C, including the design checking on permanent slab during the temporary excavation stage. They do not constitute consultation submissions for the change of construction and reinforcing details at the connection between the platform slab and the east diaphragm wall. Accordingly, BD cannot be regarded as having accepted such proposed changes in the connection.

25. In Section 6.2 of the Design Report [B12/9034], which was attached to MTRCL's letter dated 29 July 2015, Atkins stated that the top of diaphragm wall panel will be trimmed down. However, the drawings submitted (including the excavation sequence and permanent slab reinforced concrete drawings) did not provide the relevant demolition sequence or revised details of diaphragm walls. In particular, the drawings in Appendix H to the Design Report still showed that couplers were to be used at the connection between the diaphragm wall and slab [e.g. B13/10557]. In the premises, Section 6.2 cannot be regarded as any proper consultation submission to BD for acceptance of the alteration to the completed diaphragm wall or revision of the reinforcing details at the connection between the platform slab and the diaphragm wall.

26. In fact, in paragraph 15 of Appendix I to BD's acceptance letter dated 8 December 2015 issued in response to MTRCL's submission dated 29 July

2015 [H14/35348], it was clearly stated that:

*“It is noted that reinforcement details of permanent slab of the station have been included in this temporary works design submission. In order to avoid ambiguity, it is recorded that the said reinforcement details were submitted **for information only** and you are required to ensure the **corresponding permanent station structure submission** are fully compatible with this ELS submission.” (emphasis added)*

27. Similarly, in paragraph 6 of the Appendix I to BD’s acceptance letter dated 28 April 2016 issued in response to MTRCL’s submission dated 23 March 2016 [H14/35374], it was stated that:

*“It is noted that steel rebar details of permanent station structure has been included in this temporary works design submission. In order to avoid ambiguity, the steel rebar details is treated as providing information to justify that the ELS effects has been considered in the permanent works design. **You are required to submit all change in the permanent station structure in the appropriate design package for consultation agreement.**” (emphasis added)*

28. Despite the aforesaid, no submission for amendment to the accepted design incorporating the intended changes has been made by MTRCL up to the present.

29. In this regard, I would like to stress that the BO Team has no knowledge about the partial demolition of the east diaphragm wall. Further, the changes to the accepted design at the connection between the east diaphragm wall and EWL slab are not reflected in the as-built record drawings of the diaphragm walls submitted by MTRCL and subsequently accepted by BD. In addition, such changes were not brought to the attention of the BO Team (SE) during its site visits for the proof tests of diaphragm walls.

30. Besides, according to MTRCL’s letter dated 13 July 2018 [B1/69 – 73] and the latest load test proposal subsequently submitted by MTRCL on 30 August 2018, as well as paragraph 44 of Mr. Derek Ma’s Witness Statement [B1/368], the deviation from the accepted design was not confined to Area C, but extended to the diaphragm wall and EWL slab in Area B [H9/3818], which

was not covered by the said two Design Reports. As with Area C, no consultation submissions were made to BD in respect of the change in connection details for Area B.

31. As far as I am aware, MTRCL is still collating the relevant construction records in its possession in order to ascertain the construction and reinforcing details that were actually adopted by Leighton at various locations along the junction between the east diaphragm wall and EWL slab.

NSL track slab is not an on-grade slab

32. I noticed that Mr. Aidan Rooney mentioned in paragraph 15(d) of his Witness Statement that “[t]he NSL track slab is a ground bearing slab with structural connections to the diaphragm walls at the east and west sides of the NSL track slab” [B1/185]. I would like to point out that, according to the accepted plans and the supporting calculations [H14/22991], the NSL track slab is a suspended slab supported on piles and also on the diaphragm walls at east side and west side respectively. Therefore, the NSL track slab is *not* a ‘ground bearing slab’ as asserted by Mr. Rooney.

33. I confirm that the contents of this 2nd Witness Statement are true to the best of my knowledge, information and belief.

Dated this 16th day of October 2018



(HO HON KIT)

Assistant Director/New Buildings 2
Buildings Department