

IN THE MATTER OF A COMMISSION OF INQUIRY

CLOSING SUBMISSIONS
OF PYPUN-KD & ASSOCIATES LIMITED (“PYPUN-KD”)

A. INTRODUCTION

A1. Overview

1. PYPUN-KD is the Monitoring and Verification Consultant (“**M&V Consultant**”) on the Project. It had two main roles under its contract with Government: (1) monitoring and verification, and (2) building submission review and compliance (“**BSRC**”). Two teams were deployed for this purpose, being the “**M&V Team**” and the “**BSRC Team**”. The Core Team chart can be seen at [K1/K87].
2. By letter dated 2.10.2018 [K1/K1-K6], PYPUN-KD was to produce witnesses to speak to four requests set out in the letter, as well as to offer any suggestions or recommendations for improvement of public assurance.
3. Shortly thereafter, and very shortly before the Commission was due to begin sitting, by letter 15.10.2018 [K1/K7-K8], PYPUN-KD was to participate in the Inquiry into the Diaphragm Wall and Platform Slab Construction Works at the Hung Hom Station Extension under the Shatin to Central Link Project (“**Commission**”), on the basis that it might potentially be the subject of some criticism.

4. As it turns out, notwithstanding the Commission's appropriate erring on the side of caution, and despite some exploration around certain questions, it seems neither Counsel for the commission nor any party has really directed criticism against PYPUN-KD.
5. On 13.11.2018, PYPUN-KD filed two witness statements to address the four requests set out in the Commission's letter dated 2.10.2018 [K1/K1-K6], being:
 - (1) the Witness Statement of Mak ("Mak") Yu Man ("Mak") [K1/K11-K32] with annexures¹ and
 - (2) the Witness Statement of Yueng ("Yueng") Wai Hung ("Yueng") [K1/K727-K743] with annexures².
6. Mak and Yueng gave *viva voce* evidence to the Commission on 13.12.18 and 14.12.2018 respectively, and were questioned by various parties. Mak and Yueng were coherent, logical and fair witnesses. It is hoped (and believed by PYPUN-KD) that the witness statement and oral evidence was of assistance to the Commission, both in providing understanding of PYPUN-KD's role in the Project and also in providing helpful, forward-looking recommendations (both further discussed below).
7. PYPUN-KD respectfully suggests that it has been confirmed by the evidence overall that there has been nothing which would justify the raising of any criticism of PYPUN-KD in respect of its involvement on the Project. This is, of course, consistent with PYPUN-KD's performance being found to be

¹ Corrigendum [K1/K32.1]

² Corridenda [K1/K743.1]

satisfactory contemporaneously by the Highways Department (“HyD”) under the applicable appraisal system for consultants (Mak §54 [K1/K25]).

8. These submissions are divided into the following areas:
 - (1) Introduction (Section A);
 - (2) PYPUN-KD’s engagement under the M&V Agreement and the Supplementary Engagement (Section B);
 - (3) PYPUN-KD’s monitoring and verification role (Section C);
 - (4) The BSRC Team’s role (Section D);
 - (5) PYPUN-KD’s recommendations as M&V Consultant (Section E).

A2. PYPUN-KD’s witnesses

9. Mak is a director of PYPUN Engineering Consultants Ltd (a sub-consultant of PYPUN-KD) and has been involved in the Shatin to Central Link project (“**Project**”) as the Project Manager of PYPUN-KD in the role of M&V Consultant to the Railway Development Office (“**RDO**”) of HyD (Mak §2 [K1/K11]).
10. Mak has extensive experience in the fields of civil engineering and construction management as well as experience in railway projects (Mak §4 [K1/K11]). His CV can be found at [K1/K34-35].
11. Yueng is a director of PYPUN-KD and has been involved in the Project as Leader – BSRC Team of PYPUN-KD (Yueng §2 [K1/K727]).

12. Yueng has extensive experience in structural engineering for buildings, retaining structures and civil works. A copy of his CV is at **[K1/K745-746]**.

13. As mentioned above, the Commission's letter dated 2.10.2018 **[K1/K1-K6]** laid out four requests for PYPUN-KD. In accordance with their respective main areas:
 - (1) Mak answers
 - (a) Request 1: Role and Responsibilities of PYPUN-KD – Mak §§56-67.7 **[K1/K25-29]**) and
 - (b) Request 4 (recommendations as M&V Consultant – Mak §§68-77 **[K1/K29-31]**).

 - (2) Yueng answers
 - (a) Request 2 (Alleged cutting of rebars³) – Yueng §§33-56 **[K1/K737-741]**) and
 - (b) Request 3 (Alleged change of connection details between the EWL Slab and the East Diaphragm Wall⁴ – Yueng §§57-60 **[K1/K741-742]**).

³ As explained in Yueng §33+ **[K1/K737]**, given PYPUN-KD's role and scope of engagement, PYPUN-KD had no knowledge during the construction period of the alleged cutting of threaded steel bars or the existence of a gap at threaded steel bar/coupler connections.

⁴ Yueng also explains at Yueng §57+ **[K1/K741]** that during the construction period, PYPUN-KD had no knowledge of the change of connection details between the EWL Slab and the east diaphragm walls.

B. PYPUN-KD's ENGAGEMENT

B1. Context

14. As the Commission has heard, the Project adopted a project management approach known as the concession approach, whereby the Project was entrusted to the MTRCL by the Government. MTRCL's existing project management and control processes would be used to implement the Project (Mak §10 [K1/K12]).

15. The project procurement system was to fully utilise the expertise and experience of the MTRCL to manage the Project and in particular, to use MTRCL's internal systems for project management and control (Mak §12 [K1/K13]). Under the relevant entrustment agreement, MTRCL was obliged to follow its own Project Management System (PIMS) which is certified ISO9001 compliant and had been used to manage railway projects for many years (Mak §13 [K1/13]). The PIMS system is audited externally and is considered to be robust and in line with industry best practice (Extracts of the Lloyd's Report §1.1.5 [G3/1776]).

16. The Project also adopted the "check the checker" approach whereby a M&V Consultant would be engaged (recommended by Lloyd's Register Rail (Asia) Limited for the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link Project Mak §59 [K1/K26]). The "check the checker" approach is a risk-based sampling approach to verify delivery of the requirements of the project scope and authorised expenditure, bearing in

mind that the Government's resources are to be utilised effectively to avoid repetition and micro-management of the Project.

B2. M&V Agreement

17. Pursuant to an agreement dated 20.8.2012 entered into between the Government of the Hong Kong Special Administrative Region (as 'Employer') and PYPUN-KD (as 'Consultants'), PYPUN-KD was appointed the M&V Consultant of the Project ("**M&V Agreement**" [G9/G7638]).
18. The RDO's role in the Project was one of overall administration and to monitor and verify MTRCL's work to ensure MTRCL's compliance with the entrustment agreement (Mak §15 [K1/K13]; M&V Agreement Brief §2.25 [G9/G7653]).
19. In turn, the M&V Consultant's (PYPUN-KD) role was described in the Brief to the M&V Agreement at §3 [G9/G7653], as providing monitoring and verification services in relation to the work undertaken by the MTRCL (including submissions by its consultants, contractors or agent to MTRCL) during the construction, testing and commissioning phase of the Project so as to provide assurance that MTRCL's obligations stated in the EAs for the SCL advance works and construction phases have been properly fulfilled.

20. PYPUN-KD's role as the M&V Consultant had a focus on cost, programme and public safety⁵. As set out M&V Agreement Brief §3.1 [G9/G7653], "...The monitoring and verification shall focus on cost, programme and public safety of the Project". Of course, this focus was not relevant to the BSRC activity.
21. Under the M&V Agreement, the scope and duties of the M&V Consultant can be divided up into three aspects: monitoring, verification and BSRC work (Mak §28 [K1/K18]), though the first two are linked.
22. As explained in cross-examination, Mak was responsible for the direct management of the M&V team and the BSRC Team also reported to him. On a working level, Yueng was the BSRC team leader and he reported to the BO Team (defined below) directly, but when Yueng had issues with management and deployment, which had nothing to do with the BO Team, he would discuss the matters with Mak (Transcript Day 34; p67; lines 18-25).

B3. Supplementary Engagement

23. In addition to PYPUN-KD's engagement under the M&V Agreement, the Government engaged PYPUN-KD on a supplementary engagement on 1.6.2018 to carry out a check of the inspection and supervision records in

⁵ In the context of the Project, "public safety" concerns the risks of accidents involving neighbouring residents (Inception Report [K1/K45]); it covers aspects of safety to the public during the construction works and the testing and commissioning phase but not relating to the quality or integrity of the permanent works that have been constructed.

relation to the construction of the EWL Slab (“**Supplementary Engagement**”) (Yueng §43 [K1/K739]).

24. Pursuant to the Supplementary Engagement, PYPUN-KD checked the records jointly with representatives from the BO Team and the RDO in June, July and September 2018 and draft reports were produced, from time to time, for the RDO’s comments and consideration.
25. The report was finalised on 11.12.2018 [G18/G13414].

C. MONITORING AND VERIFICATION ROLE

26. As set out at §6.1.9 of the Brief [G10/G7659], the M&V Consultant’s monitoring and verification role is to cover work carried out by the MTRCL during the construction, testing and commissioning phases of the Project and includes the electrical and mechanical systems (such as signalling and rolling stock systems).
27. As required under §6.3.1 of the Brief [G10/G7660] a Monitoring Plan was developed by the M&V Consultant ([K1/K148-179]) and a monitoring team was put in place during the Project, as required under §6.3.2 of the Brief [G10/G7660].
28. In compliance with §6.7.2 of the Brief [G10/7666], the Monitoring Plan [K1/147] was delivered, which was accepted by the HyD (HyD’s letter dated 9.7.2013 [K1/K722]). PYPUN-KD stated in the Monitoring Plan that “*The primary driver to focus our work on this extensive project, with*

numerous contracts, will be to identify the risks that may impact on the cost, programme and public safety.” (Monitoring Plan §2.2.1 [K1/K155]). The rationale for this was the monitoring and verification tasks could become complex and inefficient if the key risks are not focused upon and therefore a very structured approach would be adopted to enable PYPUN-KD to focus on the key risks and to let those drive the monitoring and verification process and programme.

29. In practice, the risk would be assessed according to the flowchart at [K1/K174] (Mak Transcript Day 34/p162/lines 18-22). As explained in §2.2.2 of the Monitoring Plan, the actual management of the Project risks will be undertaken by MTRCL and to enhance the risk management process, PYPUN-KD will review MTRCL's risk register and the contractor's construction risk register to create and update PYPUN-KD's risk register. Whilst the risk register compiled by PYPUN-KD was based upon or derived from MTRCL's risk register (Mak Transcript Day 34/p162/lines 13-15), as provided for in the Monitoring Plan, the risks identified by PYPUN-KD are assessed from the RDO's perspective, which may be different from MTRCL's perspective [K1/K158].
30. By way of example, a typical monthly report delivered by PYPUN-KD to the HyD [K1/K306-K586] would contain a risk register [K1/K584-586] with a breakdown of risk impacts categories and a rating (high, medium, low) for the probability of occurrence or severity respectively.
31. A topic discussed during the questioning of PYPUN-KD's witnesses was the issue of “proactivity” by reference to clause 6.1.7 of the M&V Agreement

[G9/7658]. That clause required PYPUN-KD “to be proactive, working closely with the Director’s Representative and the MTRCL and timely adjust its work plan to suit the progress and programme of the SCL works”. PYPUN-KD was proactive in working with the Director’s Representative and MTRCL. As explained by the witnesses:

- (1) By way of example, even though PYPUN-KD were not responsible for this area, during the cost audit PYPUN-KD’s Mr Vincent Chan identified that some consultants were serving both the MTRCL and the contractor. This was raised in a PCG meeting held on 30.12.2015 [G9/7166-7169] for follow up (Yueng Transcript Day 35/pp10-13).
- (2) The BSRC Team would also act proactively in meeting with MTRCL regularly in working sessions where there would be detailed discussions on the submissions and the designs (Yueng Transcript Day 35/p11), as well as acting collaboratively (Buckland Transcript Day 24/p63).
- (3) The Buildings Department (“**BD**”) did not consider the BSRC Team to have been insufficiently proactive (Lok Transcript Day 38/pp7-10).

D. BSRC TEAM’S ROLE

D1. Overall

32. The BD's role in the approval of designs and supervision plans for the Project was different to common private sector building projects. It was stated in §2.19 of the Brief of the M&V Agreement [G10/7652] that:

“Being a public works project, the SCL is exempted from the Buildings Ordinance (BO). This is similar to the Express Rail Link

which is under construction, but different from most previous railway projects funded by the railway corporations. For the SCL, the Highways Department will resemble the roles of the Building Authority under the BO ... and the building submissions in respect of the SCL would be submitted by MTRCL or its consultants/agents to the Highways Department for vetting and approval to the requirements and standards stipulated under the BO.”

33. For the SCL, HyD would vet and approve building submissions from MTRCL and this vetting and approval team comprised four personnel (a Senior Structural Engineer, a Structural Engineer, a Senior Building Surveyor and a Building Surveyor) who were seconded from the BD to the RDO on a full time basis (“**BO Team**”) (Mak §27 [**K1/K17**]).
34. The function of the BSRC Team was to provide assessments on building submissions submitted by MTRCL and to give input on compliance with building safety standards, to identify deficiencies, if any, in the building submissions and to provide necessary advice to the RDO and the BO Team (Yueng §4 [**K1/K727**]).
35. The BSRC Team would adopt a curtailed check system on fundamental issues which is in line with the BD’s regime for private sector building projects (Yueng §17 [**K1/K729**]; Section 3.1 of the Building Submission Review and Assessment Procedure [**K1/K768**], which was prepared and submitted by PYPUN-KD pursuant to §6.6.2 of the Brief). The assessment standard was in accordance with the Building Ordinance Cap 123 (“**BO**”),

regulations thereunder, the BD's Code of Practice, and the BD's Practice Notes for Authorised Persons ("PNAP").

36. The BSRC Team's work on assessment of building submissions involved the vetting of structural plans and other plans and proposals to ensure compliance with building safety standards (Yueng §18 [K1/K729]). The checks of the plan submissions by the BO Team were on a curtailed basis in accordance with PNAP ADM-19 (Yueng §20 [K1/K730]).
37. The flowchart at [K1/K821] sets out the agreed procedure for vetting plan submissions, which was adopted by PYPUN-KD.
38. The BSRC Team was to focus on two main streams of work, assessing building submissions and checking compliance with building safety standards (Inception Report §5.6.4 [K1/K66]). For this purpose, within the BSRC Team is a building surveying sub-team which carries out compliance checks against building safety standards and also follows up action after the completion of the building works under the Project (Yueng §23 [K1/K731]). The BSRC Team would work on site for checking compliance with building safety standards. This would be done by site monitoring and auditing, on the instructions of the BO Team given from time to time (Yueng §26 [K1/K732]; Lok Pui Fai (1) §§27-30 [H7/H2197]).
39. Further, *ad hoc* site inspections would be conducted for witnessing installations, site tests and other types of inspections.

40. A list of the types of matters to be observed generally during the **site monitoring, site auditing and site inspection** aspects of PYPUN-KD's role are listed out at Yueng §27 [K1/K733]. Specifically in respect of the diaphragm walls and the platform slabs, the particulars of PYPUN-KD's site witnessing, site inspections and site audits are set out at Yueng §29 [K1/K734-735]. A list of the site inspections, site audits and site witnessing done by the BO Team and the BSRC Team is found at [H10/H4791-4796].

D2. Site walks

41. §4.4.2 of the Monitoring Plan [K1/K169] provides that PYPUN-KD would visit, inter alia, the Project site at least once per quarter. It was also stipulated that PYPUN-KD would prepare 2-week advance schedules for planned site visits and suggested the establishment of direct communication between the site monitoring team and MTRCL's site team to enhance the effectiveness of these site visits [K1/K170].
42. Consistent with the arrangement set out in the Monitoring Plan, Mak emphasized during questioning by Commissioner Hansford that the route of the site walks would be proposed by MTRCL and then commented upon by RDO/PYPUN-KD (Mak Transcript Day 34/pp144-145). This is corroborated by Li Tze Wai (Li Transcript Day 36/pp37-38) and Leung Man Ho (Leung Transcript Day 36/pp48-49) who gave evidence to the effect that before the site walks, MTRCL would give a briefing which would require a significant amount of time as to whether there were any special issues about the progress of the Project; if MTRCL told the Government/PYPUN-KD

that there was anything in particular to pay attention to, then the site walk could call on those locations.

43. As mentioned in footnote 4 above, during the construction period, PYPUN-KD had no knowledge of the change in connection detail between the EWL Slab and east diaphragm wall. Yueng explains that PYPUN-KD had not received documents on a design amendment for this alleged change of connection detail (Yueng §59 [K1/K742]). This is consistent with all the Government witnesses involved in handling building submissions received (see for example Lok Pui Fai (1) Section C2 [H7/H2205-2207]).
44. During MTRCL's cross-examination of PYPUN-KD's witnesses, however, it was suggested that during the site walks, PYPUN-KD would have seen workers breaking down parts of the D-Wall (Mak Transcript Day 34/pp138-143). Mr Boulding QC for MTRCL went as far as to suggest that if PYPUN-KD had been complying with the terms of its contract, this is just the thing that one would have expected them to have seen (Mak Transcript Day 34/p143/lines10-13) or that "*skilled people from Pypun, skilled engineers, looking for matters that were affecting programme and cost, perhaps even safety, they must have been going around site with their eyes closed not to have spotted this, mustn't they?*" (Mak Transcript Day 34/p146/lines7-11) or that if PYPUN-KD "*didn't have the chance to discover that, that's because [PYPUN-KD] were not doing [their] job properly*" (Mak Transcript Day 34/p147/lines3-5).
45. This was an unfair and opportunistic line of questioning, unsupported by other evidence. None of MTRCL's own witnesses, nor any witnesses for

that matter, had ever said nor suggested that the works relating to the changed design without BD approval were observed or observable during site walks by the Government and/or PYPUN-KD held once every three months. To the contrary, PYPUN-KD's evidence was that the site walks, which lasted around 1.5 hours, were to allow Government officials to understand the general progress and to get a general feeling of the Project, and these walks did not and were not intended to get into a great level of details in the works (Yueng Transcript Day 35/pp6-7). As to any trimming down of the top of a diaphragm wall, Leung Man Ho Jonathan remarked on the particular circumstances of Contract 1112 (project on an existing podium) and that it is not surprising to see taking down of concrete and not something he would query (Leung Transcript Day 36/pp53-54).

46. It is currently unknown what MTRCL intends to submit ultimately with this line of examination but the Commission will have noted that this line of questioning in terms of what allegedly *should* have (or *could* have) been observed during site walks by MTRCL's counsel finally ceased when multiple witnesses explained that it was MTRCL that took the lead in briefing the Government and PYPUN-KD as to which areas to note during the site walks.
47. It stands to reason that if MTRCL did not inform the Government and PYPUN-KD of particular matters to look out for (for example, the change in design to the D-Wall that had not yet been approved by the BD), then these specific areas would not feature on the briefing for the site walks. In turn, the Government and PYPUN-KD would not be taken to these areas for observation and there can be no suggestion that these were matters that

“*should*” have been observed if the relevant parties were “*doing their job properly*”.

48. The contemporaneous Site Walk Monitoring Reports prepared by PYPUN-KD (example report dated 10.9.2013 [G10/G7880]) list out the attendees, describes the briefing by the MTRCL officer and what will be focused upon on that occasion and contain photographs of the areas visited during the site walk taken by PYPUN-KD to record what was seen on the walk. Nowhere is it shown in any of the reports that during the site walks, the change of D-Wall design was notified by MTRCL.

D3. Quality Supervision Plan (“QSP”) for couplers⁶

49. The Commission will now be very familiar with the QSPs and site supervision plans. Specifically, Yueng was asked questions about the QSP for couplers. Yueng explained that whilst the use of couplers in Hong Kong is very common, especially for large-scale civil contracts (Yueng Transcript day 35/p8/lines 18 – p9/line6), there was a QSP in place for them since they were proprietary products and some would have threads on the rebars. Different brands would have different threading processes. There would be different specifications and methodologies for use. Different couplers would have different inspection methods and equipment so the QSP would be tailored in respect of different coupler suppliers. As different contractors may be using different branded couplers, they would need specific installation and inspection methods.

⁶ BD’s acceptance letter dated 25.6.2014 [B5/TS30714] and Appendix VI [B5/TS30725] at [TS30726]

50. Yueng was in the best position to discuss PYPUN-KD's understanding as to why there was a QSP for couplers as this was within the remit of the BSRC Team (Mak Transcript day 34/p112-113). The existence of QSPs for couplers was not, as had been suggested to Mak, because "*the couplers had been singled out as a potential risk area*" (Mr Ian Pennicott, SC's cross-examination of Mak (Mak Transcript day 34/p115/lines22-25)).

E. PYPUN-KD'S RECOMMENDATIONS

51. PYPUN-KD has made several forward-looking recommendations that the Commission may wish to consider.
52. First, an additional hold point could be added for a joint inspection by MTRCL and its contractor for the exposed couplers before connecting steel reinforcement bars, with proper records to be kept on the inspection process and result. This would go towards ensuring that the couplers have been properly installed, and the records would make it easier to handle any compensation or remedial works proposals as well as serve as an "as-built" record of the couplers (Mak §68-69 [K1/K29]).
53. Second, in terms of ensuring public safety during the construction phase, the use of real-time monitoring and notification systems can be extended to monitor ground and buildings that may be affected during the deep excavation works (Mak §71 [K1/K30]).

54. Third, a quality assurance auditor could be appointed on the site supervision team to act as a means of communication between interested parties, to monitor compliance by the contractor and to take corrective action if deviation from procedure is found (Mak §73 [K1/K30]).
55. Fourth, an electronic platform for site inspection / supervision records could be introduced (Mak §74 [K1/K30]). This could be readily accessible from mobile devices and can provide a convenient, real time and traceable (auditable) communication record platform.
56. Fifth, an independent quality control advisor could be introduced; this person could independently review the existing quality assurance systems and procedures and its suitability for the specific task or project (Mak §75 [K1/K31]).
57. PYPUN-KD views its recommendations as being consistent with and complementary to the recommendations proposed by Mr Steve Rowsell⁷ and Mr Steve Huyghe, the Commission and the MTRCL's experts on project management, respectively.

⁷ Mr Rowsell has discussed the role of the Monitoring and Verification Consultant in his expert report (§§122-128 [pp69-71]), and he mentioned that PYPUN-KD's role excluded assurance on quality procedures (see Rowsell Transcript Day 39/p113). Mr Rowsell is making comments and observations on the M&V Agreement generally, as a matter of contractual arrangement. Mr Rowsell has provided certain views as to potential changes that could be made going forward to the contract and offered suggestions on how the monitoring and verification tasks may be further improved in the future.

F. CONCLUDING REMARKS

58. By reason of the above, though there may be proper suggestions as to how there might be improvements in future projects achieved in part through contractual changes, there is nothing in respect of PYPUN-KD's performance of the M&V Agreement which would justify the raising of criticism against PYPUN-KD.
59. PYPUN-KD has endeavoured to assist the Commission in this Inquiry to the best of its ability by the provision of witness statements, documents and evidence through its witnesses, as well as by making recommendations. PYPUN-KD respectfully invites the Commission to consider adopting some of its proposals and recommendations in its report.

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