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<p>1 Thursday, 23 January 2020</p> <p>2 (9.35 am)</p> <p>3 Closing statement by MR CHOW (continued)</p> <p>4 MR CHOW: Good morning, Mr Chairman. Good morning,</p> <p>5 Prof Hansford. I'm sorry that I have to stand up again.</p> <p>6 There is one short matter I would like to follow up</p> <p>7 on this morning, and it won't take more than five</p> <p>8 minutes, I can assure you.</p> <p>9 Sir, you will recall that yesterday we looked at one</p> <p>10 document which shows the dimension of the couplers and</p> <p>11 the threaded bar. If you look at that document -- it is</p> <p>12 in bundle A1/595, and Prof Hansford spotted that</p> <p>13 according to that particular document, it is possible</p> <p>14 that we may find a threaded bar with negative tolerance.</p> <p>15 If I may just point out to the Commission that among</p> <p>16 the same technical and quality assurance manual, just</p> <p>17 a few pages before, at page 592, we have another,</p> <p>18 similar figure which shows that the tolerance should be</p> <p>19 positive for both sides of the bar.</p> <p>20 Also, if we look at another document, which is part</p> <p>21 of the quality supervision plan, at bundle H9/4280 --</p> <p>22 this is a similar document, and if we go down to the</p> <p>23 bottom, the notes, line 3, which confirms that the BOSA</p> <p>24 threading machines are always programmed by default to</p> <p>25 allow a positive tolerance on the thread length.</p>	<p>1 serious problem with the management of Leighton, because</p> <p>2 if this is not a typo and the workers were meant to</p> <p>3 choose a threaded bar with a negative tolerance to screw</p> <p>4 into the couplers, then the guidelines for the visual</p> <p>5 inspection would be wrong because in those circumstances</p> <p>6 there should not be any thread exposed.</p> <p>7 So, in any case, it is unsatisfactory and Leighton</p> <p>8 should have picked this up before the document is</p> <p>9 submitted or used for the training of the workers. This</p> <p>10 is all I am trying to say. We are not here to defend</p> <p>11 Leighton or BOSA. We just point out there are perhaps</p> <p>12 other documents which may help the Commission to make</p> <p>13 its findings.</p> <p>14 This is all I intended to say.</p> <p>15 CHAIRMAN: All right. Thank you very much. That helps.</p> <p>16 If I might just mention one thing. It's a question,</p> <p>17 really, for Mr Khaw, and it arises by way of a wrap-up</p> <p>18 from individual questions put yesterday. Would we be</p> <p>19 correct if we were to say that on the basis that the</p> <p>20 suitable measures are completed satisfactorily, and any</p> <p>21 outstanding work is also completed satisfactorily, then,</p> <p>22 as far as government is concerned, there is nothing</p> <p>23 further required by way of construction measures for the</p> <p>24 station and its environs, and it should then lead</p> <p>25 speedily to commissioning?</p>
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<p>1 Also, you will recall that we have oral evidence</p> <p>2 from Mr Neil Ng of MTR and also from Mr Paulino Lim</p> <p>3 which confirms that the tolerance is always positive.</p> <p>4 So it is my submission that the one that we see, the</p> <p>5 first document that we looked at, showing a negative</p> <p>6 tolerance, is probably a typo. In itself, it is</p> <p>7 inherently improbable because according to that</p> <p>8 document, if that is what BOSA intended, then it cannot</p> <p>9 be operated in reality on the site, because we can't</p> <p>10 expect a worker on site to make sure that the</p> <p>11 continuation bar has to be with a negative tolerance.</p> <p>12 As correctly pointed out by Mr Chairman, on site, this</p> <p>13 tolerance is so tiny, in the site environment, no one</p> <p>14 would be able to measure each and every time, to make</p> <p>15 sure that they have to pick a continuation bar with</p> <p>16 a negative tolerance before they screw it in.</p> <p>17 COMMISSIONER HANSFORD: Mr Chow, we hear what you say. It</p> <p>18 may be a typo, it may not be a typo. But in any case,</p> <p>19 there seems to be some contradiction in BOSA's document.</p> <p>20 I think that's the point we can take: there's</p> <p>21 a contradiction in BOSA's document.</p> <p>22 MR CHOW: Absolutely, Prof Hansford. If it is a typo, then</p> <p>23 of course Leighton should have picked it up; it should</p> <p>24 not have submitted this as part of the overall document.</p> <p>25 If it is not a typo, then we may have an even more</p>	<p>1 MR KHAW: Yes.</p> <p>2 CHAIRMAN: Good. Thank you very much.</p> <p>3 COMMISSIONER HANSFORD: Sorry, just to complete that -- so</p> <p>4 therefore, by definition, it would be safe and fit for</p> <p>5 purpose?</p> <p>6 MR KHAW: Subject to the fulfilment of the conditions</p> <p>7 outlined --</p> <p>8 CHAIRMAN: Yes, those two conditions I put in.</p> <p>9 MR KHAW: Of course, yes.</p> <p>10 CHAIRMAN: Thank you very much, Mr Khaw.</p> <p>11 Closing statement by MR CLAYTON</p> <p>12 MR CLAYTON: May it please the Commission, Pypun's written</p> <p>13 closing deals with and considers all relevant matters in</p> <p>14 relation to Pypun's performance. I do not intend to</p> <p>15 repeat the detail of what is said in the written</p> <p>16 closing. After emphasising some of the points and</p> <p>17 giving references to them, I would like to look at, in</p> <p>18 oral closing, what the M&V consultant's role should be</p> <p>19 and in particular in light of the recommendations from</p> <p>20 Mr Rowsell, and in addition, obviously, to answer any</p> <p>21 questions the Commission might have.</p> <p>22 Government, in its oral closing, made two points</p> <p>23 relevant to Pypun. The first was really there's no need</p> <p>24 for the Commission to decide on whether quality checking</p> <p>25 was within the ambit of the M&V agreement and they</p>

Page 5	<p>1 weren't going to debate it in oral closing. We agree 2 with that, for the reasons given in paragraph 11 of our 3 written closing submissions, and I'll come on to that 4 and just mention those in part of the identification 5 I give in a moment. 6 The second point being -- was looking at three 7 paragraphs in Mr Rowsell's report, paragraphs 113, 114 8 and 123. They said they were relevant to the matters 9 which we raised in our closing. 10 The first point is 113 and 114 actually deal with 11 the scope of the obligations, which I thought government 12 was going to comment on, but we've actually dealt with 13 that. I discussed that with Mr Rowsell, those 14 particular paragraphs, on COI 2 -- and I'm not going to 15 go to the transcript, if I can just give you the 16 reference -- Day 18, page 89:9 to page 92:8 was where we 17 dealt with paragraphs 113 and 114, and the general 18 comments that we had and the interrelationship between 19 cost and programme and virtually most matters on 20 construction sites, we specifically dealt with at 21 paragraphs 17 of our written closing, where Mr Rowsell's 22 oral evidence I've just cited was actually identified. 23 The only other paragraph that was mentioned was 24 paragraph 123 of Mr Rowsell's report. Again, we 25 cross-examined Mr Rowsell, we dealt with that in oral</p>	Page 7	<p>1 like to emphasise some specific points that are dealt 2 with in the closing. The closing deals with the 3 significant difference between the wording in the 4 present M&V agreement and the one relating to the 5 earlier XRL project. Primarily at paragraphs 9 and 6 18(7) of the closing, it is submitted that the wording 7 change can only have been intended to reduce scope. The 8 removal of the word "quality" after "cost, programme and 9 safety" and the change of the word "safety" to "public 10 safety", the reduction in scope meaning that quality 11 checking was not an obligation under the M&V agreement. 12 The separate team then provided under the M&V 13 agreement for the XRL project was not provided under the 14 M&V agreement and the whole process would be less 15 costly. 16 We deal generally the relevant obligations under the 17 M&V agreement of the SCL project insofar as it's 18 relevant to the Commission's consideration at section II 19 of the closing. The obligations are, in my submission, 20 clear, and in any event, in the light of the parties' 21 conduct over the last seven years, since the inception 22 of the M&V agreement, it is difficult to see how 23 an estoppel would not arise, which we have also 24 mentioned at footnote 7 of the closing. However, as 25 already stated orally and stated in paragraph 11 of the</p>
Page 6	<p>1 evidence with Mr Rowsell. That's COI 2, Day 18, 2 page 107, line 9, to 109, line 2. And in 3 cross-examination Mr Rowsell made it clear that what he 4 was dealing with there was the need for others to inform 5 the M&V consultant when defects arise so that they could 6 then look at those and see whether they affected cost 7 and programme and how to take the matter forward, and he 8 wasn't suggesting, in that particular -- as he 9 explained, that there was basically any failure by Pypun 10 to act proactively in that regard, and obviously that 11 related to one of the recommendations he's actually 12 made, I think recommendation F, but we'll look at that 13 in due course. 14 So those were the only points raised by government 15 in relation to Pypun's closing and I just thought 16 I ought to deal with those and identify the evidence 17 where they were dealt with by Mr Rowsell in his oral 18 evidence. 19 Returning to the written closing, it deals 20 inter alia with the evidence relevant to Pypun's 21 performance, in particular that there is nothing that 22 would justify any criticism or adverse comment in 23 relation to that performance, in my respectful 24 submission. 25 Without going to and reading the closing, I'd just</p>	Page 8	<p>1 closing, the Commission does not, it is submitted, need 2 to form a view on the actual responsibilities originally 3 under the agreement, in the light of how the parties 4 conducted themselves over the seven years. Both parties 5 have operated over the seven years on the footing that 6 it was not Pypun's responsibility to carry out 7 monitoring or checking of quality or inspection of the 8 RISC forms in that regard. 9 For the RISC forms, since the government has been 10 aware in mid-2018 that there was a significant failure 11 to produce them, no criticism has been levelled, in 12 correspondence or otherwise, for failing to spot this in 13 any audit at Pypun. It has only been asked to look at 14 them. Even now, under contract 1112 under supplementary 15 agreements, and not under any of the contracts. That's 16 dealt with at paragraphs 9, 17, 19, 22, 23 and 27 to 33 17 of our closing. 18 Also noteworthy in those paragraphs and noted is the 19 fact that Mr Leung, the one government witness who might 20 now be saying that there was an obligation on Pypun to 21 look at RISC forms, was the person who received MTRC's 22 letter of 28 June 2018, containing a list of 113 NCRs 23 which had been opened in April 2018 and weren't closed 24 out by June 2018 in relation to missing RISC forms. 25 There was then exchanges and correspondence between</p>

<p style="text-align: right;">Page 9</p> <p>1 the Highways Department and MTRCL complaining about the 2 missing RISC forms. There was nothing suggesting to 3 Pypun that it should have been looking at them, that it 4 failed in its audits to do that, or in fact that it 5 should be looking at them in relation to other 6 contracts. That we have dealt with at paragraphs 30 and 7 32 of the closing. 8 On Pypun's work generally, the point is made at 9 paragraph 15 of the closing that Pypun's function was to 10 provide professional services to a professional client. 11 The process was through collaboration and discussion on 12 an almost daily basis. As the evidence identified in 13 the closing shows, this collaboration meant that each 14 aspect of the works to be performed were discussed and 15 agreed with the professionals from government. Plainly 16 Pypun thought it was properly and fully performing its 17 duties, and government's representatives must have also, 18 otherwise they would inevitably have raised the issue 19 and repeatedly. 20 In such circumstances, even where there is some 21 original obligation with regard to quality checking, 22 which in my respectful submission there wasn't, no 23 criticism can properly be levelled at Pypun for 24 operating as it did. This applies equally to its 25 performance in respect of what "public safety" meant and</p>	<p style="text-align: right;">Page 11</p> <p>1 that's why public safety was for the same thing, taking 2 quality out. The team that was going to do that was no 3 longer required so there was one less team, and 4 obviously there were costs consequences in relation to 5 that. 6 COMMISSIONER HANSFORD: Would I be right, public safety is 7 more related to temporary works as opposed to permanent 8 works? 9 MR CLAYTON: Correct, but it is basically -- and one can see 10 and it's been explained what was actually carried out, 11 and again discussed on an almost daily basis, no 12 objection during the course of the project, actually set 13 out in the inception report, as we showed, which 14 obviously went to the HyD and they didn't comment 15 adversely on, and then that was what happened during the 16 discussions and during the inspections with everybody 17 during the seven years. 18 Then in section 3 of Pypun's closing, it addresses 19 what has happened since the inception of the M&V 20 agreement, to make good the proposition that the parties 21 have acted as we say they have. I note that there has 22 been no suggestion from government in closing that the 23 evidence doesn't show what we say it obviously does. 24 So far as Mr Rowsell's evidence is concerned, he 25 fairly accepted that those involved in and monitoring</p>
<p style="text-align: right;">Page 10</p> <p>1 the public safety aspect, as stated in the M&V 2 agreement, and that's dealt with in paragraph 18 of the 3 closing. As mentioned, this was also a term which was 4 changed from the earlier XRL project, where "safety" was 5 used rather than "public safety". 6 CHAIRMAN: So Pypun didn't have any obligations 7 contractually, by implication or directly stated, to 8 concern themselves with quality of work, safety of work, 9 or the work? 10 MR CLAYTON: Well, safety it did in relation to public 11 safety during the -- we dealt with in paragraph 18 it 12 was public safety during the project, the project being 13 the construction and commissioning. So there was lots 14 of checking of monitoring equipment, to see whether 15 there were vibrations, to see whether there were 16 problems on roads, in buildings, that sort of thing. 17 CHAIRMAN: Okay. 18 MR CLAYTON: So basically it was the public safety during 19 the project, and as I say we have specifically dealt 20 with it in paragraph 18. 21 COMMISSIONER HANSFORD: But not whether the finished works 22 were safe. 23 MR CLAYTON: Yes. That's really the distinction. And 24 that's why I think public safety was included in there, 25 because that would be effectively a quality check, and</p>	<p style="text-align: right;">Page 12</p> <p>1 Pypun's performance, and in particular in the quarterly 2 performance reports, would be in a better position than 3 he was to opine on whether there had been any failings 4 by Pypun in its performance. We identified Mr Rowsell's 5 evidence on this at paragraphs 9 and 22(4) of closing. 6 Also, at paragraph 43 of the closing, we quote from 7 Mr Rowsell's report, where he said, and I quote, he had 8 "no doubt that [Pypun] performed [their] services 9 diligently and professionally." 10 The closing then deals with specific matters Pypun 11 were asked to address in COI 2 and in addition with the 12 Commission's initial general comments in the interim 13 report at section 4 of the closing, just to identify 14 where that is. 15 With that brief introduction to Pypun's written 16 closing, I would then like to address what the M&V 17 consultant's role should be, looking at the 18 recommendations made by Mr Rowsell. The one area where 19 it's respectfully submitted unarguably a change should 20 take place from that under the M&V agreement is for 21 quality monitoring and checking. This should be 22 re-introduced, we would say, because it wasn't there in 23 the first place, into the obligation expected of such 24 consultant, and this would be achieved by changing the 25 wording back to that in the XRL contracts for future</p>

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<p>1 such agreements. 2 As already submitted, it was not an obligation Pypun 3 undertook under the M&V agreement for the SCL project. 4 I'd then like to look at the recommendations 5 Mr Rowsell makes in his report, all of which, I should 6 make clear, are supported by Pypun. These are at 7 paragraph 169 of his report of 23 August 2019. That's 8 in bundle ER(COI2), and the internal pagination to his 9 report is page 67. Can we go to that, please. It's 10 paragraph 169. I'm most obliged. 11 (a) then is: 12 "The M&V role should include construction quality 13 and checks on construction records as failures in these 14 areas can impact adversely on cost, programme and 15 safety." 16 This is the point I have just made, the need for 17 quality checking. (b), also agreed -- this is: 18 "The government should review its procedures for 19 satisfying itself that the M&V consultant has sufficient 20 resource capacity and flexibility ..." 21 It's also agreed that this should be looked at. As 22 far as Pypun is concerned the performance report show 23 that resources were monitored during the works and found 24 to be adequate. The point is dealt with at 25 paragraph 26(6) of our written closing.</p>	<p>1 (e) and (f): 2 "The government should ensure that M&V consultants 3 treat interface risks as potential key risks as part of 4 their risk-based approach to the identification of 5 review priorities. 6 The government should consider ways of ensuring that 7 M&V consultants are advised promptly of construction 8 problems and defective work ..." 9 Fully in agreement with both of those. As far as 10 (e) is concerned, as was the evidence, this was carried 11 out by Pypun, and again we have dealt with that in our 12 written closing. Really, I just wanted to go through 13 those and set out Pypun's position that it's fully in 14 agreement with those recommendations. 15 Unless there are specific questions that the 16 Commission has of me, those are the matters I wish to 17 raise in oral closing. 18 COMMISSIONER HANSFORD: If we can turn, please, to 19 paragraph 42 of your closing submission. 20 You make a comment regarding the Commission's points 21 relating to Pypun in its interim report. 22 MR CLAYTON: We do, yes. 23 COMMISSIONER HANSFORD: I think it might be just worth 24 elaborating, please, particularly on subparagraphs (2) 25 and (3).</p>
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<p>1 Additionally, Pypun has been asked to carry out 2 a number of additional works recently, as the evidence 3 shows, including a full analysis of certain RISC forms. 4 No suggestion has been made that these exercises were 5 not carried out satisfactorily and timeously and this in 6 itself shows that adequate resources were available, in 7 my submission. 8 Sub-recommendation (c): 9 "The government should review its commercial 10 arrangements ..." 11 This speaks for itself and is accepted as obviously 12 sensible. 13 Subparagraph (d), if we could go on, please, to the 14 next page: 15 "The government should consider on major complex 16 contracts whether there could be benefit in appointing 17 more than one M&V consultant to provide more flexibility 18 and resilience of resource in delivering requirements." 19 As already said, Pypun supports all of these, and 20 this is obviously something government should look at. 21 I would, however, add a word of caution. The Commission 22 has heard evidence in relation to interface risks at 23 contractor level. There's a danger that (d) might 24 create an interface risk at monitoring level. That 25 really should be borne in mind in any consideration.</p>	<p>1 MR CLAYTON: "the proposition that Pypun should have carried 2 out surprise checks. This is one of the ... examples 3 ... Pypun's performance given by the Commission ... It 4 has now been addressed from a contractual standpoint at 5 paragraphs 20 and 21 ... The checks were carried out not 6 just by Pypun, but together with the BO team ... As 7 mentioned above, all aspects of the work were discussed 8 and agreed between Pypun and the government's ... What 9 needs to happen it is respectfully submitted, if there 10 are sensibly to be surprise checks ..." 11 Presumably, it's this particular part. 12 COMMISSIONER HANSFORD: It is, yes. 13 MR CLAYTON: "... in relation to the areas or of documents, 14 is for government under the government with MTRCL to 15 have the right to make such inspections or audits ... 16 without informing MTRCL what is to be looked at in any 17 such inspection or audit. It is not for Pypun to 18 suggest that government should breach EA3 ..." 19 I presume that's what you are particularly 20 interested in. 21 Under EA3, as we have set out in 20 and 21, MTRC 22 were to be informed in advance, including of the matters 23 that there was going to be an inspection or an audit of. 24 So if you are saying, "Don't do that, go to site, try 25 and get on there", then basically there's a potential</p>

Page 17	<p>1 breach in relation to the obligations government have 2 under EA3, and we deal with that in 20 and 21. That was 3 the only point, sir, that I was making. 4 So basically, if the obligation between government 5 and MTRC under EA3 was to give advance information, and 6 you don't do that, and you arrive on site in surprise, 7 you are suggesting potentially a breach of government's 8 contract under EA3. It was that small point. 9 In relation to (3): 10 "the Commission also commented in the interim report 11 Pypun's obligation to act proactively. This has been 12 addressed at paragraph 22 ..." 13 So again I deal with it in paragraph 22, where 14 basically I've said, and we said in opening, that 15 really, if you wanted to see whether someone acted 16 proactively, you really need to look at a particular 17 situation because it might be different in given 18 circumstances, and in actual fact advice might have been 19 given to the BO team or to HyD, "Look, we need to do 20 this" or "We need to do that" and it might not actually 21 have been followed. 22 That was one point that Mr Rowsell actually said, 23 which we identify specifically I think in paragraph 22, 24 where he gave his evidence in relation to that, if I can 25 just quickly ...</p>	Page 19	<p>1 But you will not be surprised to hear that I do want 2 to emphasise what appear to us to be certain important 3 points, and I'd like to start, if I may, with our 4 closing submissions for the further expert evidence in 5 the Original Inquiry. It seemed to us that the 6 appropriate starting point was the issue of safety and 7 fitness for purpose of the as-constructed works. 8 Indeed, it's clear from the terms of reference that 9 the Commission's principal concern is, one might think 10 not surprisingly, public safety. Indeed, as summarised 11 in the preface to the interim report, it's the 12 Commission's primary objective to determine whether the 13 as-constructed works are firstly fit for purpose, and 14 I think as you say, put more directly, whether they were 15 safe. 16 Now, MTR's first submissions for the Original 17 Inquiry involve a consideration of both the holistic 18 proposal and indeed the holistic report. You will 19 probably be aware that the holistic proposal was 20 produced in December 2018, and its purpose was to verify 21 the as-constructed condition and workmanship quality of 22 the Hung Hom Extension, and importantly to provide 23 assurance on the structural conditions of the works. 24 The holistic report was submitted to RDO on 18 July 25 2019.</p>
Page 18	<p>1 COMMISSIONER HANSFORD: Yes, 22(3). 2 MR CLAYTON: Yes, I'm obliged. He was really saying that 3 where he actually said, "You need to know", or words to 4 this effect, because Pypun might have been advising to 5 do something in a particular circumstance. Unless you 6 actually knew whether that were the case or not, you 7 wouldn't be in a position really to talk about whether 8 they had acted proactively or not. 9 Really, those are the points in relation to those. 10 Sir, unless I can help the Commission further, those are 11 my submissions. 12 COMMISSIONER HANSFORD: That's fine. Thank you. 13 CHAIRMAN: Thank you very much. 14 Closing statement by MR BOULDING 15 MR BOULDING: May it please you, Chairman. 16 CHAIRMAN: Yes. 17 MR BOULDING: May it please you, Prof Hansford. I'd like to 18 make some closing submissions on behalf of MTR, if 19 I may. Like Mr Clayton, I do not propose to take you 20 through my submissions on a paragraph-by-paragraph 21 basis, telling you what's in the paragraphs, because 22 I trust you will agree that they both contain an awful 23 lot of detailed reasoning and references and I trust you 24 will be able to do that for yourselves in the leisure of 25 your office or indeed elsewhere.</p>	Page 20	<p>1 Now, the purpose of the holistic report is to ensure 2 that the as-constructed works complied with the relevant 3 code, statutory and contractual requirements -- 4 I emphasise that: code, statutory and contractual 5 requirements -- to address the following issues which 6 were identified in the holistic report. Firstly, the 7 allegations of rebar being cut in the EWL slab, and you 8 had my submissions on the factual evidence some quite 9 considerable time ago on that. But secondly, Leighton's 10 adopting revised slab to D-wall construction details; we 11 had a lot of evidence about that, didn't we? 12 Now, the holistic report proposed that certain 13 actions be carried out to cater for the poor workmanship 14 issues found, and that included additional workmanship 15 issues such as honeycombing and those workmanship issues 16 associated with the shear links. The actions were 17 designed to achieve the safety levels required in the 18 Hong Kong Code of Practice for meeting the requirements 19 of the BO, the Buildings Ordinance, and the established 20 good practice of engineering design. But it didn't stop 21 there because they were also designed to comply with the 22 New Works Design Standards Manual. We all know, don't 23 we, that these works are called "suitable measures"? 24 And as the government has made clear at section B4 25 of its COI 1 closing submissions, at paragraph 74,</p>

Page 21	<p>1 absent the suitable measures, the as-constructed works 2 cannot be put into operation.</p> <p>3 In respect of the matters set out in the holistic 4 report, the Commission I'm sure will be comforted by the 5 fact that there is an overwhelming, unqualified majority 6 view from McQuillan, Glover and Southward that the 7 as-constructed works are both safe and fit for purpose. 8 Safe and fit for purpose.</p> <p>9 Lau, the government's expert, disagrees. His 10 dissenting opinion may largely -- although we have to 11 accept perhaps not entirely -- be explained by his 12 insistence on equating code, statutory and contractual 13 compliance on the one hand and safety and fitness for 14 purpose on the other. And the difference between 15 compliance on the one hand and safety and fitness for 16 purpose on the other was explained, I trust you will 17 recall, by Dr Glover, the MTR's structural engineering 18 expert, and this is dealt with in detail at paragraph 9 19 of our COI 1 closing submissions.</p> <p>20 But it doesn't stop there, because Atkins' COI 1 21 closing submissions at paragraph 13.3 -- there, Atkins, 22 in the context of using in-situ concrete strength, draw 23 a distinction between assessing the as-constructed works 24 forensically and on the basis of compliance. And for 25 compliance it's said that one has to use the designed</p>	Page 23	<p>1 formula together with Wells' methodology to confirm the 2 reliability of the Arups analysis. You will also recall 3 your own expert, Don McQuillan, said that statistics did 4 not help him, and he adopted his own approach.</p> <p>5 Now, MTR notes Leighton's position as set out at 6 paragraph 16 of its COI 1 closing, namely that it 7 acknowledges that the Commission has indicated it's not 8 concerned with statutory and regulatory legal 9 requirements in terms of compliance. But it has to be 10 noted, and I deal with it, that at paragraph 17 of its 11 COI 1 closing submissions, Leighton invites the 12 Commission to withdraw its interim finding that the 13 structure does not satisfy all aspects of the 14 contract 1112 requirements. That's interim report 15 paragraph 481.</p> <p>16 But we invite you to note, or indeed more accurately 17 perhaps recall, that paragraph 481 of the interim report 18 does not make any determination on contractual liability 19 and merely says that the works were not executed in 20 accordance with contract 1112 without going into 21 specifics, eg who breached what and when and why.</p> <p>22 MTR disagrees, and here we are in league with 23 Mr Pennicott, counsel for the Commission -- see 24 paragraphs 73 to 74 of his COI 1 closing submissions -- 25 we disagree with the propositions that the findings in</p>
Page 22	<p>1 strength, but for assessing the as-constructed works 2 forensically Atkins say that one can use actual 3 strengths. More of that later.</p> <p>4 What about the approach taken by MTR in its further 5 closing submissions for COI 1? Well, essentially, our 6 approach is set out in paragraphs 13 and 14 of our 7 closing submissions. As you know, you directed us to 8 file structural engineering expert evidence in response 9 to Mr Southward's COI 1 report. But where, as here, 10 Glover agrees with Southward on the important primary 11 conclusion that the as-built works are safe and fit for 12 purpose, MTR does not regard it necessary or productive 13 to address at any length the differences between Glover 14 and Southward, or for that matter Don McQuillan, in 15 terms of how they each arrived at their conclusion. The 16 important thing is that they all conclude: safe and fit 17 for purpose.</p> <p>18 In the light of the structural experts' evidence on 19 coupler connections MTR also does not regard the 20 differences between the two statistical experts, Wells 21 for Leighton and Yin for the government, as significant 22 on the important issue of whether the as-constructed 23 works are safe and fit for purpose. Indeed, in that 24 context, you will remember that Dr Glover used Arup's 25 binomial analysis and a reality check using Yin's</p>	Page 24	<p>1 the interim report do not justify the conclusion that 2 the D-wall and the platform slabs were not executed in 3 accordance with contract 1112.</p> <p>4 Indeed, we would say that terms of reference 5 paragraph (a)(iii) mandates the Commission to ascertain 6 whether the works were in fact executed in accordance 7 with contract 1112, and moreover it's plain, we would 8 submit, that paragraphs (b) and (c) of the terms of 9 reference are, to a large extent, related to the term of 10 reference set out in paragraph (a)(iii).</p> <p>11 So there we are. That's by way of an introduction. 12 But I want to say a little bit more, if I may, about 13 compliance versus safety and fitness for purpose. Now, 14 each of Southward, Glover and McQuillan are in fact of 15 the view that a structure can be safe and fit for 16 purpose, but, I emphasis, not achieve what we all refer 17 to now as compliance.</p> <p>18 Prof Lau's attempt to relink compliance with safety 19 and fitness for purpose is perhaps not surprising, as 20 it's also government's position. See paragraph 34 of 21 Lau's COI 1 report. But we would submit that Lau's 22 insistence on relinking compliance to safety and fitness 23 for purpose has given rise to at least two problems so 24 far as his evidence is concerned.</p> <p>25 First of all, we say that he's driven to resort --</p>

Page 25	<p>1 exclusively, it seems to us -- to qualitative 2 statements. In fact, this was explained by Dr Glover in 3 his oral evidence. That's transcript Day 10, pages 61, 4 line 5, to page 62, line 15. I don't need to turn that 5 up. That reference is in our final closing submissions. 6 But I've given it again today for the benefit of the 7 transcript. 8 The second problem is that Lau's insistence on 9 relinking safety with compliance has given rise to 10 an important difference in terms of methodology between 11 himself and the other three structural engineering 12 experts. We've identified that and dealt with that at 13 our COI 1 closing submissions, paragraphs 39 to 46, by 14 using, as examples only, in-situ concrete strength and 15 soil stiffness. 16 But in addition to the above two points concerning 17 Lau's evidence, on the issue of differences in terms of 18 methodology, MTR believes it's appropriate to deal with 19 government's COI 1 closing submissions -- that's 20 paragraph 36 -- where government contends, we submit 21 incorrectly, that Southward, Glover and McQuillan have 22 considered that lower levels of safety factor could be 23 applied in the assessment. 24 We say that that is simply wrong. Government's 25 contention ignores, amongst other things, Glover's clear</p>	Page 27	<p>1 of two threads fully exposed and 37 millimetres of 2 engagement measured by PAUT, or I think 40 millimetres 3 measured by direct measurement. 4 In this context, I point out that the agreement 5 between McQuillan, Glover and Southward is set out in 6 both the joint memorandum and for good measure recorded 7 in MTR's COI 1 closing submissions at paragraph 52. 8 This is an important agreement. They say, they 9 agree, on the basis of all the testing carried out to 10 date, a partially engaged coupler assembly with 11 a minimum engagement of seven threads, that's 12 32 millimetres, satisfies the strength criteria. They 13 also agree that anything less than a full butt-to-butt 14 will not pass the permanent elongation test. For 15 example, two threads exposed will not pass the test. 16 Then the last limb of their agreement is that 17 Highways' acceptance criteria, based on BOSA's criteria, 18 therefore unwittingly sanctioned the use of partially 19 engaged coupler assemblies, because anything less than 20 a locked, full butt-to-butt coupler assembly will fail 21 the permanent elongation test. 22 What about Lau's view on this? We saw some 23 references in the transcript yesterday, didn't we, when 24 Mr Chow was making his submissions? He's of the view, 25 Lau is of the view, that only fully engaged couplers,</p>
Page 26	<p>1 evidence on strength reserve, and we would say in 2 particular his evidence that the factor of safety of the 3 as-constructed works are higher than the design. I see 4 Prof Hansford nodding his head; always a good sign. 5 If I could move on to coupler connection and say 6 something about coupler connections. For the reasons 7 set out in section 4 of the holistic report, and 8 notwithstanding the reduction factors of 36.6 per cent 9 and 33.2 per cent for the EWL and NSL slabs 10 respectively, the Atkins stage 3 structural assessment 11 reveals that, firstly, as far as coupler connections are 12 concerned, no suitable measures are required for areas B 13 and C for the purpose of the holistic report. And 14 likewise, notwithstanding the reduction factor of 15 68.3 per cent in the EWL area A, Hong Kong Coliseum slab 16 to D-wall connections, the Atkins stage 3 structural 17 assessment reveals that as far as coupler connections at 18 the slab to D-wall connections are concerned, only 19 area A requires suitable measures for the purpose of the 20 holistic report. 21 And these reduction factors, all three of these 22 reduction factors, were based on the acceptance criteria 23 for the couplers as set out in paragraph 3.3.13 of the 24 holistic report, and we heard quite a lot about those 25 yesterday from Mr Chow, and of course that's a maximum</p>	Page 28	<p>1 ie full butt-to-butt and locked, should be used in the 2 structural assessment. There I'm actually quoting from 3 ER2/18.3. But as pointed out in paragraph 46 of 4 government's COI 1 closing, Lau's only concern -- only 5 concern -- is that a failure of the permanent elongation 6 test may lead to a crack width in excess of 7 0.3 millimetres, that being the width which is allowed 8 under the code. The reason that's his only concern is 9 because basically government have now accepted that 10 partially engaged couplers are okay from a strength 11 perspective. 12 Now, what do we say about this? We, as MTR, 13 essentially make three points. First of all, the 14 acceptance criteria in the holistic report, that is 15 a maximum of only two threads exposed and 16 37 millimetres' engagement measured by PAUT or 17 40 millimetres by direct measurement, that's only 18 a deemed acceptance criteria. 19 Second point. The permanent elongation test has 20 already been taken into account in Atkins' stage 3 21 structural assessment. 22 Thirdly, last but not least, the as-built structures 23 are in a benign environment. 24 I'd like to say a little bit more about each of 25 those points in turn, because they do appear to us to be</p>

Page 29	<p>1 rather important. First of all, the acceptance criteria</p> <p>2 in the holistic report are only a deemed acceptance</p> <p>3 criteria. For the detail of this, please see our COI 1</p> <p>4 closing submissions at paragraphs 56 to 60. But, as we</p> <p>5 say, as one sees in paragraphs 53 to 59 of government's</p> <p>6 COI 1 closing submission, the government now accepts,</p> <p>7 contrary to Lau's position, firstly, the butt-to-butt</p> <p>8 connection is not part of the acceptance criteria for</p> <p>9 coupler connections under the assessment carried out in</p> <p>10 the holistic report. That's because it's</p> <p>11 37 millimetres, et cetera, et cetera.</p> <p>12 Now, under the acceptance criteria, partially</p> <p>13 engaged couplers may also be treated as compliant</p> <p>14 coupler connections. They are the two points to be</p> <p>15 taken out of that. But secondly what about the</p> <p>16 permanent elongation test taken into account in Atkins'</p> <p>17 stage 3 structural assessment?</p> <p>18 Lau's concern was premised, and we do emphasise</p> <p>19 this, on the worst permanent elongation test result.</p> <p>20 That was 0.51 millimetres. But as explained by</p> <p>21 Dr Glover, Lau's approach is, we submit, incorrect and</p> <p>22 a speculative extrapolation of a solitary laboratory</p> <p>23 test into the performance of groups of couplers in</p> <p>24 a massive concrete structure.</p> <p>25 They are the points that we make in paragraph 61,</p>	Page 31	<p>1 0.51 millimetres".</p> <p>2 We say in passing that this is an example of Lau's</p> <p>3 adoption of a qualitative analysis, by adopting this</p> <p>4 worst figure.</p> <p>5 Now, our closing then refers to Dr Glover's</p> <p>6 disagreement with Lau, namely that Lau's approach is</p> <p>7 incorrect and speculative because, as I've said once</p> <p>8 already but it bears re-emphasis, extrapolation of</p> <p>9 a solitary laboratory test into the performance of</p> <p>10 groups of couplers in a massive concrete structure is</p> <p>11 simply not the right way to go, and you may well</p> <p>12 remember that Dr Glover dealt with this on his slide</p> <p>13 number 22.</p> <p>14 And the paragraphs of Atkins' report, which we do</p> <p>15 not apologise for quoting at length in paragraph 62 of</p> <p>16 our closing, are to illustrate the point that Atkins'</p> <p>17 approach, akin to Glover, was not to alight upon the</p> <p>18 worst result but to focus upon the average.</p> <p>19 Why is that the proper way to go about things?</p> <p>20 Because we would say that all the rebars work together.</p> <p>21 Now, Chow's point is that Atkins had not considered</p> <p>22 the matter, but we simply do not understand that.</p> <p>23 Atkins specifically said that for SLS, which of course</p> <p>24 is the relevant limit state for cracking, 28 millimetres</p> <p>25 and above could be considered effective at SLS.</p>
Page 30	<p>1 those two points, of our COI 1 closing.</p> <p>2 What about Atkins? Atkins was cognisant in its</p> <p>3 stage 3 assessment report of the samples which failed</p> <p>4 the permanent elongation tests and had already</p> <p>5 considered the consequential risk of cracks under SLS,</p> <p>6 the serviceability limit state. And Atkins concluded</p> <p>7 that even taking into account the risk of cracks, it was</p> <p>8 possible to include couplers with 28 millimetre</p> <p>9 engagement for the SLS condition. And as to a reference</p> <p>10 for that, we would rely upon section 16 of Atkins'</p> <p>11 report, which is cited at a little bit of length,</p> <p>12 because it is important, in paragraph 62 of our COI 1</p> <p>13 closing submissions.</p> <p>14 Yesterday, you will probably recall that Mr Chow</p> <p>15 took the opportunity to comment on paragraph 62 of our</p> <p>16 submissions. What we say in response to what appeared</p> <p>17 to us to be criticism is that one has to read</p> <p>18 paragraph 62 of our submissions in the context of</p> <p>19 paragraph 61. And we reiterate, because it is</p> <p>20 important, that paragraph 61 of our closing makes the</p> <p>21 point, emphasises the point, that Lau's concern was</p> <p>22 premised on the worst elongation test result. Indeed,</p> <p>23 at Lau's report, COI 1, paragraph 56, he refers to the</p> <p>24 worst elongation test result, and I quote,</p> <p>25 "ie permanent elongation could be up to</p>	Page 32	<p>1 I think Mr Chow also made the point that this</p> <p>2 particular line of argument was not put to Lau, but it's</p> <p>3 been pointed out to me overnight that by reference to</p> <p>4 an exchange which took place between Mr Shieh and the</p> <p>5 learned Chairman, reference T10/28, line 8 to line 20,</p> <p>6 Mr Shieh said that just because he had not put</p> <p>7 everything to Mr Lau, it didn't mean that Leighton</p> <p>8 necessarily agreed with what he said, and Mr Hartmann</p> <p>9 helpfully said, "That's all right because this is not</p> <p>10 normal litigation". But assuming there is some point to</p> <p>11 be taken on the basis that things were not put so</p> <p>12 therefore can't be relied upon, Atkins' consideration,</p> <p>13 it needs to be pointed out, of the permanent elongation</p> <p>14 test and the 28 millimetre being effective at SLS, were</p> <p>15 mentioned by Don McQuillan in his COI 1 supplemental</p> <p>16 report at paragraphs 77 to 78.</p> <p>17 It's a matter of record that Mr Chow, who carried</p> <p>18 out the structural engineering cross-examination, did</p> <p>19 not question Don McQuillan on these parts of his report.</p> <p>20 I don't stop there, because MTR says that the lack</p> <p>21 of credence in Lau's speculative approach is further</p> <p>22 highlighted by the fact that there is absolutely no</p> <p>23 evidence of any cracking of the kind which concerns him</p> <p>24 in the as-constructed structure. But it doesn't stop</p> <p>25 there, does it? Because that's despite the fact that</p>

Page 33	<p>1 the structure is currently sustaining about 90 per cent</p> <p>2 of its total expected loading and indeed has been</p> <p>3 subjected to severe vibration from the very intrusive</p> <p>4 stage 2 opening-up works.</p> <p>5 The third point is the benign environment, and MTR</p> <p>6 does not shirk from saying that the as-built works are</p> <p>7 indeed located in a benign environment, and what I'm</p> <p>8 going to say about the benign environment applies to the</p> <p>9 construction joint which I'll come to in the next ten</p> <p>10 minutes or so.</p> <p>11 Why do I say that? Well, under the Hong Kong Code</p> <p>12 of Practice, the exposure condition is classified into</p> <p>13 five categories, and you will recall that it's Lau's</p> <p>14 view that the as-built works are exposed to a moderate</p> <p>15 or severe condition. Now, a moderate exposure condition</p> <p>16 is defined as, and I quote:</p> <p>17 "Internal concrete surfaces exposed to high</p> <p>18 humidity, eg bathrooms and kitchens.</p> <p>19 External concrete surfaces exposed to the effects of</p> <p>20 severe rain or cyclic wetting and drying eg fair faced</p> <p>21 concrete, concrete with cladding secured by dry or</p> <p>22 mechanical fixing, curtain walling."</p> <p>23 Now, government's case was focused on the fact that</p> <p>24 the D-wall was subject to tidal variation, but this</p> <p>25 contention, you will recall, was only seriously explored</p>	Page 35	<p>1 that may have been installed in the Atkins stage 3</p> <p>2 structural assessment. But it was also acknowledged in</p> <p>3 the report that the installed shear links would provide</p> <p>4 some strength and hence an additional safety margin to</p> <p>5 the slab.</p> <p>6 You will know, because you have been told, that the</p> <p>7 Atkins stage 3 structural assessment shows that suitable</p> <p>8 measures will need to be taken to restore the shear</p> <p>9 capacity of the slabs. But putting aside the issue of</p> <p>10 compliance, I reiterate that McQuillan, Glover and</p> <p>11 Southward are all agreed that the as-built COI 1</p> <p>12 structures are safe and fit for purpose, but it doesn't</p> <p>13 stop there because importantly all three of these</p> <p>14 experts agree that even the shear link problem, if I can</p> <p>15 refer to it like that, is not a problem for various</p> <p>16 reasons.</p> <p>17 First of all, in the areas where the nominal minimum</p> <p>18 shear reinforcement is required, there's some</p> <p>19 25 per cent over-provision, or even more, in the shear</p> <p>20 links installed. They also agree that the shear links</p> <p>21 should not be disregarded in their entirety, that the</p> <p>22 actual proven concrete cube strengths should be used in</p> <p>23 the structural shear assessment, and moreover concrete</p> <p>24 strength gain with time is a legitimate consideration.</p> <p>25 But it doesn't stop there because they also agree that</p>
Page 34	<p>1 by Mr Chow with Dr Glover. But when he was</p> <p>2 cross-examined, Glover explained, it is submitted in</p> <p>3 a compelling fashion, that there was no wetting and</p> <p>4 drying, so it was therefore a mild exposure. As I've</p> <p>5 said, that applies equally to the construction joints</p> <p>6 that I'm going to come on and deal with in a moment.</p> <p>7 I would now like to say something, if I may, about</p> <p>8 shear links. Now, the issue concerning shear links has</p> <p>9 been explained in the holistic report. In essence,</p> <p>10 22 locations with defective shear link placement were</p> <p>11 discovered when the shear links at the EWL slab soffit</p> <p>12 were exposed during the investigations into the</p> <p>13 honeycombing in the concrete. But it didn't stop there</p> <p>14 because 18 additional locations at the EWL slab soffit</p> <p>15 were opened up for further investigation of the</p> <p>16 as-constructed condition of the shear link placement.</p> <p>17 This revealed shear link irregularities at all</p> <p>18 18 locations, and these irregularities, you will recall,</p> <p>19 included missing shear links, smaller bar sizes than</p> <p>20 specified and insufficient anchorage lengths which did</p> <p>21 not conform to the design.</p> <p>22 But of course under the holistic report, and as you</p> <p>23 heard, in order to avoid damaging the structure by</p> <p>24 extensive opening-up, a conservative approach was</p> <p>25 adopted by ignoring any shear links at platform slabs</p>	Page 36	<p>1 there are other beneficial factors which could and</p> <p>2 indeed should be considered, for example compressive</p> <p>3 action and arch action. And finally, codes allow, they</p> <p>4 agree, when retro-analysing forensically a structure,</p> <p>5 the safety factors to be reviewed. What do I mean by</p> <p>6 that? For example using actual loads and actual</p> <p>7 material properties.</p> <p>8 Lau again disagreed with the three experts</p> <p>9 generally. In particular, he raised the concern that</p> <p>10 there may not be any shear links in areas where shear</p> <p>11 reinforcement is required, and that without the</p> <p>12 implementation of suitable measures the as-built COI 1</p> <p>13 structures are neither safe nor fit for purpose.</p> <p>14 Against that background, I would like to say</p> <p>15 a little bit more about each element of the three</p> <p>16 experts' agreement in the context of shear links,</p> <p>17 because it's important for the Commission and indeed the</p> <p>18 media who are listening.</p> <p>19 First of all, the over-provision of as-constructed</p> <p>20 shear links and the as-constructed shear links should</p> <p>21 not be disregarded. This important point has been dealt</p> <p>22 with in paragraphs 82 to 94 of MTR's COI 1 closing</p> <p>23 submissions, and there's no dispute between the</p> <p>24 experts -- and this time I include Lau -- that it's</p> <p>25 unnecessary for the shear links to extend all the way to</p>

Page 37	<p>1 the bottom mat of the reinforcement. In fact, in</p> <p>2 locations where shear links were not observed to be</p> <p>3 visible in the exposed bottom layers, both Southward and</p> <p>4 Glover were of the view that this may have been because</p> <p>5 the shear link was stopped in the upper layers of the</p> <p>6 bottom mat of the reinforcement.</p> <p>7 Importantly, Lau accepted this as a possible reason</p> <p>8 for not discovering the shear links during the</p> <p>9 investigation. That's transcript Day 9, page 175,</p> <p>10 line 3, to page 176, line 21.</p> <p>11 But it doesn't stop there, because I need to point</p> <p>12 out that 24 of the 40 openings showed the presence of</p> <p>13 shear links, albeit that the shear links may have been</p> <p>14 defective or irregular for other reasons, as indeed was</p> <p>15 acknowledged by Lau. But importantly Lau also agreed</p> <p>16 that there will be strength in the shear links that are</p> <p>17 present.</p> <p>18 Therefore, it is our submission, based upon this</p> <p>19 evidence, that from a safety and fitness for purpose</p> <p>20 perspective the shear links which were actually provided</p> <p>21 should not be totally disregarded. And as Dr Glover</p> <p>22 explained and as elaborated by Mr Southward, the four</p> <p>23 construction drawings show a very substantial provision</p> <p>24 of shear link reinforcement throughout the structure,</p> <p>25 around the 25 per cent over-provision I've referred to</p>	Page 39	<p>1 structures at the COI by reference to the available</p> <p>2 testing results provided by MTR for materials used on</p> <p>3 the project. And AECOM gave an important explanation in</p> <p>4 their report. They explained that for the grade 40</p> <p>5 concrete used on the project, 8,640 cube test results</p> <p>6 were available, and the average strength of these cubes</p> <p>7 was approximately 73MPa, and the characteristic strength</p> <p>8 was approximately 59MPa.</p> <p>9 What about the grade 45 concrete used in the</p> <p>10 D-walls? Well, here AECOM explained there were 7,761</p> <p>11 cube tests available, and the average strength for these</p> <p>12 cubes was approximately 73MPa, and the characteristic</p> <p>13 strength was approximately 62MPa.</p> <p>14 But as further explained by AECOM, in addition to</p> <p>15 the cube strength results, a total of 39 core test</p> <p>16 results were also available in relation to the D-walls,</p> <p>17 and the average estimated in-situ cube strength from the</p> <p>18 39 samples was 79MPa, using the same 5 per cent criteria</p> <p>19 which comes from the Hong Kong Code of Practice. That</p> <p>20 means that the characteristic strength would be 64.5MPa.</p> <p>21 They also explain that the core test results are</p> <p>22 consistent with the cube test results that I've just</p> <p>23 summarised for you and indeed substantiate the use of</p> <p>24 62MPa as the characteristic strength of the grade 45</p> <p>25 concrete used in the D-wall based on the cube results.</p>
Page 38	<p>1 already, and this provision very comfortably exceeds the</p> <p>2 future demands of the structure when in use.</p> <p>3 But what does this mean in practice? In practice,</p> <p>4 this means that there's a substantial reserve of</p> <p>5 strength which can be utilised to compensate for any</p> <p>6 failings in terms of workmanship. And Lau has no</p> <p>7 disagreement in this regard. That's paragraph 126 of</p> <p>8 his expert report, ER2/17.1.</p> <p>9 The second matter of agreement: the actual proven</p> <p>10 concrete cube strengths should be used in the structural</p> <p>11 shear assessment. We've dealt with this at</p> <p>12 paragraphs 95 to 105 of our COI 1 closing submissions in</p> <p>13 detail, but various points again, in our view, require</p> <p>14 emphasis. It's the unanimous view of McQuillan, Glover</p> <p>15 and Southward that, firstly, actual proven concrete cube</p> <p>16 strengths should be used in the structural shear</p> <p>17 assessment, and in addition concrete strength gain with</p> <p>18 time is a legitimate consideration. It also needs to be</p> <p>19 noted that Atkins, in their stage 3 assessment report,</p> <p>20 say that it's permissible to use in-situ concrete for</p> <p>21 the purpose of the structural analysis, with which we</p> <p>22 respectfully agree.</p> <p>23 In addition, in its final independent structural</p> <p>24 assessment report, AECOM also assess the in-situ</p> <p>25 material strengths of the relevant reinforced concrete</p>	Page 40	<p>1 But it doesn't even stop there, because you will</p> <p>2 probably recall that during the course of his</p> <p>3 re-examination, I was able to put coring samples taken</p> <p>4 from the EWL slab between 2017 and 2018 to Dr Glover.</p> <p>5 Three random concrete core samples were taken from the</p> <p>6 EWL slab in October 2017 and tested in November 2017,</p> <p>7 and the measured compressive strength in MPa of the</p> <p>8 three core samples ranged between 74.4 and 80.8MPa.</p> <p>9 A further six random core samples were taken from the</p> <p>10 EWL slab and tested in July 2018. The compressive</p> <p>11 strength in MPa of the six core samples ranged between</p> <p>12 55 and 71.5MPa.</p> <p>13 Now, I think yesterday Mr Chow sought to criticise</p> <p>14 the lack of number of those core samples, and it may</p> <p>15 well be that he has a point, if that's all the evidence</p> <p>16 that there was before the Commission, but of course it's</p> <p>17 not the only evidence. In addition to those core</p> <p>18 samples, one also has the cube strength results, many,</p> <p>19 many thousands of those that I've already referred you</p> <p>20 to. So, with respect, there's nothing in his point.</p> <p>21 Of course, Glover was shown these results, as I've</p> <p>22 said, during the course of his re-examination, and he</p> <p>23 told the Commission, in my submission correctly, that</p> <p>24 the results of these core samples was very consistent</p> <p>25 with the strength in the works being substantially</p>

Page 41	<p>1 larger than the designed strength of 40MPa. He also 2 told the Commission, very importantly, we would say, 3 that it had reached the point, the evidence had reached 4 the point, where it is almost beyond doubt that the 5 concrete in the works is substantially stronger than the 6 designed strength that was achieved or was set out in 7 the design of 40MPa. 8 Now, what do government say about this? They say, 9 at paragraphs 68 to 69 of their COI 1 closing -- they 10 argue that in the light of the identified honeycombing 11 defects, one should not make use of the higher concrete 12 strength in the structural assessment. You may well 13 recall this proposition was roundly rejected by Glover. 14 Glover explained that there's absolutely no relationship 15 between strength and honeycombing. It also needs to be 16 pointed out, in this context, that Lau himself did not 17 suggest that the concrete strength itself is inadequate. 18 His doubt lay with the quality of the concrete on the 19 basis of the honeycombing and workmanship. 20 But what do we say about that? I'll tell you what 21 we say. We adopt what Dr Glover said, and that is 22 honeycombing is a workmanship issue which can and in 23 fact has been repaired, and once it's been repaired it 24 remediates the situation to that expected in the 25 required standard. On that basis, it's inappropriate to</p>	Page 43	<p>1 pozzolanic material or a Roman concrete, as Glover says, 2 which has a totally different chemical composition from 3 the old concretes, and indeed a minimum of 25 per cent 4 of modern concretes in Hong Kong contain this material, 5 which is referred to as pulverised fuel ash. 6 Importantly, these pozzolanic materials have a slow gain 7 of strength with time and they plateau with no decline. 8 Lastly, I want to refer to the agreement concerning 9 that there are other beneficial factors -- 10 COMMISSIONER HANSFORD: Sorry, Mr Boulding, I really 11 hesitate to stop you in full flow, but I chose this as 12 the convenient point to do so. 13 Can I just take you back -- would you mind? 14 MR BOULDING: No. 15 COMMISSIONER HANSFORD: -- to paragraph 96 in your closing 16 submission, actually at the top of page 42. I just want 17 to check if that's correct, what you are saying, or if 18 there's, dare I say it, a typo. It's in the second 19 sentence on page 42. You say: 20 "Typical cube strengths of above 60MPa are common as 21 compared to the specified 60MPa" -- 22 MR BOULDING: 40. Thank you for picking me up on that. It 23 should say 40. 24 COMMISSIONER HANSFORD: That's 40, isn't it? 25 MR BOULDING: Yes, I do apologise.</p>
Page 42	<p>1 extrapolate from the honeycombing at the soffit of the 2 EWL slab that the concrete is inadequate in strength. 3 We can only say, with some force, in our submission, 4 that Lau's objection that one could only use the 5 concrete strength of grade 40 in design checks from 6 a safety and fitness for purpose perspective because the 7 concrete cube test results do not represent the actual 8 concrete strength in the structure is indeed devoid of 9 any substance; it's an argument which is devoid of any 10 substance. 11 You will also recall, I'm sure, that Lau has been 12 around for a long time, and by reference to old concrete 13 technology said that the strength of the concrete after 14 it's been cast will continue to rise because of 15 a chemical reaction. After two to three years, the 16 chemical reaction stops, and because of the creation of 17 micro-cracks during the use of the building, the 18 strength starts to fall. So, with the age of the 19 building, the strength of the concrete can decrease. 20 MTR says as follow in response to that contention, 21 again based upon what Dr Glover said. First of all, 22 concrete technology 50 years ago is very different from 23 what it is now. Even I know that, on the basis of the 24 cases I've been involved in. Indeed, one of the major 25 ingredients in a modern concrete is the addition of</p>	Page 44	<p>1 COMMISSIONER HANSFORD: We'll change that to 40. 2 MR BOULDING: I'll give my learned junior a good kicking! 3 COMMISSIONER HANSFORD: Just pointing out I've read it. 4 MR BOULDING: And I haven't! 5 COMMISSIONER HANSFORD: Thank you. 6 MR BOULDING: Thank you. 7 Other beneficial factors that could be considered: 8 compressive action and arch action. This has been dealt 9 with in our COI 1 closing submissions at paragraphs 106 10 to 109, and as I've said already McQuillan, Glover and 11 Southward are all agreed that there are other beneficial 12 factors that could be considered: compressive action and 13 arch action. 14 In this context, Lau suggested, without any 15 substantiation whatsoever, that arching action depends 16 on the depth span ratio; because there are lots of 17 openings in the slab, there may not be any arching 18 action in the slab for the shear calculation. So he 19 made two points. But we say that Lau's suggestion 20 constitutes an overly simplistic proposition and does 21 not reflect the true situation of the COI 1 structures. 22 Why do we say that? Well, you will not be surprised 23 to hear that we rely on Glover's evidence. Glover's 24 evidence was that if one looked at the matter in two 25 dimensions only, the proposition, Lau's proposition, of</p>

Page 45	<p>1 openings disrupting the arch would be correct, but that</p> <p>2 so far as he was concerned the COI structures are not</p> <p>3 two-dimensional. Indeed, he said that if there's a hole</p> <p>4 caused by the opening-up in the EWL slab, then there</p> <p>5 will be a rib on either side of it, and the fact that</p> <p>6 there's a hole does not change the arching principle,</p> <p>7 because the arching principle occurs where there's no</p> <p>8 hole, and then in between there are counter-arches onto</p> <p>9 those main ones. As he said, it all depends on the</p> <p>10 geometry, and he also said that there should be no</p> <p>11 dispute, and we invite the Commission to accept this</p> <p>12 point: there should be no dispute that the arching</p> <p>13 effect happens particularly when one is talking about</p> <p>14 a 3 metre deep slab.</p> <p>15 In summary, the reason for this is that arching</p> <p>16 should be viewed as a three-dimensional action, with</p> <p>17 primary arches spanning between supports with secondary</p> <p>18 arches spanning between the primary arches. And in</p> <p>19 these structural system openings, in this way,</p> <p>20 structural system openings can be accommodated in the</p> <p>21 secondary arching design.</p> <p>22 So we do commend Glover's explanation to you, and</p> <p>23 I thus move on to the next point that I said I would</p> <p>24 come back to in more detail, which is that codes allow,</p> <p>25 when retro-analysing forensically a structure, the</p>	Page 47	<p>1 and I think this was paragraph 5.5 of his report:</p> <p>2 "In the inception and design stages of a project,</p> <p>3 much is unknown as to the actual future construction</p> <p>4 loadings and sequence, material strengths and geometric</p> <p>5 accuracy. For this reason, the international codes and</p> <p>6 standards contain partial safety factors. [Which]</p> <p>7 include for the extremes of the variations in the</p> <p>8 applied loads [as well as what he referred to as being]</p> <p>9 'ignorance' factors [which] are intended to reflect the</p> <p>10 level of uncertainties in the assumptions made in the</p> <p>11 design and the sophistication of the analysis methods to</p> <p>12 be adopted, to mitigate these unknowns ..."</p> <p>13 He also said that:</p> <p>14 "... the logical consequence of the substantial</p> <p>15 reduction in risk between inception and</p> <p>16 post-construction of a project is that the basis of</p> <p>17 assessment of the structure should recognise and take</p> <p>18 account of the fact that many of the safeguards and</p> <p>19 conservative assumptions included in the original design</p> <p>20 and construction no longer apply and should be relaxed."</p> <p>21 "No longer apply and should be relaxed".</p> <p>22 He said:</p> <p>23 "The reality of the situation is that the level of</p> <p>24 'ignorance' [to quote him] has greatly reduced and,</p> <p>25 hence, so should the partial safety and 'ignorance'</p>
Page 46	<p>1 safety factors to be reviewed.</p> <p>2 What I say here, this has been dealt with in detail</p> <p>3 at paragraphs 110 to 116 of our COI 1 closing</p> <p>4 submissions. I emphasise once again that McQuillan,</p> <p>5 Glover and Southward all agree that the codes allow,</p> <p>6 when retro-analysing forensically a structure, the</p> <p>7 safety factors to be reviewed, for example to use actual</p> <p>8 loads and actual material properties instead of designed</p> <p>9 loads. It's because of this that the codes generally</p> <p>10 have a lot of conservatism built into them, because of</p> <p>11 these uncertainties, and we would say -- and this is</p> <p>12 a point I raised with Lau at the time during his</p> <p>13 cross-examination -- that this is in fact recognised in</p> <p>14 the foreword to the Hong Kong Code of Practice. I don't</p> <p>15 want you to look it up but if I can read it to you, it's</p> <p>16 the foreword and it states:</p> <p>17 "This Code of Practice is based on the limit state</p> <p>18 design philosophy, which provides a more realistic</p> <p>19 assessment on uncertainties associated with different</p> <p>20 loading conditions, material properties, workmanship,</p> <p>21 et cetera. The drafting of this Code of Practice has</p> <p>22 taken into account the local conditions, work practice</p> <p>23 and development of new technologies in analysis, design</p> <p>24 and strength of materials."</p> <p>25 Now, against this background, Glover explained --</p>	Page 48	<p>1 factors."</p> <p>2 And finally that it was "inappropriate to apply the</p> <p>3 same loading and material strength assumptions used at</p> <p>4 the inception of a project to its surveyed and tested</p> <p>5 post-construction condition."</p> <p>6 Now, Lau again disagreed and expressed the view that</p> <p>7 after the construction phase had been completed "there</p> <p>8 would be more uncertainties during the long life of the</p> <p>9 building", but we respectfully submit that this</p> <p>10 proposition, this disagreement, was in fact contradicted</p> <p>11 by Lau's own evidence, his own evidence, that safety</p> <p>12 factors under the Hong Kong Code of Practice cater for</p> <p>13 all sorts of conditions, including the design stage, the</p> <p>14 construction stage, and I emphasise, and the long life</p> <p>15 of the building. That's transcript Day 10, page 34,</p> <p>16 line 20 to page 36, line 18.</p> <p>17 But it doesn't stop there because we would say that</p> <p>18 on the basis of that evidence, in other words</p> <p>19 uncertainties during the long life of the building,</p> <p>20 according to Lau, would have already been taken into</p> <p>21 account during the design stage under the Hong Kong Code</p> <p>22 of Practice. Accordingly it follows from that, we say</p> <p>23 with force, that there would not be more uncertainties</p> <p>24 which had not been catered at in the design stage after</p> <p>25 the construction had been completed.</p>

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<p>1 And importantly, and as Glover explained, at the 2 start of the project there's a list of risks that one 3 has to consider, including design, construction, 4 operations, and all the way through to the final 5 demolition of the building. Therefore, all of these 6 issues are to be considered. But he also said that once 7 the construction stage is over, the risks associated 8 with the construction stage have been removed or 9 mitigated, and therefore it's completely wrong for Lau 10 to suggest that there are more unknowns after the 11 construction stage.</p> <p>12 We do not shirk from submitting that not only is 13 this correct from a structural engineering perspective 14 but it also accords with sound common sense.</p> <p>15 I would like to say a little bit more about the 16 shear links investigation. It's noted that Southward, 17 in his expert report, challenged the legitimacy of the 18 shear link investigation under the holistic report. 19 We've actually dealt with this in paragraphs 76 to 80 of 20 our closing COI 1 submissions. I think for present 21 purposes suffice to say that Glover is of the view that 22 the opening-up investigation adopted under the holistic 23 report is not -- I emphasise "not" -- an unreasonable 24 approach and was adequate in terms of providing 25 an overview of the nature and extent of the shear link</p>	<p>1 workmanship defect had to be rectified by 2 retro-installing vertical steel dowel bars.</p> <p>3 Insofar as the proposed dowel bars for suitable 4 measures are concerned, I'm sure you will recall that 5 Southward and McQuillan raised the concern that if 6 vertical bars are to be drilled into the top surface of 7 the EWL slab and then downwards into the D-wall, there's 8 a danger that horizontal shear links might be cut by the 9 drilling. But of course in this context -- and this was 10 something raised in the first instance by Oscar Chow, 11 albeit that he had a wrong method statement first time 12 around -- but you will recall that in this connection, 13 it should be noted that the perceived risk has been 14 addressed in the latest method statement, the suitable 15 measures works, for areas B and C, EWL level.</p> <p>16 And purely by way of example, I point out that under 17 section 6.2 of the method statement, entitled "Typical 18 procedure for 200 thick RC slab of suitable measures 19 (detail 1)", it's provided, amongst other things, at 20 step 8 that, and I quote, "Drilling will be commenced 21 with M12 drill bit (max length 900 millimetres) and then 22 with M16 drill bit (max length 900 millimetres)", and 23 further I quote step 9: 24 "Concrete coring will be carried out at same 25 location of step 8. In case the drilling/coring crashed</p>
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<p>1 installation. Indeed, the adequacy of the shear link 2 investigation as carried out was even supported by Lau. 3 That's paragraph 117 of Lau's expert report, ER2/17.1.</p> <p>4 So, to conclude these further few additional words 5 about the shear links and in particular the 6 investigation, we would invite you to find that there is 7 no reason to question the shear link investigation 8 conducted under the holistic report.</p> <p>9 I promised you five or ten minutes ago that I would 10 come to the horizontal construction joint, and in that 11 context I start by reiterating, re-emphasising, what 12 I said about the structures being in a benign 13 environment. But so far as this joint is concerned, 14 horizontal construction joint, the issue is that the 15 joint is in the EWL slab to D-wall connection, and the 16 issue has been explained in the holistic report. We 17 deal with this in paragraphs 118 to 123 of our COI 1 18 closing submissions, but for present purposes what is 19 important is that all four experts agree that this is 20 solely a workmanship issue and not a structural issue.</p> <p>21 McQuillan, Glover and Southward all agree that 22 nothing needs to be done, but that it would be prudent, 23 from a public perspective, to remediate the two 24 locations where poor workmanship has been identified. 25 Once again, Lau disagreed. This time, he said that the</p>	<p>1 with the existing rebar, it will be stopped immediately, 2 and we will agree another drill hole location with 3 MTRC."</p> <p>4 Now, what did all the experts make of this? 5 Importantly, having been shown the latest method 6 statement, with a procedure set out above, Southward 7 candidly accepted that the risk was reduced. Moreover, 8 McQuillan accepted during his exchanges with 9 Prof Hansford that, if I may quote, "if it's only 10 cutting a shear link, it will not have a hugely 11 detrimental effect on the structural integrity."</p> <p>12 What about Glover? He's of the view that with 13 a revised method statement, the risk of hitting anything 14 important is much reduced. By analogy, he opines that 15 the carrying out of the suitable measures will not 16 affect the structural safety of the works.</p> <p>17 So where does that all leave us; what do we conclude 18 from that? Well, having looked at what Mr Pennicott 19 says, we submit that there's force in the expectation he 20 expresses in paragraph 68 of his COI 1 closing 21 submissions. He says, "Yes, the works could be 22 stopped", but then, I quote, "assuming the works will 23 continue then it might be expected that MTR and Leighton 24 (and their sub-contractor) will proceed with caution so 25 as to limit the risk of disturbance and damage to the</p>

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<p>1 existing rebar and it is to be hoped that, as MTR 2 submits, the latest method statement will have the 3 effect, if properly implemented, of addressing the 4 concerns expressed by Mr Southward and Prof McQuillan." 5 Indeed, we say that's a reasonable expectation, 6 particularly now all relevant parties are aware of the 7 concern. 8 Chairman, I've got about 20 minutes or so to go. 9 I see that the girls have been typing now for an hour 10 and 45 minutes. You might think this is a convenient 11 place to break, but I'm happy to continue. 12 CHAIRMAN: Yes, certainly. I think it's in your hands and 13 you make a good point. Good. 14 How long, Mr Pennicott? 15 MR PENNICOTT: 15 minutes, sir, if that's okay. 16 CHAIRMAN: Good. 15 minutes. Thank you. 17 (11.08 am) 18 (A short adjournment) 19 (11.28 am) 20 MR BOULDING: Mr Chairman, Prof Hansford, that's all I want 21 to say about the further expert evidence in the Original 22 Inquiry, but I'd like to move on, if I may, to make some 23 submissions on the further expert evidence for the 24 Extended Inquiry. Again, it's going to involve the 25 structural safety, or indeed otherwise, of some of the</p>	<p>1 Now, absent -- and this is important -- the 2 implementation of suitable measures, the relevant 3 government approval authorities will not approve the 4 works so that the railway can be put into operation for 5 use by the general public of Hong Kong, and the 6 verification report requires me to deal with various 7 elements of the structure which are dealt with therein. 8 First of all, I invite your attention to coupler 9 connections. Paragraph 4.2.6 of the verification report 10 recorded that there was indeed a lack of full records of 11 the coupler connection works. In those circumstances, 12 the task force considered it prudent to apply a strength 13 reduction factor in areas where coupler connections had 14 replaced lapped bars. This was because of the 15 uncertainty of the quality of the workmanship associated 16 with such works. 17 An advantage, of course, of applying these measures 18 was it had the benefit of avoiding disruptive 19 investigations. After due consideration, the task force 20 considered it appropriate to apply a reduction factor in 21 the COI 2 structures by reference to reduction factors 22 derived from the holistic report. 23 How were these factors arrived at? They were 24 arrived at as follows. The NSL slab of the SAT area is 25 a continuation of the NSL slab in the Hung Hom Station</p>
Page 54	Page 56
<p>1 structures that I have already dealt with but of course 2 in a different context. 3 So far as this Extended Inquiry is concerned, MTR's 4 submissions for the Extended Inquiry involve 5 a consideration of the verification proposal. This was 6 submitted to the RDO on 15 May 2019 and was indeed 7 accepted by RDO. 8 It consisted of two main parts, but the point I make 9 to you is that part 2 involved, amongst other things, 10 a structural review and identification of remedial works 11 so far as the relevant structures or elements of the 12 structure were concerned. 13 MTR concluded the verification exercise and issued 14 the verification report which was dated 18 July 2019 to 15 government. Indeed, it was endorsed by government. You 16 will know that the verification report recommended 17 certain suitable measures, and these were deemed 18 necessary firstly to address the issues identified in 19 the report and to achieve the safety level required in 20 the Hong Kong Code of Practice for meeting the 21 requirements of the Building Ordinance and the 22 established good practice of engineering design, as well 23 as complying with the New Works Design Standards Manual. 24 So, in effect, the same objectives as the holistic 25 report.</p>	<p>1 Extension. The statistical analysis set out in the 2 holistic report established a reduction factor for the 3 NSL slab of 33.2 per cent. However, in the event, 4 35 per cent was adopted to give a greater sufficient 5 level of confidence, and that was particularly so as it 6 was considered that the nature of the coupler connection 7 works and the site conditions in other areas of the 8 COI 2 structures were less complicated than the NSL slab 9 of the SAT in terms of their construction. 10 Now, paragraphs 4.5.1 to 4.5.2 of the verification 11 report record that the NAT and SAT structures, as well 12 as certain other locations such as the underpass 13 corridor, the culvert, the track slab and the NFA tie 14 beam, have sufficient spare structural capacity at 15 critical coupler locations even after applying the 16 strength reduction factor of 35 per cent. So the 17 consequence of this, of course, is that the suitable 18 measures are therefore not in fact required. 19 However, in the Hung Hom Siding structures, the 20 spare structural capacity at critical coupler locations 21 in the trough wall kickers near movement joints is less 22 than the assumed strength reduction factor of 23 35 per cent. So the verification report recommends 24 suitable measures, although I do emphasise this is only 25 for code, statutory and contractual compliance purposes.</p>

Page 57	<p>1 Importantly, McQuillan, Glover and Southward all 2 agree that the COI 2 structures are safe and fit for 3 purpose. That's set out in the joint statement. 4 Lau's position is that he holds the opinion that 5 without the implementation of suitable measures, the 6 as-built COI 2 structures are neither safe nor fit for 7 purpose. Now, for the detailed reasons set out in our 8 COI 2 submissions, you are invited to reject Lau's view 9 on that particular matter. 10 But against that background I'd like, if I may, to 11 turn to the relevant structures in a bit more detail. 12 I'm going to start with the trough walls, if I may. All 13 of the three experts -- McQuillan, Glover and 14 Southward -- agree that there is no safety issue with 15 the HHS trough walls. No safety issue with the HHS 16 trough walls. 17 In this context, it should be noted that Nick 18 Southward adopts the yield line analysis to demonstrate 19 that the HHS trough walls have a large degree of spare 20 capacity, and this yield line analysis is an analysis 21 which is used to establish whether the trough walls will 22 break in the event that there is a collision. 23 Now, what about this yield line analysis? Don 24 McQuillan agreed with the approach adopted by Southward, 25 saying that Southward's approach has irrefutably proved,</p>	Page 59	<p>1 Lau also disagrees with the other experts, because 2 he says that the podium columns require to be protected 3 against accidental impact, but as became clear yesterday 4 he puts forward no calculations of his own to support 5 his contention, and of course Prof Hansford yesterday 6 certainly gave us the impression that he would have 7 expected to have seen such calculations to support Lau's 8 view, and indeed it would be our submission that they 9 ought to have been provided, but they haven't been. 10 McQuillan, Glover and Southward also recognise the 11 need for column protection but are satisfied that the 12 existing trough walls provide the necessary protection. 13 That's set out in the joint statement. 14 Now, what about the conservatism of the reduction 15 factor in terms of the strength of the trough walls? 16 I pose that question. I'd like to say a little bit 17 about it. MTR has already explained, in its closing 18 submissions on the further expert evidence for the 19 Original Inquiry -- that's paragraphs 11, 12, 29 and 20 35 -- that having regard to the further structural 21 experts' directions, the Commission is not -- 22 I emphasise "not" -- concerned with assessing the 23 reasonableness of the conservatism adopted in the 24 verification report. 25 Notwithstanding that fact, Glover pointed out that</p>
Page 58	<p>1 in spite of the very significant strength reduction 2 factor, that the trough walls are safe and have 3 significant reserve capacity. Strong words indeed. 4 That's paragraph 56 of Don McQuillan's COI 2 expert 5 report, ER(COI2)1/item 11/31. 6 What about Glover's position? He accepted that the 7 yield line analysis is in principle feasible and 8 moreover is permitted by the Hong Kong Code of Practice, 9 but he said that whether the approving authorities, the 10 Hong Kong approving authorities, would accept 11 Southward's yield line analysis as part and parcel of 12 the process of obtaining the ultimate approval of the 13 use of the works is a matter of code, statutory and 14 contractual compliance. In short, he was saying that he 15 couldn't speak for the government authorities. 16 Now, Lau's COI 2 report expressed concern that 17 Southward's adoption of the yield line analysis was 18 based on the contention that no shear links had been 19 provided in the trough walls. But whilst that was 20 initially his position, it is important to point out 21 that he retracted his concern when Leighton's counsel, 22 Mr Shieh, pointed out to him that according to AECOM, 23 whose analysis Lau had adopted, no shear link was in 24 fact required. That's Day 10, page 24, lines 14 to 25 25 of the transcript.</p>	Page 60	<p>1 the application of a reduction factor of 35 per cent in 2 the verification report was entirely from a compliance 3 perspective and, moreover, was not derived from any 4 engineering considerations. 5 It also bears emphasis that Glover expressed the 6 opinion, based on the AECOM assessment, that even if the 7 reduction factor of 35 per cent is not applied, the 8 utilisation rates of the HHS structures are below 9 100 per cent, so those structures are safe and fit for 10 purpose, from which it follows -- the punchline is -- so 11 even without the reduction factors, the structures are 12 safe. 13 In that context, I point out that Mr Pennicott, for 14 the Commission, agrees but says that the disagreement 15 between the experts is whether the 35 per cent reduction 16 factor should be applied at all, and no doubt he will 17 address you on that, to the extent necessary, later 18 today. 19 Glover doesn't stop there because he also expressed 20 the opinion that AECOM's mathematical model is 21 conservative because it ignores at least two factors. 22 Firstly, the absorption and dissipation effects of the 23 soil mass behind the trough walls. That's the first 24 factor. But the second factor is the thin slab at the 25 top of the trough wall.</p>

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<p>1 Don McQuillan agreed with Glover that the soil fill 2 between the trough walls firstly absorbs significant 3 energy and secondly, and importantly, restricts the 4 deformation of the impacted wall section. McQuillan 5 also explained that the reduction factor of 35 per cent 6 derives from an analysis based on couplers with 7 37 millimetres' engagement, but the strength reduction 8 factor should in fact be calculated by reference to 9 32 millimetre engagement. So he would say it follows 10 from that that the reduction factor to be applied from 11 the holistic report to the verification report should be 12 significantly lower. That's paragraph 32 of McQuillan's 13 COI 2 expert report, ER(COI2)1/item 11/25-26. 14 I need to say a little bit more about shear links, 15 but this time in the context of the structures which 16 were the subject matter of the Extended Inquiry. 17 I observe and draw your attention to the fact that the 18 verification report sets out the following important 19 points concerning the shear link issues, and I summarise 20 as follows. 21 Firstly, investigations into the honeycombing in the 22 concrete at the EWL slab soffit revealed defects in the 23 shear link placement when the shear links were exposed. 24 Defects in terms of the anchorage and/or spacing of 25 shear links were discovered when further investigations</p>	<p>1 are all agreed that the as-built COI 2 structures are 2 safe and fit for purpose. 3 As for Lau's position on shear links, we submit, MTR 4 submits, that nothing in his dissenting views should be 5 taken as undermining the majority view of the three 6 other experts that any workmanship issue concerning the 7 shear links does not -- I emphasise "does not" -- affect 8 the structural integrity of the structures. 9 What does MTR say about the suitable measures? 10 Well, MTR says that the suitable measures that are 11 proposed in the verification report are required as 12 a result of Leighton's breach of its obligations to 13 properly install the shear links in the works in 14 question, although I do accept and indeed I emphasise 15 that the Commission is not concerned with making 16 determinations concerning the extent to which any party 17 might have breached its contractual obligations. 18 But MTR also contends that the issue of suitable 19 measures is not relevant for the purpose of determining 20 whether the COI 2 structures are safe and fit for their 21 purpose as per the further structural engineering expert 22 directions, since -- and it's emphasised again -- the 23 suitable measures are required only for the purposes of 24 code, statutory and contractual compliance. 25 That takes me conveniently on to the last element of</p>
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<p>1 were conducted at other locations in the EWL slab on the 2 as-constructed condition of the shear link placement. 3 Not surprisingly, you might think, these investigations 4 raised questions in relation to the workmanship of the 5 shear link placement in the COI 2 structures. Indeed, 6 a strength reduction factor was adopted, 4 per cent and 7 13 per cent, to address the gaps in the rebar testing 8 records. 9 But in terms of spare structural capacity at 10 critical shear locations, it needs to be pointed out 11 that for the NAT and HHS structures, the spare 12 structural capacity is greater than the assumed strength 13 reduction factors, 4 per cent and 13 per cent, and for 14 the SAT structures, the spare structural capacity of the 15 EWL trough is greater than the assumed strength 16 reduction factors; once again, the 4 per cent and the 17 13 per cent. 18 But notwithstanding that fact, in view of the 19 concern about the unsatisfactory shear link placement in 20 area A of the EWL slab adjoining the SAT, suitable 21 measures to enhance the shear strength will be applied 22 to the SAT NSL tunnel box. But importantly, I submit, 23 from the Commission's perspective, and leaving aside the 24 issue of code, statutory and contractual compliance, the 25 Commission's expert, Don McQuillan, Glover and Southward</p>	<p>1 the structure in a sense that I have to deal with, and 2 that's the matter of rebar testing. Paragraph 4.3.2 of 3 the verification report records that a statistical 4 approach was not adopted in respect of the issue 5 concerning the lack of rebar testing, but in any event 6 no suitable measures are required as a consequence of 7 missing rebar testing records. 8 I remind you that as Glover noted, correctly, it is 9 submitted, since it can be demonstrated on a fitness for 10 purpose basis that the structure does not require shear 11 link reinforcement, any consideration of using a reduced 12 steel strength, even assuming that all or some of the 13 untested steel did not pass the HOKLAS test, does not 14 arise. That is important evidence and MTR would urge 15 you to accept that. 16 I now move on to deal fairly swiftly with one or two 17 project management issues. You will recall, albeit that 18 it's now a few months ago, that you received written 19 reports and indeed heard oral evidence from three PM 20 experts: Huyghe, Wall, and of course your very own 21 Rowsell. These experts gave their evidence against the 22 background of the Commission of Inquiry's extended terms 23 of reference. Issues arose in the Commission of Inquiry 24 as to government's monitoring and control mechanisms. 25 I do point out, though, that neither Huyghe's nor Wall's</p>

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<p>1 PM reports address these issues and nor did our closing 2 statement, and I certainly do not propose to address 3 them now because it doesn't seem to be a matter which 4 impacts upon us. 5 Following without-prejudice meetings and various 6 telephone conferences, I'm sure you were happy to see 7 that the PM experts produced a joint statement dated 8 2 October 2019, and indeed it was quite lengthy but 9 I trust you will agree that it was in fact very helpful. 10 I remind the Commission that paragraph 6 of the 11 joint statement stated that it followed on from 12 a similar statement that had been produced by Rowsell 13 and Huyghe, covering the project management issues which 14 had been canvassed during the Original Inquiry. You 15 will recall that that joint statement put forward 16 suggestions on how MTR could improve aspects of its PM 17 systems and procedures. As I'll explain in a moment, 18 many of those measures have already been implemented. 19 The first statement also said that the suggestions 20 set out therein had to be read in conjunction with the 21 joint statement made for the Original Inquiry, which was 22 obviously very, very relevant. 23 You will recall that fortunately the nature and 24 extent of the project management experts' agreement as 25 set out in the joint statement substantially reduced the</p>	<p>1 also told us that he previously worked for Leighton for 2 a number of years and even after he left them, he had 3 assisted a consultant with some programming issues on 4 one of the XRL projects. 5 Now, what do we make of all that? I don't go so far 6 as to suggest, as I think Mr Pennicott attributes to 7 MTR, that Wall's evidence should be completely dismissed 8 because he's in some way partisan. We don't go that far 9 at all. What we would say is that having regard to the 10 wealth of experience of Huyghe and indeed Rowsell, where 11 Wall disagrees with them on a particular matter, you 12 ought to approach the basis of his disagreement with at 13 least a degree of caution. But you are highly 14 experienced in this field, I've made the point and I'm 15 going to leave that up to you. 16 Now, you will recall that originally Wall did not 17 agree with four paragraphs of the joint statement: 18 paragraphs 4, 16, 17 and 26(c). Paragraph 4 is not of 19 any particular relevance any longer because it related 20 to whether or not you could rely or otherwise on 21 a particular report, and it went by the wayside. 22 Paragraphs 16, 17 and 26(c) did in fact go to far more 23 important matters relating to project management issues, 24 but we would submit -- and I'm not going to take you to 25 it because it's quite long and it's quite detailed --</p>
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<p>1 nature and extent of the project management expert oral 2 evidence that needed to be ventilated before you during 3 the course of the Extended Inquiry hearing, and 4 moreover, of necessity, it seemed to us, rendered 5 redundant large tracts of the report, because so much 6 had been agreed in the joint statement. 7 Now, a few words about the experts. You are 8 obviously highly experienced men and you will have 9 formed your own view as to their experience, their 10 credibility and other relevant matters, but we would 11 urge upon you that both Rowsell and Huyghe are 12 self-evidently highly experienced in the field of 13 project management. You will recall that Huyghe came to 14 give his evidence against a background of something like 15 50 years in the construction industry. 16 As to Wall -- what about Wall? -- it became clear as 17 Mr Pennicott cross-examined him that whilst he was 18 giving or purporting to give project management expert 19 evidence, the majority of matters on which he had 20 previously given expert evidence, either orally or 21 indeed in the form of expert reports, were in relation 22 to delay, although he did say that some matters related 23 to quantum and defects. In fact, Wall admitted that he 24 had never given evidence or written a report 25 specifically on project management issues before. He</p>	<p>1 that having regard to our submissions as set out in 2 paragraphs 25 to 31 of the COI 2 closing submissions, 3 which we invite you to read for yourself once again, 4 what became clear over time is that there were no 5 apparent or real differences between Rowsell and Huyghe 6 on the one hand and Wall on the other hand concerning 7 the terms of paragraphs 16, 17 and 26 of the joint 8 statement. We are comforted by the fact that 9 Mr Pennicott, the Commission's counsel, effectively came 10 to the same conclusion: see paragraphs 21 to 26 of his 11 COI 2 closing submissions. 12 So what does this mean in practice? In practice, 13 it's our submission that the Commission can proceed with 14 confidence on the basis that the contents of the project 15 management experts' joint statement reflects the view of 16 all three project management experts, and that's 17 important for you because we're expecting in due course 18 that you may well make recommendations based upon what 19 they've agreed between them. 20 I do need to make a point in passing, though, that 21 having regard to the extracts from the evidence 22 identified in relation to paragraphs 16 and 17 of the 23 joint statement -- see in particular, we would say, 24 paragraphs 25 and 26 of MTR's COI 2 closing -- that 25 there is no substance in Leighton's contention set out</p>

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<p>1 in paragraph 57 of its COI 2 closing submissions that, 2 and I quote, "MTRCL varied the RISC form procedure", 3 because Leighton and MTR worked on the basis that, and 4 I quote, "RISC forms did not need to be submitted prior 5 to formal inspections being completed in order to not 6 hold up work progress". 7 But having put down that marker, I do emphasise that 8 there is absolutely no need for you to determine whether 9 Leighton's contention is correct or otherwise. The 10 correctness of that point, that argument, will fall to 11 be determined, if at all, in another arena, in any 12 future disputes between MTR and Leighton. 13 I move on to say that in the context of the PM 14 expert evidence, you will recall that Huyghe gave 15 various important evidence concerning project management 16 issues arising out of the way the works had been carried 17 out. He dealt with the RISC form procedure, ineffective 18 site supervisions, interface management, rebar testing, 19 and the availability of the latest drawings. We have 20 dealt in some detail with his relevant evidence on those 21 matters, which of course he gave in part by reference to 22 that presentation, but I'm not going to take you through 23 that today because you can read that at your leisure. 24 Insofar as the MTR sets out in its closing 25 submissions the position so far as responsibility for</p>	<p>1 insofar as any of those criticisms are valid, the 2 measures which are going to be implemented will in fact 3 deal with them. You will recall in this context -- and 4 I'll bring you right up to date in a moment -- Huyghe 5 dealt with the MTR's management improvements to the end 6 of September 2019. You will recall he gave his evidence 7 in October, so that's as late as he could get, and he 8 did that by reference to page 27 of his presentation. 9 And he did that against a background where you will no 10 doubt recall that Mr Peter Ewen, MTR's engineering 11 director, had explained in considerable detail the 12 improvements that MTR was in the process of implementing 13 in terms of its management of the projects which it was 14 involved in. That evidence was given back in July, but 15 for the purpose of producing his report and his 16 presentation you will not be surprised to hear that 17 Mr Huyghe liaised with Mr Ewen to see how matters had 18 moved on since July. 19 And the detail of Huyghe's evidence in this context 20 is set out in paragraphs 63 to 69 of our closing 21 submissions. I do emphasise that Huyghe concluded his 22 evidence by confirming that a lot of the things that he 23 and Rowsell talked about in their project management 24 reports, in terms of suggestions as to what MTR needed 25 to do, had also been incorporated in MTR's</p>
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<p>1 any of the PM-type failings referred to in its closing 2 submissions are concerned, it felt obliged to record its 3 position, but again I emphasise that the Commission is 4 not charged with the function of identifying whether 5 a party complied with its contractual obligations and, 6 if not, why and with what consequences. I emphasise 7 once again that's for another arena, if ever. 8 What is important about the project management 9 evidence is that, as Mr Pennicott, counsel for the 10 Commission, pointed out in paragraphs 30 to 39 of his 11 COI 2 closing submissions, the project management 12 experts have agreed upon various measures to improve 13 aspects of the project management procedures. And 14 Mr Pennicott is also correct to point out that the PM 15 experts agree with the recommendations for improving the 16 project management procedures suggested by Mr Rowsell. 17 As you might expect from an organisation like the MTR, 18 it also welcomes any further recommendations that the 19 Commission might make in its final report, having taken 20 account of what the project management experts have 21 said. 22 But what about these improvements? First of all, 23 you heard from government yesterday various criticisms 24 from their counsel which appear to have been picked up 25 in today's newspapers but of course we would say that</p>	<p>1 implementation of improvement measures. I note that he 2 regarded this, and I quote him, as being a positive 3 note, and I trust that the Commission and anyone who is 4 listening would agree. 5 To bring the Commission right up to date and at the 6 request of Commissioner Hansford, we have appended to 7 our closing submissions two tables. The first table is 8 a table entitled "T&T", that's Turner & Townsend, 9 "recommendations with actions taken/to be taken", and 10 the words in brackets are important because it says 11 "[status as at January 2020]", which was the status as 12 at last Friday, when we served our submissions. This is 13 an updated version of appendix 2 to Mr Ewen's witness 14 statement, which had previously recorded the situation 15 that prevailed so far as the implementation of Turner 16 & Townsend's recommendations were concerned but as at 17 17 May 2019. So we have moved on something like seven 18 or eight months. 19 What about the Commission's recommendations in its 20 interim report? As we have made clear, MTR welcomed 21 those, and the progress in terms of implementing those 22 recommendations are set out in the table entitled, 23 "Progress update for COI recommendations implementation 24 by MTRCL", and I suspect that you had the opportunity to 25 read them. I would submit that both are</p>

<p style="text-align: right;">Page 73</p> <p>1 self-explanatory and indeed show the very considerable 2 lengths and in fact expense that MTR has gone to in just 3 a relatively short period of time to implement both 4 Turner & Townsend's and the Commission of Inquiry's 5 recommendations. 6 That's all I want to say about those 7 recommendations. It is important. I'll come back to 8 that, perhaps, in one or two concluding remarks in a few 9 moments. But I do need to say something about 10 supervision, and in particular my learned friend 11 Mr Shieh's threat to seek to reopen that particular 12 matter insofar as it was dealt with in the interim 13 report for the purposes of the final report. It became 14 apparent, as I understood it, that Leighton were intent 15 on reopening and rerunning their previous arguments 16 concerning the concept of full-time and continuous 17 supervision. 18 You will recall that Mr Pennicott indeed expressed 19 some concern about that particular course of action. 20 That's transcript Day 17, page 1, lines 5, to page 3, 21 line 10. 22 Now, so far as we were concerned, we didn't quite 23 know where Mr Shieh was going with this particular 24 matter, and of necessity we reserved our position, at 25 least until we had considered and digested what Leighton</p>	<p style="text-align: right;">Page 75</p> <p>1 subsequent proceedings in an appropriate forum, albeit 2 that for present purposes and the record we do feel 3 obliged to say that MTR does not accept Leighton's 4 contention in its COI 1 closing submissions at 5 paragraph 16 and its COI 2 closing submissions at 6 paragraph 7 that it has in fact complied with all 7 applicable statutory, regulatory and legal requirements. 8 So, drawing all the threads together, what do we say 9 by way of a conclusion? By way of a conclusion to the 10 project management section of its closing submissions, 11 we do feel obliged to remind the Commission and any 12 listening media that there's absolutely no project 13 management system in existence that can avoid any and 14 all mistakes during the construction process. As 15 Rowsell and Huyghe agreed, it's common that some 16 mistakes or oversights will inevitably be made in the 17 performance of the works of such scale and complexity. 18 However, procedures should be in place to mitigate 19 errors and enable the works to be executed in 20 a professional manner. Profound words. 21 Importantly, we would say that in the context of the 22 Commission's terms of reference, insofar as avoidable 23 project management errors occurred, for which it might 24 be said that MTR has a responsibility, McQuillan, Glover 25 and Southward agree that they did not -- and I emphasise</p>
<p style="text-align: right;">Page 74</p> <p>1 had to say in their closing submissions. But as noted 2 by Mr Pennicott -- this is paragraph 127 of his COI 2 3 closing submissions -- Leighton's COI 2 closing 4 submissions at paragraphs 33 to 54 make further detailed 5 submissions on the topic of its supervision 6 responsibility with specific regard to the installation 7 of ductile and non-ductile couplers. Against that 8 background, they invite you, sirs, to review and revise 9 its determinations in the interim report at 10 paragraphs 269 to 276. 11 Now, Mr Pennicott, counsel for the Commission, has 12 dealt with Leighton's contentions in his closing 13 submissions for COI 2 at paragraphs 128 to 137, and you 14 will realise that we have noted his observations, and in 15 relation thereto we agree, MTR agree, that Leighton's 16 supervisory obligations, whether by reference to the QSP 17 or otherwise, is a matter of contractual interpretation. 18 It follows from that, inevitably, that it's primarily 19 a legal issue. 20 We would say that the consequence of that is that 21 even if you made a determination, any determination by 22 the Commission will not be binding as between MTR and 23 Leighton in any future proceedings. And accordingly, 24 having considered the matter at some length, we would 25 submit that this is best left to be dealt with in any</p>	<p style="text-align: right;">Page 76</p> <p>1 "did not" -- render the structures under consideration 2 unsafe. Indeed, as and when the suitable measures we've 3 heard about are implemented, the structures will 4 obviously be even safer. 5 And having produced a safe structure, it is 6 submitted that MTR should receive the recognition it 7 deserves for taking the necessary steps to implement all 8 those measures which are referred to in the tables, to 9 either mitigate or avoid completely project management 10 errors and failings of the kind which unfortunately 11 occurred on this project. 12 I reiterate that MTR welcomes and looks forward to 13 receiving any recommendations that the Commission sees 14 fit to make in its final report. Before dealing with 15 one or two minor matters, I would end by saying that 16 MTR's top, top priority is public safety, an objective 17 that it will do its absolute utmost to achieve, and 18 points out that in the context of Hung Hom Station MTR 19 has achieved that objective: it's safe. 20 One or two points -- I shan't detain you much 21 longer -- that I need to pick up from yesterday. 22 Mr Benson Tsoi yesterday dealt in some detail with the 23 conversations that allegedly took place between Mr Lai 24 and Ah Chun. I just point out that our submissions on 25 that particular matter, for the record, are dealt with</p>

Page 77	<p>1 in paragraphs 63 to 72 of our 19 July 2019 submissions.</p> <p>2 In short, whilst making a few other points, I point out</p> <p>3 that we were not involved in the conversation. We are</p> <p>4 essentially neutral as to what occurred. We can't</p> <p>5 assist the Commission in terms of what happened in the</p> <p>6 conversation, whether indeed it ever took place, what</p> <p>7 words were used or whatever. But as Mr Tsoi pointed out</p> <p>8 yesterday, one explanation as to why no inspection of</p> <p>9 the stitch joint in question was carried out by MTR,</p> <p>10 which it is submitted is supported by its evidence, is</p> <p>11 because Mr Lai, having instructed Ah Chun to act in the</p> <p>12 way that he did, would not have wanted MTR inspectors to</p> <p>13 have seen the nature and extent of the defective</p> <p>14 workmanship.</p> <p>15 Finally, monitoring. An exchange took place</p> <p>16 yesterday involving Prof Hansford as to the nature and</p> <p>17 extent of the current monitoring. It's pointed out to</p> <p>18 me that in the holistic report at paragraph 4.4.9, at</p> <p>19 the moment, something called automatic deformation</p> <p>20 operative system is in place. There are in fact no</p> <p>21 fibre optics in place at the moment. The Commission</p> <p>22 will recall that it has heard evidence as to the benefit</p> <p>23 of regular visual inspection being carried out as</p> <p>24 opposed to adopting the fibre optics scheme.</p> <p>25 Mr Khaw yesterday raised the possibility of</p>	Page 79	<p>1 recording measurements at a fairly high level, then the</p> <p>2 criticism may well go out that if you had recorded at a</p> <p>3 lower level, you would have picked up a problem much</p> <p>4 earlier?</p> <p>5 Answer: Correct, and why didn't you do it three</p> <p>6 years ago? You can only pick up things into the future,</p> <p>7 and because the structure is so dominated by dead load,</p> <p>8 the loads are already there, which is my point about the</p> <p>9 cracking, which is my point about the stress levels that</p> <p>10 we've got in the structure now."</p> <p>11 So the Commission may well think that that's</p> <p>12 an answer to Mr Khaw's suggestion.</p> <p>13 COMMISSIONER HANSFORD: It's probably just worth continuing.</p> <p>14 MR BOULDING: Please.</p> <p>15 COMMISSIONER HANSFORD: Can you go on.</p> <p>16 MR BOULDING: Yes, of course. Please scroll down, sir.</p> <p>17 "Commissioner Hansford: Presumably, Dr Glover, you</p> <p>18 would only be measuring any future movement, you</p> <p>19 wouldn't be measuring any movement that's already taken</p> <p>20 place?"</p> <p>21 Let's see what he said:</p> <p>22 "Correct, yes. And one of the points that Dr Lau</p> <p>23 has made which is very true, if there was such a thing</p> <p>24 as shear failure, and I can't see it, but that --</p> <p>25 a shear failure is something which occurs quite quickly.</p>
Page 78	<p>1 calibration being used to prevent the fibre optics going</p> <p>2 off on every occasion a train went over. In fact,</p> <p>3 perhaps I ought to end by reminding you what Dr Glover</p> <p>4 said about this. This is Day 10 at page 125. Perhaps</p> <p>5 that could be put on the screen. If you could be kind</p> <p>6 enough to go to page 125, at line 22, I hope. Yes. The</p> <p>7 learned Chairman takes up the questioning:</p> <p>8 "Can you not -- sorry to interrupt -- calibrate the</p> <p>9 monitoring equipment so that it only records movement at</p> <p>10 a particular level?</p> <p>11 Answer: Yes, but that level is going to be so small</p> <p>12 that it's actually within the noise of the thing.</p> <p>13 I mean, all electrical, electron devices are not</p> <p>14 precise, they have a noise to them, so there's an error</p> <p>15 in that. If what you are trying to measure is actually</p> <p>16 very comparable to the error, then I'm not sure what you</p> <p>17 are doing.</p> <p>18 Chairman: I see. Yes.</p> <p>19 Answer: What you could do, if you really were going</p> <p>20 to be severe, is you could dig up the structure again</p> <p>21 and put some strain gauges on it, but the trouble is the</p> <p>22 stresses are already in the bar; it's already stressed</p> <p>23 to 90 per cent, so what are you going to be measuring?</p> <p>24 Chairman: And I would suppose -- this is a layman</p> <p>25 talking again -- if you only calibrated to start</p>	Page 80	<p>1 It doesn't go under -- a punching shear situation, it's</p> <p>2 explosive suddenly, but if there was a shear problem,</p> <p>3 you would start to get the shear cracks I started</p> <p>4 talking about, but you can't see them because they are</p> <p>5 in the body, but you might get some slight distortion.</p> <p>6 But I really think it would -- I can understand how the</p> <p>7 public might say 'You are hiding something', but to be</p> <p>8 honest, my advice is trying to protect the government</p> <p>9 and the public from what I would say are</p> <p>10 misunderstandings of the data that's coming out, and</p> <p>11 it's much better if there are regular inspections which</p> <p>12 are properly recorded and what I call a preventive</p> <p>13 planned maintenance regime is set in place for the</p> <p>14 station. That's my advice. I certainly wouldn't engage</p> <p>15 in some of the more sophisticated devices like</p> <p>16 fibre optics, et cetera, because I just don't think they</p> <p>17 are applicable in this situation."</p> <p>18 COMMISSIONER HANSFORD: That's fine.</p> <p>19 MR BOULDING: So I hope that's been of assistance to you,</p> <p>20 sirs. It's been a pleasure to appear in front of you.</p> <p>21 I would finally like to thank my juniors and my</p> <p>22 instructing solicitors for the enormous assistance they</p> <p>23 have provided me with to assist you.</p> <p>24 Thank you very much.</p> <p>25 CHAIRMAN: Thank you very much.</p>

Page 81	<p>1 MR SHIEH: Mr Chairman, can I ask for a five-minute break? 2 Because I have just been reminded of certain matters 3 which those instructing me may wish -- 4 CHAIRMAN: Yes, of course. Let me just double-check 5 everything. Leighton and then, Mr Pennicott, yourself? 6 MR PENNICOTT: Unless Mr Connor wants to say anything. 7 CHAIRMAN: Mr Connor, welcome today, by the way. It's nice 8 to see you again. 9 MR CONNOR: It's very nice to be back, sir. Thank you. 10 CHAIRMAN: Just a query if you wish to say anything in 11 respect of the written submissions you have already 12 made. 13 MR CONNOR: Thank you, sir. Thank you, Professor. At this 14 stage, I'm not sure whether this is simply a walk-on 15 part or whether there are lines to deliver, but I will 16 be reviewing what has been said this morning and 17 reaching a conclusion at lunchtime. If there is 18 anything, it will be very brief. 19 CHAIRMAN: All right. That's good. Walk-on parts are 20 encouraged. Good. 21 MR CONNOR: I appreciate that, sir. I'll be in a position 22 to inform you -- 23 CHAIRMAN: What I'm saying is please don't feel you have to 24 say something merely just for the sake of it. 25 MR CONNOR: I think it's really just a question of reviewing</p>	Page 83	<p>1 Approach Tunnel and the HHS structures, which we looked 2 at in COI 2. 3 Can I ask the Commission to look at the words of 4 Dr Glover in his recent COI 1 report, in expert report 5 bundle 2, 16.1, at paragraph 5.2. He said: 6 "Few structures have been subjected to the degree of 7 post-construction survey, inspection and opening up, or 8 subjected to the sophisticated independent analysis and 9 testing which has been carried out on the structures by 10 a number of different parties." 11 We have heard a lot about structures being 12 over-engineered and I suppose I can say this structure 13 has been over-investigated. 14 Under such extraordinary scrutiny, the Commission 15 has heard from three independent structural engineering 16 experts -- prof McQuillan, Dr Glover and Mr Southward -- 17 who all concluded firmly that the as-built structures 18 are safe and fit for purpose, and the suitable measures 19 are not required for the purpose of structural safety. 20 For workmanship, can I remind the Commission of what 21 Prof McQuillan said, which we refer to in our closing at 22 paragraph 75, but the actual words of Prof McQuillan are 23 Day 11 of the latest tranche of hearing, page 123, at 24 line 10 onwards. He said: 25 "This issue of butt-to-butt, I'm not convinced of</p>
Page 82	<p>1 what has been said this morning to see whether there is 2 anything additional that would help you and the 3 professor. 4 CHAIRMAN: Excellent. Five minutes. 5 MR CONNOR: Thank you, sir. 6 (12.18 pm) 7 (A short adjournment) 8 (12.30 pm) 9 Closing statement by MR SHIEH 10 MR SHIEH: Mr Chairman and Prof Hansford, the Original 11 Inquiry started in 2018, following sensational 12 allegations by a disgruntled sub-contractor of Leighton 13 in a commercial dispute, that is China Technology, that 14 there had been massive rebar cutting in the Hung Hom 15 Station Extension site by Leighton workers. 16 These allegations were found to be unsubstantiated 17 in the interim report. There were only isolated 18 instances where the threaded ends of the rebar had been 19 cut and it was not excessive or systematic or systemic, 20 and crucially was not in any way done by Leighton 21 employees. 22 The project had then been exposed to a most thorough 23 and microscopic investigation over the past two years, 24 extending from the subject matter of COI 1, the Hung Hom 25 Extension, to the adjacent North Approach Tunnel, South</p>	Page 84	<p>1 it. There has been no evidence -- can I be outrageous? 2 Yes, I can, because I'm normally slightly outrageous. 3 I don't believe the general workmanship on this site in 4 terms of the operatives, whatever, in terms of forming 5 the connections, was substantially substandard. I don't 6 think there was anything where the workers were of 7 a lower quality. There is no doubt that sometimes 8 people didn't fix it as well as they possibly could, but 9 I think, if you take it as an average across Hong Kong, 10 it would probably be reasonably representative, perhaps 11 at the lower end." 12 We submit that the evidence of these three experts 13 in general should be preferred over that of Dr Lau, who, 14 we submit, was overly cautious and even misconceived on 15 certain points where he disagreed with the other 16 experts. More importantly, he conflated the issue of 17 structural safety with code compliance. 18 Without downplaying or diminishing the importance of 19 adherence to standards, which obviously is something 20 which all contractors strive to achieve, but with a dose 21 of reality and robust common sense, in truth, what 22 happened to Leighton and what we saw on this project 23 could just have happened and be seen in any construction 24 project in Hong Kong. 25 The Commission will also recall that in terms of</p>

Page 85	<p>1 suitable measures in respect of matters concerning</p> <p>2 inadequate coupler connection -- and this is the point</p> <p>3 made right at the outset in our latest written</p> <p>4 submissions -- for those parts which had in fact been</p> <p>5 opened up, because of the massive redundancies and</p> <p>6 over-engineering that had occurred for this structure,</p> <p>7 no suitable measures had been recommended, even on the</p> <p>8 basis of what we say to be overly conservative approach</p> <p>9 adopted in the holistic report, except for area A, which</p> <p>10 ironically is an area -- and the Commission will recall</p> <p>11 the statistical evidence concerning this -- area A is</p> <p>12 the only area where suitable measures had been</p> <p>13 recommended in the holistic report but it has actually</p> <p>14 not been opened up, and the suitable measures were only</p> <p>15 recommended because of a process of extrapolation and we</p> <p>16 say questionable statistical treatment, which had</p> <p>17 resulted in a reduction factor as high as</p> <p>18 60-odd per cent.</p> <p>19 These opening remarks should, we submit, guide the</p> <p>20 Commission in its approach to the evidence and</p> <p>21 eventually finalising its report.</p> <p>22 On structural safety, we submit the Commission</p> <p>23 should not be troubled by what we refer to as the code,</p> <p>24 Code of Practice for Structural Use of Concrete. We</p> <p>25 have made our point. It is not a statutory document,</p>	Page 87	<p>1 those are the provisions of the code.</p> <p>2 We have heard extensive evidence concerning whether</p> <p>3 or not this is a structure that would bend backwards and</p> <p>4 forwards frequently. I'm not going to go through that</p> <p>5 evidence again.</p> <p>6 Our written submissions have also addressed the</p> <p>7 question as to why partially engaged couplers are not</p> <p>8 useless and should not be wholly disregarded. That is</p> <p>9 our latest closing, paragraphs 41 to 44. I'm not going</p> <p>10 to repeat them.</p> <p>11 On butt-to-butt, again the Commission knows it by</p> <p>12 heart, probably, because it is the subject of the most</p> <p>13 recent round of evidence. BOSA materials did not</p> <p>14 require butt-to-butt. They did not train the site</p> <p>15 workers to ensure butt-to-butt connection, and workers</p> <p>16 could not possibly ensure butt-to-butt unless they have</p> <p>17 x-ray eyes. For practical purposes, the rule of thumb</p> <p>18 would be no more than two threads exposed. That most</p> <p>19 certainly is the case for the poor inspector tasked with</p> <p>20 inspecting whether or not the work has been properly</p> <p>21 done.</p> <p>22 But we have seen from actual evidence of the</p> <p>23 opened-up coupler as well as a matter of simple</p> <p>24 arithmetic that having two threads exposed could not</p> <p>25 achieve butt-to-butt unless the rebar on both sides of</p>
Page 86	<p>1 merely a set of guidelines for the purpose of deemed</p> <p>2 acceptance. The code must be extensive because it is</p> <p>3 supposed to be of general application, covering every</p> <p>4 possible scenario. Compliance with the code is not the</p> <p>5 be all and end all, even though for the purpose of the</p> <p>6 person sitting in the office there may be a temptation</p> <p>7 of just ticking the boxes, but it is inherently a set of</p> <p>8 guidelines to be adopted and applied commonsensically.</p> <p>9 Whether a structure is safe is an objective matter to be</p> <p>10 determined by scientific methodology, and it follows, as</p> <p>11 we have submitted, that the structure can be safe even</p> <p>12 though it does not comply with the code in all respects.</p> <p>13 But in any case the reason why the code or the</p> <p>14 strict provisions of the code are relevant to structural</p> <p>15 engineering is because the government identify certain</p> <p>16 tests in the code, namely the static tension test, the</p> <p>17 permanent elongation test and the cyclic tension test</p> <p>18 prescribed under the code, which the government says</p> <p>19 would not be passed if the rebars were not connected</p> <p>20 butt-to-butt. That is the only reason why specific</p> <p>21 provisions of the code are brought into play in the</p> <p>22 context of this Commission, and we have made our</p> <p>23 submissions on that, but if one were to ask the</p> <p>24 question, "What are we talking about the code? What</p> <p>25 specific provisions of the code are we concerned with?",</p>	Page 88	<p>1 the coupler have a threaded length of 48 millimetres.</p> <p>2 And we know, as a matter of common sense, because 48 is,</p> <p>3 we know, the maximum result of the tolerance, we know as</p> <p>4 a matter of theory and also as a matter of what</p> <p>5 Prof McQuillan has seen and also as a result of looking</p> <p>6 at the opening-up results, that rarely do we have rebar</p> <p>7 threads which were in fact 48 millimetres.</p> <p>8 The reference to the result of the opening-up can be</p> <p>9 found in the opening-up bundle at 3308. I don't think</p> <p>10 I need to refer the Commission to that because</p> <p>11 I remember that references have been made during the</p> <p>12 course of the evidence to show the actual measured</p> <p>13 length of the threads. They vary, but you would try</p> <p>14 very hard to find a threaded end which measured</p> <p>15 48 millimetres. So 44 to 48 is an accurate way of</p> <p>16 putting it. Certainly not all are 48.</p> <p>17 Now, Mr Chow said yesterday -- and I think this is</p> <p>18 also reflected in the government's written closing --</p> <p>19 that if BOSA delivers to site rebars with a threaded</p> <p>20 length of only 44 millimetres and not mostly</p> <p>21 46 millimetres, then somehow Leighton, being the main</p> <p>22 contractor, and MTR, being the project manager, have to</p> <p>23 do something about it, for example to modify the</p> <p>24 inspection criteria, to delete "no more than two threads</p> <p>25 exposed", to saying "no thread exposed".</p>

<p style="text-align: right;">Page 89</p> <p>1 Now, we say, with respect, this is symptomatic of 2 an approach where at every possible juncture fault is 3 found by the government on the part of someone else, and 4 this from the government whose role in this Commission 5 of Inquiry is a concerned party, defending itself from 6 potential criticisms that could be made against it in 7 its task as supervisor or regulator, rather than as 8 an accuser before this Commission, making charges and 9 accusations.</p> <p>10 I remind this Commission that given the extreme 11 political heat which the government was under when the 12 saga first arose in the year 2018, which seems like 13 a lifetime ago, any finger-pointing which the government 14 now conducts in the course of these proceedings must be 15 taken with a pinch of salt.</p> <p>16 The fact of the matter is BOSA produced rebar 17 ranging from 44 to 48. Leighton has no obligation to 18 demand BOSA to produce rebar mostly of a specific 19 tolerance, and on site it is impossible for Leighton or 20 indeed anyone to spot the difference between a threaded 21 end which is 44, a threaded end which is 46, or 46.5, or 22 45.28 millimetres, and then to adjust the inspection 23 criteria accordingly.</p> <p>24 The rebar is the proprietary product of BOSA, and 25 how is Leighton supposed to force BOSA to change its own</p>	<p style="text-align: right;">Page 91</p> <p>1 acceptance criteria, must have accepted non-butt-to-butt 2 connections, which the government must also at the same 3 time have regarded as structurally safe and fit for 4 purpose.</p> <p>5 In the government's written closing and also in 6 Mr Chow's oral closing yesterday, they referred to this 7 concept about giving Leighton the benefit of the doubt 8 in adopting the 37 millimetre PAUT test. The Commission 9 remembers the point arose because, if one adopts 37, 10 then plus or minus, one could end up having 11 34 millimetres which would still pass. It was said to 12 be chosen to give Leighton the benefit of the doubt.</p> <p>13 It was asserted as a matter of fact, but the 14 government has not done its fact-check. If we look at 15 the holistic report, at the opening-up bundle at 3252, 16 and look at how the PAUT test was identified and 17 explained, we can see how it was put. Opening-up 18 bundle, page 3252. It's 3.3.13:</p> <p>19 "For the purpose of this study, the proper 20 installation requirement for the couplers are considered 21 to be (i) there shall be a maximum of two full threads 22 exposed (which is stated in the ... installation 23 requirements); and (ii) the engagement length of the 24 threaded steel rebar inside the coupler should be at 25 least 40 ... As the allowable measurement tolerance of</p>
<p style="text-align: right;">Page 90</p> <p>1 formulation of acceptance criteria said in its 2 literature?</p> <p>3 This morning, Mr Chow raised this question about 4 a possible typo. Again, this is symptomatic of the 5 approach that I mentioned earlier, because again it was 6 said, if there is typo, somehow Leighton ought not to 7 have put forward a document containing a typo. But if 8 one wants to be mischievous about it -- and can I be 9 mischievous in the same way as Prof McQuillan wanted to 10 be outrageous? -- BOSA is an approved supplier approved 11 by the government, and one wonders whether the 12 government wants to defend itself for choosing BOSA or 13 at least approving BOSA, whose literature contained 14 a typo. Indeed, the government would have had to review 15 the manuals and materials produced by BOSA when it made 16 BOSA an approved supplier.</p> <p>17 This truly is what the government should be doing, 18 defending itself from approving BOSA, rather than to 19 finger-point at others. Let Mr Pennicott point his 20 fingers.</p> <p>21 Coming back to more mundane matters of acceptance 22 criteria, the government's criteria of 37 millimetres 23 and no more than two threads exposed, we have seen from 24 calculation, does not always achieve butt-to-butt. It 25 follows, we say, that the government, through its own</p>	<p style="text-align: right;">Page 92</p> <p>1 the test equipment is 3 ..., equipment readings below 2 37 millimetres are regarded as defective."</p> <p>3 So at least as then formulated, the drafter seemed 4 to be: well, there should be at least 40, let's minus 3, 5 being the tolerance, so we get 37. No one had ever 6 thought, "How about 44, but anyway let's give Leighton 7 the benefit of the doubt." It was not the way it was 8 put forward as being a kind of explanation or indulgence 9 given to Leighton.</p> <p>10 I have said enough on structural safety and fitness 11 for purpose, because the point has been repeated so many 12 times that I don't think I would be adding anything by 13 regurgitating bits that have been written.</p> <p>14 We now wish to deal with the question about the 15 stitch joints and the nice question of the conflict 16 between Leighton and Wing & Kwong, especially given the 17 submissions made by Wing & Kwong yesterday.</p> <p>18 We say there can be no dispute that Wing & Kwong's 19 poor workmanship was the direct cause of the defective 20 coupler connections at the three stitch joints. Yes, 21 there is a conflict of testimony between Wing & Kwong 22 and Leighton as to how that had come about. Mr Tsoi 23 said yesterday that Wing & Kwong has been made the 24 scapegoat. We had filed full written closing in July 25 last year, explaining by ten reasons, paragraphs 8 to</p>

<p style="text-align: right;">Page 93</p> <p>1 29 -- I'm not going to repeat them -- as to why Wing 2 & Kwong's case is unbelievable. For Mr Chairman, these 3 are the usual points that one would deal with when you 4 are faced with "your word against my word" situation, 5 why is there no writing, inherent likelihood and the 6 like. 7 But if we stand back, we would say that when one 8 looks at the matter holistically, there can be little 9 doubt that inspections for rebar fixing and pre-pour 10 checks -- because the Commission will remember there 11 would be two standard hold-point checks after the rebar 12 fixing. There would be the rebar fixing aspect and 13 there would be the pre-pour checks. The rebar fixing 14 checks would be done by the engineers of MTRC together 15 with Leighton, and the pre-pour checks would be done by 16 the inspector of works of MTR together with Leighton. 17 We would say the evidence in its totality suggests 18 that both hold-point checks had been conducted for the 19 stitch joints and the shunt neck joints, and approved by 20 Leighton's engineer, on the one hand, and MTR's 21 engineer/inspector of works. 22 Again, I'm not going to turn up the actual 23 submissions. The text can be found at paragraphs 36 24 to 46 of Leighton's July closing submissions filed last 25 year.</p>	<p style="text-align: right;">Page 95</p> <p>1 But Mr Tang said in his testimony, which is quoted 2 here, that he would check with the MTR engineer who did 3 the formal inspection for rebar fixing, before he 4 proceeded with the formal inspection for pre-pour 5 checks: 6 "The question I want to ask you is this. When 7 Henry [Lai] calls you at the time, what would he say to 8 you, if he were to invite you to conduct a pre-pour 9 check? 10 Answer: He would say, 'Tony, I'd like to make 11 an appointment with you at a certain location to do the 12 inspection', and then I would ask him to submit the 13 form, then I would ask, 'Have you inspected the rebar?' 14 If he could give me the name, then I would call the 15 responsible engineer, that is the hold-point engineer, 16 and confirm that, and then I would follow up. 17 Question: You said just in your answer there -- I'm 18 not trying to catch you out -- but you said that if he 19 could give the name of the MTR engineer who did the 20 check with him; is that right? If Henry Lai could give 21 you that name, then you would call that engineer; is 22 that right? 23 Answer: Yes. 24 Question: Were there occasions when Henry Lai 25 simply told you, 'We have conducted the rebar fixing</p>
<p style="text-align: right;">Page 94</p> <p>1 Importantly, what was omitted from Mr Tsoi's 2 submission yesterday was Mr Ng Man Chun, Ah Chun's 3 testimony, which we say can be found in Day 3 of the 4 summer hearing of last year, Day 3, page 56, lines 1 5 to 5. Can we have that turned up? Where he confirmed 6 that inspections actually took place: 7 "The hold-point inspections, this happens in every 8 location after we have done our work. It's done at 9 every location. 10 Question: But including the hold-point inspections? 11 Answer: That's correct." 12 So Ah Chun had confirmed that inspections did take 13 place. 14 Tony Tang, a witness for MTR who is an inspector of 15 works, had confirmed that he had conducted pre-pour 16 checks for stitch joints and shunt neck joint and had 17 given approval for the works. We refer to this aspect 18 in our July closing last year at paragraph 42(4), so can 19 I ask that to be turned up. It actually is also 20 a proper occasion for me to correct a mistake, because 21 this subparagraph (4) mistakenly attributed the extract 22 to Mr Victor Tung. It should actually be a reference to 23 Mr Tony Tang, who is an inspector of works of the MTR. 24 So perhaps for the record, instead of Victor Tung, it 25 should be Tony Tang.</p>	<p style="text-align: right;">Page 96</p> <p>1 check', without specifying who the team of engineers 2 were who conducted the rebar fixing check? 3 Answer: No, because, as I said just now, in the NAT 4 or NSL, there was only one engineer left and he knew who 5 to call exactly. So, after he gave [me] the name, 6 I don't think he would remember the details wrong." 7 See also the following exchanges: 8 "In other words, whenever you were required to carry 9 out the hold-point inspection, the pre-pour inspection, 10 you would invariably phone up the engineer to confirm 11 that there had been hold-point inspection for the steel 12 fixing works; right? 13 Answer: Yes." 14 Another reference -- again, no need to turn it up -- 15 is Day 12, page 90, lines 12 to 22, basically Tony Tang 16 confirming that he conducted the checks for stitch 17 joints and shunt neck joint. 18 As far as engineers are concerned, because again, as 19 I said just now, on the MTR side, rebar fixing checks 20 are done by engineers, pre-pour checks are done by 21 inspectors of works. For rebar fixing checks, there 22 were two potential candidates from the MTR side, 23 engineers, and they are Madam Kappa Kang and Chris Chan, 24 who both testified before this Commission. Kappa Kang 25 cannot recall positively whether she did the rebar</p>

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<p>1 fixing check. Chris Chan denies having done it, and the 2 Commission remembers that according to Henry Lai, 3 Henry Lai remembers that it's Chris Chan, Chris Chan 4 denies it, but it could also have been Kappa Kang in 5 theory. Kappa cannot recall whether she has done it. 6 But the important thing about Kappa is she is 7 a disinterested witness who actually now is working for 8 the government. So she left MTRC, who she was working 9 for at the time and she now works for the government. 10 Kappa spoke about a system -- because the Commission 11 will understand, nobody can have a precise independent 12 recollection of what happened on a particular day. 13 Usually people rely on their recollection of what would 14 have happened by default, and Kappa gave her 15 recollection of a system whereby, one way or another, 16 someone from MTR would be involved in the rebar checking 17 hold-point inspection. 18 We refer to this in our written closing in July last 19 year at paragraph 42(3): 20 "Kappa Kang confirmed that the inspectors of works 21 of MTR who were responsible for the formal inspections 22 for pre-pour checks would not only rely on input from 23 Leighton's engineer but also had a responsibility to 24 check with the MTRC engineer or other inspectors of 25 works whether the formal inspection for rebar fixing had</p>	<p>1 inspection has already taken place'?</p> <p>2 Answer: Well, if they are not sure the rebars have 3 been inspected, they probably would do this." 4 Can I give the Commission two further references 5 from Kappa about her practice and the normal procedure 6 in these checks. That is Day 12 of the COI 2 hearing, 7 page 15, line 24 to page 16, line 4, and also Day 12, 8 page 56, line 25 to page 57, line 5. 9 The point about Kappa's evidence on the default mode 10 of operation is that it is an additional pointer, if the 11 point hasn't already been made, an additional pointer 12 against Henry Lai having instructed or asked Ah Chun to 13 just do a botched-up job, because if this is the default 14 mode of inspection then unless Henry Lai has this 15 magical ability of making sure that there would be no 16 rebar hold-point check and no pre-pour hold-point check 17 for all the concerned stitch joints and shunt neck 18 joints in question, the botched-up job would be bound to 19 be found out during these inspections, because he 20 couldn't get away with it because of this procedure 21 built into the MTR system, and no one from the MTR 22 system had said somehow we have done an inside job with 23 Leighton to make sure that this defective work escapes 24 inspection. 25 So for the story of Henry Lai inspecting Ah Chun not</p>
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<p>1 been carried out by MTR or not." 2 Then there is a reference to Day 12, page 46, line 6 3 to page 49, line 23 -- I don't need to turn that up. 4 The Chairman asked: 5 "No. You have said, I think, 'Now, the inspectors 6 would be on site, and when they are requested to do 7 a pre-pour check, they would have to verify whether 8 a rebar hold-point check had already taken place.' So 9 they receive a request, 'Can we do a pre-pour check?' 10 They need to make sure that there has already been 11 a hold-point rebar check. Question: how do they check 12 that out?" 13 Then Kappa replied: 14 "Well, I send the WhatsApp message, they would know 15 that rebar inspection has taken place at a particular 16 location. If they didn't see the message, they can ring 17 up the construction engineering team. We are sitting in 18 the same office. It would not be hard for them to 19 approach us about whether we have done the inspection. 20 A simple communication like that would suffice. 21 Chairman: Could I ask this: was it then part of the 22 inevitable procedure that if a request like this was 23 received for the pre-pour check, that the inspector of 24 works would always go back to the MTR construction 25 engineer team and say, 'Can you confirm that the rebar</p>	<p>1 to screw the tapered ends properly to hold water, there 2 has to be some kind of a massive collaboration between 3 the Leighton inspecting staff and also the MTRC 4 inspecting staff, and we respectfully submit that that 5 is actually a rather grave suggestion to make and there 6 is no evidence whatsoever to support that. 7 The totality of the evidence shows that inspections 8 must have taken place, and we say there is actually no 9 strict need for the Commission to determine which 10 individual actually did the inspection. Wing & Kwong's 11 Ah Chun, Leighton's Henry Lai and MTR's Tony Tang all 12 gave evidence to confirm that there had been checks of 13 the shunt neck joint and also the stitch joint. The 14 question mark is really over, on the engineer side, 15 whether it's Chris or Kappa. 16 If inspections had taken place, the question would 17 then arise: why weren't the problems spotted? We made 18 our submission -- again, I'm not going to repeat that -- 19 in paragraph 45 of our July closing. We refer to the 20 photographic evidence, we refer to the lighting 21 condition and the congestion and the like, and we make 22 the submission that it's understandable why, in 23 an environment like that, the defects could very well 24 have been missed. 25 Also we have evidence from Mr William Holden. Can</p>

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<p>1 I just give an additional reference? Day 8, page 88, he 2 also referred to the confined area within the space and 3 the difficulty in spotting the defects. 4 At the end of the day, can I simply echo what the 5 Chairman said yesterday concerning the possibility of 6 the Commission's finding impacting upon potential civil 7 or other liabilities. These are matters best left for 8 subsequent civil proceedings. We have made this point 9 in our July closing. Can I ask the Commission to look 10 at our July closing. 11 CHAIRMAN: Sorry, I don't fully agree with that submission. 12 If we have an obligation to look at compliance with the 13 contract, we, as I see it -- and I'm open to correction 14 here, by you and/or by Mr Pennicott or anybody else -- 15 we therefore, without in any way seeking to make 16 findings of contractual liability or criminal 17 culpability in any way, can nevertheless and should 18 nevertheless, if we are looking at conduct that might 19 indicate why work was not done properly, we should 20 identify it even if it may have an impact on questions 21 that would normally be raised in a civil or criminal 22 court. 23 MR SHIEH: Can I deal with it this way? The starting point 24 is findings of the Commission obviously would not be in 25 any way binding or determinative of civil liability.</p>	<p>1 view that that could very well be a sterile debate, 2 especially when it's your word against my word, where 3 the Commission's "finding" is not going to be binding if 4 proceedings are going to take place elsewhere, that's 5 going to place elsewhere, with discovery and all the 6 rest of it, the Commission could very well take the 7 view, "Let's be cautious about it, let's be 8 forward-looking, and let's, for example, make 9 recommendations about better record-keeping system and 10 the like", rather than treading on a typical "your word 11 against my word" scenario and getting bogged down in 12 that kind of exercise. 13 CHAIRMAN: Yes. That's exactly why I think yesterday, with 14 Benson Tsoi, rightly or wrongly I raised with him 15 towards the end of his submissions that it wasn't for us 16 really to look to issues of actually who said what and 17 why. It was an unnecessary exercise in the discharge of 18 our mandate. 19 MR SHIEH: Yes. As I said, if the Commission takes the view 20 that it has to do it, then the fact that a "finding" 21 somehow cuts across some contractual claim is neither 22 here nor there. 23 CHAIRMAN: Yes. 24 MR SHIEH: But in deciding whether or not you really need to 25 do it, there's a degree of I wouldn't say discretion but</p>
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<p>1 That's trite. 2 CHAIRMAN: No. We are legally sterile in that regard. 3 MR SHIEH: That is trite, so no one can actually sue, for 4 example, on the basis of a finding and say, "Look, the 5 Commission has said you are in breach of contract", but 6 I take the point that leaving aside the legal status of 7 a "finding" by the Commission, if a certain exercise or 8 finding is mandated by the terms of reference or if the 9 Commission takes the view that to make a certain 10 finding, it is necessary for it to discharge his terms 11 of reference, "For example, "So and so did X on this 12 particular day", then the Commission has to make that 13 finding, even though that factual finding may have 14 an implication in possible future civil proceedings. 15 That I don't quarrel with. 16 CHAIRMAN: That's the point. Exactly. You have hit the 17 nail on the head. Thank you very much. 18 MR SHIEH: That I don't quarrel with. But the only caution 19 I would urge on the Commission is that in deciding or 20 interpreting whether or not a certain finding is really 21 mandated or necessitated by the terms of reference, 22 there is still room for the Commission to take the view 23 that -- and this is a very good example -- the stitch 24 joint and the shunt neck joint have all already been 25 remedied, so the Commission could very well take the</p>	<p>1 a room for manoeuvring or emphasis so that the 2 Commission can legitimately take the view, "Let's be 3 forward-looking, these are matters which are best left 4 to be litigated between parties." 5 CHAIRMAN: Yes. 6 MR SHIEH: That really is the point that we make in 7 paragraph 34 of our July closing last year. 8 CHAIRMAN: In which case we are ad idem, Mr Shieh. Thank 9 you. 10 MR SHIEH: Chairman, I see that we are past 1 o'clock and 11 this might be an appropriate moment. 12 CHAIRMAN: Yes. 13 MR SHIEH: I don't have much to -- 14 CHAIRMAN: How -- yes, that's probably right. 15 MR SHIEH: Another, say, 20 minutes, but I don't want to 16 hold everyone up for too long. 17 CHAIRMAN: You can then return and complete afterwards. 18 Then we will see, Mr Connor, whether you wish to say 19 anything or not. 20 Then, Mr Pennicott, let me leave it to you to 21 determine how long we should have for lunch and then 22 everyone can blame you, not me. 23 MR TSOI: I hesitate to interrupt at this unmanly hour but 24 it has been submitted that I omitted part of Ah Chun's 25 evidence in which he said that inspection did take</p>

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<p>1 place. I did not omit such evidence because that's not 2 what Ah Chun said, but would you like me to address you 3 now or later? 4 CHAIRMAN: Perhaps later. 5 MR TSOI: Absolutely. 6 CHAIRMAN: Then you can consider it and see where we stand 7 on that. 8 MR TSOI: Absolutely. 9 CHAIRMAN: I only ask you, Mr Pennicott, because you are 10 going to be speaking last and you are obviously -- 11 MR PENNICOTT: Sir, yes, I know. Can I suggest we have the 12 compromise solution and 2.15, so an hour and five 13 minutes; is that all right? 14 CHAIRMAN: It will be an hour by the time we've got out. 15 MR PENNICOTT: Yes. 16 CHAIRMAN: That sounds excellent. Thank you all very much. 17 2.15. 18 (1.13 pm) 19 (The luncheon adjournment) 20 (2.17 pm) 21 MR BOULDING: Chairman, Prof Hansford, before Mr Shieh 22 continues to entertain us, he has given me ten seconds 23 to clarify a point. 24 Immediately at the end of my submission, I referred 25 to a device called an automatic deformation operation</p>	<p>1 Leighton inspecting the works at the three stitch joints 2 or the shunt neck joint, as Mr Shieh seemed to suggest 3 to you, therefore I did not omit anything. Unless I can 4 be of assistance. 5 CHAIRMAN: Thank you very much. 6 MR SHIEH: It's a small point but I did not say that Ah Chun 7 said that the stitch joints were inspected in the 8 presence of Ah Chun, but the transcript speaks for 9 itself. 10 Can I now move on to deal with the final topic and 11 that is project management. Leighton's position has 12 been described as reopening the question about the 13 applicability of the QSP. The Commission has heard us 14 make the point previously, when we opened on the expert 15 evidence on project management, that the Commission's 16 conclusion in the interim report is just that, 17 an interim report, and it's open for revisiting, subject 18 to proper evidence and arguments being put forward. The 19 matter has now, we submit, been the subject of further 20 scrutiny in terms of the evidence and the arguments have 21 now been put forward before the Commission in fuller 22 form. 23 The question concerning the applicability of the 24 QSP -- the Commission will remember, the point about 25 whether the QSP applies goes to whether or not what one</p>
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<p>1 system, and I think I might have given you the 2 impression that it is still in place. It was in place 3 but it is no longer there. 4 CHAIRMAN: Thank you. So there's nothing there at the 5 moment? 6 MR BOULDING: Just visual inspection. 7 CHAIRMAN: Of course. Thank you. 8 Mr Tsoi? 9 MR TSOI: Yes, a short point, sir. Before the lunch 10 adjournment, Mr Shieh suggested that we have omitted 11 part of Ah Chun's evidence which confirmed that there 12 were hold-point inspection. In fact, I did not omit 13 such evidence because there was none. 14 If we go back to the transcript that Mr Shieh took 15 you to, which was 29 May 2019, page 56 -- so there he 16 read you until he got to line 5, which if you see the 17 context, Ah Chun was talking about the normal procedure. 18 Conveniently, Mr Shieh has not carried on reading, 19 because if you read until line 15, this was his 20 evidence: 21 "At the latter part of the construction works (ie 22 during the inspections for these 3 stitch joints), maybe 23 it was because Leighton had to catch up with works, they 24 did not require us to be present during inspections." 25 So it was never Ah Chun's evidence that he saw</p>	<p>1 calls the enhanced level of supervision, full-time 2 continuous supervision, prescribed by the QSP would 3 apply. If it doesn't, then there is what I would call 4 a default level of supervision called full-time 5 supervision, and one could debate separately what the 6 difference is between full-time and full-time 7 continuous, but stepping back let's sort out which is 8 the applicable regime first. 9 We submit that the applicability of the QSP is 10 determined by reference to the BD letters for which we 11 have given the reference, the BD consultation letters. 12 The crucial point is the difference between couplers 13 with and couplers without a ductility requirement, and 14 the Commission has our argument. 15 Concerning how one goes about determining whether or 16 not there is a ductility requirement, as a matter of 17 language, ductility requirement prescribes or 18 presupposes that there is a requirement imposed at or 19 prior to the time of construction. It is different from 20 the question of whether or not in fact ductile couplers 21 were used, and Leighton's submission is that the 22 relevant requirement as to ductility is to be determined 23 or ascertained by reference to the drawings which 24 Leighton were required to follow at the time of 25 construction. The Commission has our submission as to</p>

Page 109	<p>1 the proper reading or understanding of those drawings.</p> <p>2 We simply recap that those drawings show ductility</p> <p>3 zones in certain parts of the D-walls going upwards,</p> <p>4 vertically, but not in the slabs, horizontally. The</p> <p>5 only part of the slabs where we submit a ductile zone</p> <p>6 could be found is the intersection of the D-wall and the</p> <p>7 slabs in area A of NSL, which is an area not the subject</p> <p>8 of evidence.</p> <p>9 So we submit that, on the basis of these objective</p> <p>10 materials, the QSP does not apply to the areas in</p> <p>11 question in our case.</p> <p>12 There are a few points that I wish to make</p> <p>13 responsively to a number of matters that have been said</p> <p>14 against our argument. First, there is an attempt to</p> <p>15 refer to the content of the QSP itself, because the</p> <p>16 argument goes the QSP itself seemed to suggest that it</p> <p>17 applies to zones whether ductile or not. But in our</p> <p>18 respectful submission, the terms of the QSP cannot</p> <p>19 override or supersede the requirement of the BD</p> <p>20 consultation letters, which must be the primary document</p> <p>21 governing the obligation of Leighton.</p> <p>22 To allow the QSP instrument -- to allow the terms of</p> <p>23 the QSP to self-impose a requirement is like a bootstrap</p> <p>24 argument, because the QSP -- in the absence of the BD</p> <p>25 consultation letters, the QSP has no self-standing force</p>	Page 111	<p>1 beside the point, because they do not, by definition,</p> <p>2 lay down any requirement, because they simply capture</p> <p>3 the as-constructed result.</p> <p>4 So these are our submissions concerning the</p> <p>5 applicable regime, but as a fallback obviously Leighton</p> <p>6 contends whether or not the applicable regime is QSP,</p> <p>7 full-time continuous, or simply full-time, Leighton has</p> <p>8 complied with the requirement. We have put in written</p> <p>9 submissions as to Leighton's compliance. I don't</p> <p>10 propose to go through that, save and except to point out</p> <p>11 that in relation to the 1:10 ratio for -- the relevant</p> <p>12 supervision ratio of 1:10, there is one document that</p> <p>13 I wish to remind the Commission of, and that is in</p> <p>14 CC12/7481.</p> <p>15 That is a document prepared by Leighton, summarising</p> <p>16 the number of rebar fixing workers and supervisors. The</p> <p>17 Commission can see from the chart on the right of the</p> <p>18 table, to the right-hand side of the table -- yes -- the</p> <p>19 red bars are rebar supervision assuming 10:10 ratio. So</p> <p>20 the red bars represents the requirement, the required</p> <p>21 number of supervisors; that would be the red bars. The</p> <p>22 green line, if we can look at the legend, represents the</p> <p>23 actual rebar supervision. So that shows, on Leighton's</p> <p>24 case, that the number of qualified engineers who were</p> <p>25 allocated to supervising the installation of couplers</p>
Page 110	<p>1 of application. The QSP cannot simply say, "Hey, I feel</p> <p>2 like applying myself to this area", when the enabling</p> <p>3 instrument, namely the Buildings Department consultation</p> <p>4 letters, have confined its application elsewhere. So</p> <p>5 that's the first point.</p> <p>6 The second point is that it is not to the point that</p> <p>7 some people within Leighton have considered Leighton to</p> <p>8 be subject to QSP requirement, because the applicability</p> <p>9 of QSP requirement is a matter of law and a matter of</p> <p>10 interpreting the requisite instrument. If the requisite</p> <p>11 instruments do not impose the relevant requirement, the</p> <p>12 individuals could well have been misguided or mistaken</p> <p>13 in their interpretation, then so be it; as a matter of</p> <p>14 law, the QSP is not applicable.</p> <p>15 Finally, there is a suggestion that there were some</p> <p>16 drawings called approved drawings or accepted drawings</p> <p>17 submitted to the Buildings Department for the purpose of</p> <p>18 obtaining certificate of completion. But the point one</p> <p>19 has to bear in mind is that the governing instrument,</p> <p>20 the governing drawings, are the drawings that are</p> <p>21 available to Leighton at or prior to the time of</p> <p>22 construction, because that would be the kind of</p> <p>23 instrument or "authority" laying down any requirement.</p> <p>24 Any drawings compiled subsequent to construction for the</p> <p>25 purpose of obtaining whatever permission or approval is</p>	Page 112	<p>1 compared to the number of rebar fixing workers on site,</p> <p>2 we submit, was better than 1:10 at all relevant times.</p> <p>3 We therefore invite the Commission to confirm, first</p> <p>4 of all, that the lower threshold of supervision applied</p> <p>5 and not the enhanced level of QSP in relation to the</p> <p>6 areas in question.</p> <p>7 In any event, I simply repeat what I have submitted</p> <p>8 earlier as to the need for caution on the part of the</p> <p>9 Commission, if it is minded to make any finding which</p> <p>10 may have the potential of impacting upon matters of</p> <p>11 contractual compliance as between MTR and Leighton.</p> <p>12 Of course subject to the caveat that I mentioned</p> <p>13 earlier, because if the Commission regards it as</p> <p>14 necessary then the Commission will just have to do it,</p> <p>15 but I simply urge exercise of caution on the part of the</p> <p>16 Commission.</p> <p>17 On RISC form and record-keeping, it is not a code</p> <p>18 requirement or statutory requirement. It is simply</p> <p>19 a matter of contract between Leighton and MTR. We put</p> <p>20 forward our submission in our COI 2 closing in</p> <p>21 section E, and I'm not going to repeat that. It is</p> <p>22 a matter of fact that RISC forms have not always been</p> <p>23 completed, but we submit that MTR and Leighton had gone</p> <p>24 along with proceeding with factual inspection and</p> <p>25 subsequent completion of the work.</p>

<p style="text-align: right;">Page 113</p> <p>1 Mr Boulding mentioned that perhaps a safer course 2 would be for the Commission not to get into niceties of 3 analysis of the contractual -- analysis of the situation 4 as between Leighton and MTR, such as whether there might 5 have been contractual variation or estoppel, because 6 those are classic matters of dispute resolution to be 7 dealt with privately. If ever there is a case where the 8 caution that I have mentioned earlier comes into sharp 9 focus, this is such an example. 10 COMMISSIONER HANSFORD: Sorry, Mr Shieh, you said it was 11 COI 2, section E? 12 MR SHIEH: Yes. 13 COMMISSIONER HANSFORD: I don't think it is, is it? 14 MR SHIEH: On RISC forms and record-keeping, the July one. 15 COMMISSIONER HANSFORD: Sorry, back in your July one. 16 Forgive me. 17 MR SHIEH: I'm sorry, yes, I should have mentioned the July 18 one. Because factually it is a matter of fact that 19 despite the absence of RISC forms, the parties have 20 factually proceeded with inspection and also completion 21 of works. There is the dispute as to whether or not 22 MTRC had laid down any markers, have sent any emails 23 putting it on record, and one can argue until the cows 24 come home whether there was a contractual variation or 25 estoppel, but as I said these are classic matters to be</p>	<p style="text-align: right;">Page 115</p> <p>1 the highest safety standards. 2 The Commission has heard Mr Cowley giving evidence 3 that Leighton has implemented measures to improve 4 aspects of project management issues. Leighton hopes it 5 would be apparent to the Commission that it has 6 cooperated fully with these proceedings and the 7 Commission in tendering factual evidence, expert 8 evidence, and in providing information and submissions. 9 Leighton is committed to implementing any 10 recommendations that this Commission may make as 11 a result of hearing the evidence and submissions of all 12 parties, and Leighton is grateful to be afforded the 13 opportunity of presenting its side of the matter by way 14 of evidence and submission before you. 15 Before I sit down, there is a more mundane matter of 16 certain errors in the government's submissions which 17 Leighton had tried to point out in an email sent to the 18 Commission Secretariat, I think, or the government; 19 I forgot which. It is to be found in the final closing 20 submission bundle under COI 1, item 1.2. It's actually 21 an email from OMM to the Commission, where we identify 22 certain incorrect statements, such as a mistaken 23 reference in the transcript to one rather than the 24 other, and other matters. Some may be said to be simply 25 a matter of interpretation or emphasis.</p>
<p style="text-align: right;">Page 114</p> <p>1 involved in a private dispute-resolution setting. 2 If the Commission is minded to address this, it 3 could well be the Commission would wish to say something 4 forward-looking, because the Commission remembers what 5 Kit Chan from the MTR had commented on, about the 6 utility of physical RISC forms and all that; that could 7 well be a more fruitful area for the Commission to 8 usefully address the issue. 9 Rebar testing, Mr Boulding has helpfully addressed 10 that. I don't believe that I need to or can usefully 11 add anything. 12 Now the end is near. Mr Chang asked me not to sing 13 it out so I can simply say the end is near, the end of 14 the tunnel is near. Leighton wishes to make a few 15 concluding remarks to round up its closing submissions. 16 This unfortunate saga has understandably had an impact 17 on Leighton, both in terms of its reputation and its 18 operation. The Commission will be aware, and it's 19 always something lurking in the background, that 20 Leighton have been suspended from tendering for 21 government contracts for two years. Leighton is 22 a company that has been present in and served Hong Kong 23 for more than 45 years, and despite this saga Leighton 24 will continue in its support for Hong Kong and the 25 Hong Kong construction industry and the maintenance of</p>	<p style="text-align: right;">Page 116</p> <p>1 But there is one matter which we wish to state for 2 the record, because in the government's submissions it 3 was stated from time to time -- it's really the last 4 item on the table -- that: 5 "On the basis of the results of the opening-up done 6 in area A ..." 7 But I believe that it is common ground that in fact 8 no opening-up has been conducted in area A. That was 9 the whole point that we discussed during the statistical 10 exercise and part of my submission this morning, that 11 the irony of this case is that the only suitable measure 12 was recommended for an area for which there has been no 13 opening-up, and this has been the subject of examination 14 of Prof Yin, the Commission may remember, as to whether 15 it's by design or otherwise that area A was not opened 16 up. 17 So that is a factual error that we have to correct. 18 I'm sorry, I might have stopped Mr Khaw from -- 19 MR KHAW: I was about to say in fact, in Mr Chow's 20 submissions yesterday, when he referred to that 21 paragraph, he did say, although without expressly 22 correcting the typo, it was on the basis of the results 23 of the opening-up done in Hong Kong Coliseum and area B. 24 So those are the two areas. I do correct that 25 particular typo.</p>

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<p>1 CHAIRMAN: Thank you very much. 2 MR SHIEH: Thank you. 3 The other matters of correction are as stated in 4 that email. I simply invite the Commission to read 5 those. 6 Subject to any matters the Commission may wish to 7 raise, those are Leighton's closing submissions. 8 CHAIRMAN: Thank you very much. 9 Peter? 10 COMMISSIONER HANSFORD: No. Well, one second. I will just 11 check. 12 No, my points have been covered. Thank you. 13 CHAIRMAN: Thank you very much. 14 MR CONNOR: Sir, Professor, I am pleased to confirm that 15 having had the opportunity of considering what has been 16 heard this morning, there is nothing I wish to raise 17 particularly with you. 18 The area that interested me was whether or not 19 certain structural engineering matters required to be 20 addressed further by me, particularly insofar as they 21 touched upon the stage 3 assessment report. You have 22 heard various submissions on that in the last day or so. 23 I'm pleased to say that my friend Mr Boulding has 24 comprehensively covered the points I would have made to 25 you, and therefore that, together with my final</p>	<p>1 the expert evidence called in relation to COI 2, the 2 extended part of the Inquiry, this time dealing with 3 statistical evidence, structural engineering evidence 4 and project management. Those two latter submissions or 5 addresses are dated 20 January 2020. 6 Sir, before I get to some of that material, I'd like 7 to make a number of introductory remarks. The first -- 8 and it's really because I'm fulfilling the role -- I'm 9 supposed to be fulfilling as counsel to the Inquiry, and 10 these are perhaps matters that one would not have 11 expected any of the other counsel to raise, just so 12 I make that clear -- the first topic is the nature of 13 the final report that you are going to prepare. As 14 I understand it, the likelihood is that you will be 15 essentially making a fresh start and you will be 16 producing a stand-alone final report, not in the nature 17 of some annex or addendum to the interim report but 18 obviously that report will no doubt include much of what 19 is in the interim report. 20 CHAIRMAN: That's our intention, yes. 21 MR PENNICOTT: Yes. That is what I had assumed would be the 22 case. 23 Sir, so far as the interim report is concerned, 24 there are I think three respects in which you are 25 invited by the parties, the involved parties, to</p>
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<p>1 submissions on the context in which the stage 3 2 assessment report was made, is sufficient for my 3 purposes at least, but I will of course be happy to deal 4 with any questions which you, sir, or the professor may 5 have. 6 CHAIRMAN: Good. 7 Peter? 8 COMMISSIONER HANSFORD: No, that's fine. 9 CHAIRMAN: Thank you very much indeed for your attendance, 10 today. 11 MR CONNOR: Thank you, sir. Thank you, Professor. I then 12 leave the stage and the final act to Mr Pennicott. 13 CHAIRMAN: Yes, thank you. 14 Closing statement by MR PENNICOTT 15 MR PENNICOTT: Sir, Professor, as government, MTR and 16 Leighton, the Commission's legal team have prepared 17 three sets of submissions, as you are aware: the closing 18 address dealing with the factual evidence called in 19 respect of the extended part of the Inquiry back in May 20 and June of last year, and those submissions are dated 21 26 July; then we have our closing address dealing with 22 the outstanding matters in respect of the Original 23 Inquiry, dealing principally with statistical evidence 24 and further structural engineering expert evidence; and 25 then thirdly, of course, a closing address dealing with</p>	<p>1 specifically consider or reconsider your findings or 2 provisional findings in the interim report. Firstly, so 3 far as Leighton is concerned, they are inviting you to 4 review paragraph 481(1), where you found that the works 5 were not executed in accordance entirely with 6 contract 1112, and they invite you to have another look 7 at that. 8 Secondly, so far as Leighton are concerned, as we've 9 just heard from Mr Shieh, he's asking you to look again 10 at various findings in relation to ductility and 11 ductility requirements, and that feeds into the question 12 of full-time supervision or full-time and continuous 13 supervision. 14 Sir, Mr Boulding correctly said this morning that 15 when this was raised back in September, I expressed some 16 concern about that particular point, but the concern 17 I expressed was in the context of the fact that various 18 of your findings in relation to that ductility question, 19 if I can call it that, or full-time supervision, was 20 that various parts of the interim report are of course 21 redacted, and that led to -- that was my concern, no 22 other concern, and that led obviously to the point 23 you've mentioned, and have mentioned to the parties 24 already, that an attempt to unredact all or part of the 25 interim report fell on deaf ears and we are where we are</p>

Page 121	<p>1 with the redacted version of the interim report.</p> <p>2 So that's the second specific area that you are</p> <p>3 asked to re-look at.</p> <p>4 CHAIRMAN: I should mention here, without in any way</p> <p>5 committing the Commission to any specific course of</p> <p>6 action, that the Commission is aware of the procedure of</p> <p>7 redaction, and obviously it makes no comment because</p> <p>8 once it's handed over a report, it's a matter for the</p> <p>9 Chief Executive and those who advise the Chief</p> <p>10 Executive, but what will be done is we will have a look</p> <p>11 to see whether, without interfering with the integrity</p> <p>12 of the report, we may be able to so word matters, both</p> <p>13 looking back and looking forward, that we can minimise</p> <p>14 the need for redaction, without in any way interfering</p> <p>15 with the integrity of what we feel we have to say.</p> <p>16 MR PENNICOTT: That's understood, sir, and I suppose in that</p> <p>17 context Mr Shieh or Leighton having raised the point</p> <p>18 will give you the advantage of having heard further</p> <p>19 submissions from him and in a moment from me on those</p> <p>20 points, and you can look at it afresh.</p> <p>21 CHAIRMAN: Yes.</p> <p>22 MR PENNICOTT: Sir, the third specific area, as I understand</p> <p>23 it, that you are being asked to reconsider is</p> <p>24 essentially from Pypun, where you've made certain</p> <p>25 findings in paragraphs 447 to 450 of the interim report.</p>	Page 123	<p>1 inspection, supervision, documentation, testing of</p> <p>2 materials, deviation from plans, design drawings</p> <p>3 accepted by government. So again, no, as it were,</p> <p>4 specific indication that something had happened, but</p> <p>5 an invitation to enquire into the facts and</p> <p>6 circumstances surrounding the various matters listed.</p> <p>7 As I say, that seems to me to apply just as much to the</p> <p>8 second part of the Inquiry as it did to the first.</p> <p>9 CHAIRMAN: Yes. I in fact had a look at this the other day.</p> <p>10 I intend, just as a matter of interest, to change that</p> <p>11 most inquiries are set up to investigate the cause of</p> <p>12 an event which has demonstrably and unquestionably</p> <p>13 happened, and looking at international inquiries, that</p> <p>14 some of them, that may not hold quite as true, but it</p> <p>15 does in Hong Kong. So I think I shall be saying that in</p> <p>16 Hong Kong it's tended always or most of the time to look</p> <p>17 at past events.</p> <p>18 MR PENNICOTT: Yes, sir. From my own knowledge, if one</p> <p>19 looks at the last -- Mr Shieh will probably know more</p> <p>20 about this than I do, but the last two inquiries in</p> <p>21 Hong Kong, the last one was in relation to excessive</p> <p>22 quantities of lead in drinking water in certain Housing</p> <p>23 Authority blocks, and the excessive amounts was, as it</p> <p>24 were, an established fact before the Commission was set</p> <p>25 up. They knew there were excessive quantities in the</p>
Page 122	<p>1 As I've understood my learned friend Mr Clayton's</p> <p>2 submissions, he, either expressly or impliedly, is</p> <p>3 inviting you to look at the questions of proactivity and</p> <p>4 surprise checks and that subject matter -- subject</p> <p>5 matter that one finds in these paragraphs, as he is</p> <p>6 perfectly entitled to do, and no doubt you will look at</p> <p>7 that. I may say a few words about that in a moment but</p> <p>8 not very much.</p> <p>9 Sir, the next point of general application is</p> <p>10 paragraph 30 of the interim report. At that paragraph,</p> <p>11 you have said:</p> <p>12 "During the course of submissions ... to the</p> <p>13 Commission, it was said that the great majority of</p> <p>14 public inquiries are set up to investigate the cause of</p> <p>15 an event which had demonstrably and unquestionably</p> <p>16 happened. In the present inquiry, however, this was not</p> <p>17 the case."</p> <p>18 Sir, it seems to me that those words are just as</p> <p>19 pertinent to the second part of the Inquiry as they were</p> <p>20 to the first part of the Inquiry. That is, if one looks</p> <p>21 at the language of the extended terms of reference at</p> <p>22 A2(i), the language is the same as was adopted in the</p> <p>23 original terms of reference. That is, you are required</p> <p>24 to enquire into the facts and circumstances</p> <p>25 surrounding -- and then the topics are listed:</p>	Page 124	<p>1 sense of looking at the World Health Organization</p> <p>2 limits, and readings were taken and excessive quantities</p> <p>3 of lead were found to have existed. And so the question</p> <p>4 was: something has happened, let's find out why it</p> <p>5 happened. So that's one example.</p> <p>6 CHAIRMAN: Yes.</p> <p>7 MR PENNICOTT: Of course the other rather more obvious</p> <p>8 example and very tragic example was the Lamma ferry</p> <p>9 crash; when two ferries crashed in the harbour,</p> <p>10 something demonstrably had happened, there was</p> <p>11 significant loss of life, but something had happened so</p> <p>12 the causes had to be investigated.</p> <p>13 CHAIRMAN: Then there was the bus -- it wasn't a full-blown</p> <p>14 commission of inquiry, but there was the bus accident</p> <p>15 where we looked into it, and of course if one goes back</p> <p>16 into the mists of time, there was the death of the</p> <p>17 police officer, the MacLennan Inquiry.</p> <p>18 MR PENNICOTT: Yes.</p> <p>19 CHAIRMAN: So I think in Hong Kong one can say that more</p> <p>20 than not, it tends to look into established past events</p> <p>21 in order to do an analysis of those events.</p> <p>22 MR PENNICOTT: Yes, and obvious the current massive inquiry</p> <p>23 that's going on in the United Kingdom at the moment into</p> <p>24 the Grenfell fire, again something has happened.</p> <p>25 CHAIRMAN: Exactly, or into Bloody Sunday --</p>

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<p>1 MR PENNICOTT: Yes, quite.</p> <p>2 CHAIRMAN: -- which ended up being ten years, apparently,</p> <p>3 according to the textbook I am now reading, and</p> <p>4 200 million pounds.</p> <p>5 MR PENNICOTT: Yes, sir. I mention that.</p> <p>6 Then moving on, the next point I had, and it's the</p> <p>7 fourth point: as has been mentioned a number of times</p> <p>8 over the last day or so, and as is mentioned in the</p> <p>9 interim report, there is to be no determination of civil</p> <p>10 or criminal liability on the part of anybody or any</p> <p>11 entity.</p> <p>12 Sir, could I with the greatest of respect and</p> <p>13 diffidence suggest that when you include, as no doubt</p> <p>14 you will, at annexure A to the final report, if one</p> <p>15 doesn't just include the terms of reference but the</p> <p>16 whole of the document setting up the Inquiry, because it</p> <p>17 is the latter part of that document that spells out what</p> <p>18 the Chief Executive said in relation to section 2, and</p> <p>19 specifically in relation to section 3 of the Commissions</p> <p>20 of Inquiry Ordinance, and that's where you find</p> <p>21 expressly that there are to be no findings of criminal</p> <p>22 and civil liability. So everybody can see it's there in</p> <p>23 the terms.</p> <p>24 CHAIRMAN: Thank you. An important point. Thank you.</p> <p>25 MR PENNICOTT: Moving on to the question of civil liability,</p>	<p>1 It's the broad concept of the duties and</p> <p>2 responsibilities.</p> <p>3 All I would add to that is this, that it's the broad</p> <p>4 concepts of the duties and responsibilities that have</p> <p>5 been agreed, but against the backdrop of the fundamental</p> <p>6 question of public safety, because that's what this</p> <p>7 Inquiry, the bottom line, is all about. So it's the</p> <p>8 broad concepts of duties/responsibilities that have been</p> <p>9 agreed, in the circumstances, against the backdrop of</p> <p>10 the fundamental question of public safety and fitness</p> <p>11 for purpose.</p> <p>12 CHAIRMAN: Yes. Thank you. That assists a great deal.</p> <p>13 MR PENNICOTT: Sir, the fifth point is standard of proof,</p> <p>14 and again I think this is something that was touched on</p> <p>15 or mentioned yesterday. Certainly when I have made our</p> <p>16 written submissions and anything I say this afternoon</p> <p>17 is, as it were, adopting the standard of proof that you</p> <p>18 have held to apply to the whole question of safety in</p> <p>19 the interim report. That is that the standard that you</p> <p>20 have adopted on that topic is so that you are sure.</p> <p>21 That is the standard. I think, if I may say so, nobody</p> <p>22 is cavilling with that as the test and the appropriate</p> <p>23 standard to apply, both in the first part of the Inquiry</p> <p>24 and of course in the second part of the Inquiry.</p> <p>25 Sir, could I then turn to some points that we</p>
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<p>1 on one view -- although I think, from the submissions</p> <p>2 we've heard from government, from MTR and Leighton, that</p> <p>3 we are all really on the same page about this point --</p> <p>4 there could be seen to be a tension between civil</p> <p>5 liability on the one hand and determinations that work</p> <p>6 was not executed in accordance with the contract on the</p> <p>7 other, and it seemed to me, with respect, that Mr Khaw</p> <p>8 articulated this point quite neatly yesterday morning.</p> <p>9 I think it's yesterday's transcript at page 88 or</p> <p>10 thereabouts.</p> <p>11 I just wonder if we can have a look at that, if we</p> <p>12 could, please. It's about page 88, I think. I was</p> <p>13 looking at it last night. Yes, that's fine. Mr Khaw</p> <p>14 said:</p> <p>15 "We are not looking at blameworthiness of any</p> <p>16 particular individual, and obviously the details</p> <p>17 regarding disputes which may arise from civil disputes</p> <p>18 are not something that we should be concerned with</p> <p>19 here."</p> <p>20 The Chairman said "Yes", and it's really this</p> <p>21 sentence:</p> <p>22 "We are looking at the broad concepts of the duties</p> <p>23 and responsibilities that one has agreed under the</p> <p>24 circumstances and look at whether what has happened</p> <p>25 actually falls short of the requirements."</p>	<p>1 have -- these are still general points but points that</p> <p>2 we have actually specifically made at the beginning of</p> <p>3 our COI 1 submissions, the recent ones.</p> <p>4 Sir, I'm not proposing to read all these submissions</p> <p>5 out, you will be pleased to hear, but these introductory</p> <p>6 points are, in our submission, perhaps important for</p> <p>7 a wider audience.</p> <p>8 Sir, at paragraph 3, under the heading "Safety, fit</p> <p>9 for purpose, execution in accordance with the contract</p> <p>10 and code compliance", we say:</p> <p>11 The word "safety" or the words "public safety"</p> <p>12 appear no less than four times in the extended terms of</p> <p>13 reference. As was made clear in the Commission's</p> <p>14 interim report, determining whether (or not) the ...</p> <p>15 Extension was "safe" was the paramount and overriding</p> <p>16 concern of the Commission. This, of course,</p> <p>17 unequivocally remains the position. The definition of</p> <p>18 "safe" is discussed later in these submissions.</p> <p>19 And of course has been discussed by all of my</p> <p>20 learned friends in one way or another.</p> <p>21 "Safety", however, might, if narrowly construed, be</p> <p>22 regarded a transient state of affairs, we suggest. The</p> <p>23 structure might be "safe" today, but what about next</p> <p>24 week or next year or the decades to come?</p> <p>25 Consequently, the Commission regarded it as</p>

Page 129	<p>1 appropriate to consider whether the structure was "fit 2 for (its intended) purpose", as I understand it, 3 appreciating that so far as MTR is concerned the 4 structure had a design life of 120 years. 5 That comes from the New Works Manual. 6 The definition of "fitness for purpose" is also 7 considered further below but, in a nutshell, the 8 question posed is whether the structure will be fit for 9 use as an operational station for its intended lifespan. 10 In my respectful submission, addressing that 11 question should not be viewed as some sort of limitation 12 or restriction of the terms of reference but rather as 13 entirely complementary to the safety question. 14 Dealing with something we have touched on already in 15 paragraph 5: the Commission also recognised in its 16 interim report that it was mandated to ascertain whether 17 the works that raised concerns about public safety, 18 which I underline, were executed in accordance with the 19 contract. This, it is submitted, is the correct 20 construction of the terms of reference. On the 21 contrary -- and this is really just taking the point, 22 Mr Khaw's definition as expanded by myself a little bit 23 further -- however, the Commission was not and is not 24 required to carry out a wide-ranging, all-embracing 25 investigation of every potential aspect of the works,</p>	Page 131	<p>1 done in the building, was it in terms of the contract, 2 et cetera. But that leads to the question of: was it 3 done correctly or was it done wrongly, was it done 4 badly? If done badly, how badly? Why are we 5 determining that issue? Has the Chief Executive put all 6 of us here so we can run side by side with civil 7 litigation? 8 MR PENNICOTT: Clearly not. 9 CHAIRMAN: Clearly not. It has been put here because there 10 is public concern as to the safety of the whole edifice. 11 MR PENNICOTT: Yes, which is the underlying rationale of all 12 commissions of inquiry, because it's a matter of public 13 concern. 14 CHAIRMAN: Yes, whereas with respect, if you are building 15 a museum or you are building a railway station or 16 whatever, if it's purely of matter of were there delays, 17 were there issues regarding contractual liability, that 18 doesn't become a matter of public importance. That's 19 a matter of importance to the parties privately. 20 MR PENNICOTT: Quite. Yes, sir. 21 Sir, just pursuing that perhaps a little bit further 22 in this next point, we say that it may seem to be 23 a trite observation, but even though the Commission's 24 procedures can be characterised as inquisitorial, it can 25 only realistically enquire and investigate and call for</p>
Page 130	<p>1 however minor or peripheral, which may not have been 2 executed in accordance with the contract. 3 That's my point. It's against the backdrop of 4 public safety that is important. 5 Accordingly, we submit -- and this is dealing with 6 one of the areas where Mr Shieh is seeking some 7 opening-up or reconsideration of the interim report -- 8 accordingly, paragraph 481(1) of the interim report duly 9 determined that, in material respects, the diaphragm 10 wall and platform slab construction works were not 11 executed in accordance with the contract. But 12 notwithstanding that determination, however, 13 paragraph 481(2) of the interim report rightly, it is 14 submitted, found the structures to be safe. 15 Then in paragraph 6 I deal again with the point I've 16 already mentioned about civil and criminal liability, so 17 I won't go over that again. 18 Sir, the next general point is at paragraph 7, under 19 "Requests to the involved parties". Sir, this is 20 a rather important point. 21 CHAIRMAN: Sorry, I might just say here that on the question 22 of safety being an issue, I have approached the matter 23 over a period of time, because the mandate given is 24 reasonably general, and I've looked at it on a narrow 25 basis, for example, to say: well, you know, what was</p>	Page 132	<p>1 evidence on matters which are brought to its attention, 2 however broadly, perhaps. Thus, when during the course 3 of the evidence in the Inquiry -- and we give an example 4 of what I'm talking about -- it became apparent that 5 there were or might be some potentially important issues 6 concerning BOSA couplers, and by goodness have there 7 been some important issues concerning those couplers 8 that have taken up an awful lot of time in this 9 Commission, the Commission itself, through its legal 10 team, took positive steps to procure evidence -- 11 physical, documentary and a factual witness -- from 12 BOSA. But, sir, if a particular matter of potential 13 relevance and interest to the Commission is not brought 14 to its attention by the involved parties or indeed 15 others, we respectfully submit that there is no basis or 16 justification for criticising the Commission for not 17 dealing with those matters. 18 Sir, this point is particularly apposite to all the 19 involved parties since the initial letters of request in 20 both COI 1 and COI 2 not only requested the involved 21 parties to provide information but encouraged them to do 22 so and to come forward with information and evidence 23 relating to the terms of reference. So all the letters 24 had the standard wording, "... Similarly, if there are 25 topics not mentioned above but which your company</p>

<p style="text-align: right;">Page 133</p> <p>1 considers to be relevant to the subject matter of the 2 Inquiry, your company is at liberty to file witness 3 statements covering such topics as well." 4 Sir, it's respectfully submitted by us that with the 5 assistance of all the involved parties, the Commission 6 has thoroughly and exhaustively looked into all matters 7 which are brought to its attention, and no doubt any 8 honest, respectable and responsible involved party, with 9 knowledge of matters potentially affecting safety as 10 opposed to unimportant peripheral or purely speculative 11 matters would have brought them to the attention of the 12 Commission for due consideration and, in my submission, 13 the Commission should make that assumption, that those 14 matters have been brought to the Commission's attention, 15 and it's now too late to raise other matters. 16 Sir, then the next point is a point which Mr Shieh 17 has already referred to, but it does bear further 18 emphasis, and that's under the heading at paragraph 8, 19 "The extensive investigation of the structures". 20 Indeed, we have set out in writing what Mr Shieh read 21 out orally. That is paragraph 5.2 of Dr Glover's 22 report. That is the observation as to the degree to 23 which these structures have been subjected to 24 inspection, opening-up and so forth. 25 I make the point, we make the point, that this was</p>	<p style="text-align: right;">Page 135</p> <p>1 to provide all or some of that information, perhaps in 2 an annex or something, just to emphasise how much 3 investigation has gone on, depending on how you see it 4 and in what form you put it -- 5 CHAIRMAN: No, I think most certainly, firstly, we need to 6 acknowledge a lot of what I might call the backroom work 7 that's been so important and that has helped to fashion 8 the Commission's report, so we will certainly be 9 incorporating this in some way or another. 10 COMMISSIONER HANSFORD: Absolutely. This gives weight to 11 the extensive investigation and review that's been 12 carried out. 13 MR PENNICOTT: Yes. That was the primary if not sole 14 purpose of putting the detail there, so you have it in 15 one area or two areas because of the two different parts 16 of the Inquiry. 17 COMMISSIONER HANSFORD: That's very helpful. Thank you. 18 MR PENNICOTT: Can I just then pick up a point I should have 19 mentioned in the context of the last general point 20 I made. That is the involved parties and the requests 21 for information. 22 You are aware that certain involved parties are not 23 here in this room today, they being -- I always get this 24 wrong -- Fang Sheung, China Technology and Intrafor. 25 Have I forgotten anybody else? Sir, the three entities</p>
<p style="text-align: right;">Page 134</p> <p>1 a view with which all structural engineering experts 2 agreed, including Dr Lau, the government's expert. 3 The structures have massive reserves of strength and 4 even adopting the most conservative assumptions only 5 a very few discrete areas require, according to MTR and 6 the government, limited so-called "suitable measures". 7 All of the tests and investigations carried out have 8 generated a very high level of assurance and confidence, 9 as Dr Glover said, in the structures such that even if 10 other miscellaneous matters might be raised 11 subsequently, there is simply no threat whatsoever to 12 the safety and fitness for purpose of the structures. 13 Sir, we then thought it might be helpful to you to 14 list out not just the structural engineering expert 15 reports that have been produced to the Inquiry, which is 16 the first section under 9(a), but also all the other 17 structural engineering reports and assessments. So, 18 sir, what appears starting at the bottom of page 6 19 through to halfway down page 9 -- I'm grateful to those 20 instructing me for preparing that schedule or those 21 schedules -- relate only to COI 1, the original part of 22 the Inquiry. You may have seen in the COI 2 submissions 23 we've got a similar schedule that sets out the mirror 24 details, as it were. 25 And whether you think it appropriate in due course</p>	<p style="text-align: right;">Page 136</p> <p>1 are still involved parties in this Commission. They 2 have been given, as it were, permission, or consent has 3 been given to them not to appear at this stage of the 4 Inquiry. That permission has been given at various 5 times, various stages over the last six to nine months 6 or so. But they are still involved parties. 7 I make that point because -- and I make it for this 8 reason, because it's a message not just to them but to 9 all involved parties, here or not here -- that the rules 10 laid down at the outset of this Inquiry in relation to 11 the dissemination of documentation and so forth and the 12 confidential nature of that documentation, save insofar 13 as it's already been put in the public domain through 14 the Inquiry -- everybody is still susceptible to those 15 rules, as I understand it, until the Commission says 16 otherwise. I just wanted to make that point, just so 17 that it perhaps might get communicated at least to the 18 three involved parties who are not here today, so there 19 is no misunderstanding. Nobody has been released as 20 an involved party and everybody is still susceptible to 21 compliance with the rules. 22 CHAIRMAN: Yes. Thank you. 23 COMMISSIONER HANSFORD: Will that point -- I'm sure or 24 I suspect that the other involved parties who are not 25 here will in some way be listening to this or be reading</p>

Page 137	<p>1 this, but will that point be made to them in writing?</p> <p>2 MR PENNICOTT: Sir, I think, since you have made that</p> <p>3 enquiry, out of an abundance of caution we will ensure</p> <p>4 that's done. I think that's sensible. Thank you very</p> <p>5 much for that suggestion.</p> <p>6 COMMISSIONER HANSFORD: That's good.</p> <p>7 MR PENNICOTT: Could I then move away from the introductory</p> <p>8 points that I've made at the beginning of those</p> <p>9 submissions and just say a few words about the holistic</p> <p>10 report and the verification report. As we know, these</p> <p>11 were produced and submitted by MTR on 18 July 2019. I am</p> <p>12 bound to say, from the Commission's legal team's</p> <p>13 perspective, that although the extent of involvement is</p> <p>14 difficult to pin down, there is no doubt, in my</p> <p>15 submission, that the government itself had a fair amount</p> <p>16 of influence on the contents of those reports.</p> <p>17 In particular, we know that a task force was set up.</p> <p>18 That included government representatives. It included</p> <p>19 that illusory body, the expert advisers team. It</p> <p>20 included the Hong Kong Police Force and of course</p> <p>21 representatives of the MTR.</p> <p>22 We heard from Mr Ng, Neil Ng, when I asked him some</p> <p>23 questions about primarily the background to the</p> <p>24 statistical evidence that was gathered, that on civil</p> <p>25 and structural matters there was detailed consultation</p>	Page 139	<p>1 stuff. We have set out the basic geography which</p> <p>2 of course the Commission is now well familiar with; some</p> <p>3 of the factual background to the Extended Inquiry;</p> <p>4 listed out the involved parties which we don't need to</p> <p>5 trouble ourselves with; listed at section E starting on</p> <p>6 page 19 -- so we are already at paragraph 70 -- the</p> <p>7 primary topics of the Extended Inquiry and the</p> <p>8 witnesses.</p> <p>9 As you will know, the three primary topics were the</p> <p>10 three defective stitch joints of the NAT, which we've</p> <p>11 heard quite a lot already in the last couple of days.</p> <p>12 Non-compliance issues at the NAT shunt neck, which we've</p> <p>13 not heard so much about, but that was the second issue.</p> <p>14 And I'm bound to say I'm still not quite sure whether</p> <p>15 the works have been done to the shunt neck. Perhaps</p> <p>16 somebody can tell us. But I'm afraid that's rather lost</p> <p>17 on me, because I know at the time of the hearing I think</p> <p>18 the work had not actually been carried out but that may</p> <p>19 have moved on. I don't know. Then of course, as we</p> <p>20 have been hearing, lack of inspection and supervisory</p> <p>21 records, including RISC forms, unauthorised design</p> <p>22 changes and incomplete testing records of materials at</p> <p>23 the COI 2 areas.</p> <p>24 As you know and you will recall, you heard</p> <p>25 33 witnesses during the course of the hearing from</p>
Page 138	<p>1 with the government, and on statistical issues</p> <p>2 essentially reliance was put by the MTR on the</p> <p>3 government's expert statisticians and their advisers.</p> <p>4 It was the task force, not MTR, that decided to</p> <p>5 exclude the stage 2a investigations from the statistical</p> <p>6 analysis and assessment, and if one appreciates -- and</p> <p>7 this was part of I think Mr Shieh's cross-examination of</p> <p>8 Mr Ng -- that of course, at the end of the day, the</p> <p>9 government had to approve and consent to the holistic</p> <p>10 report and the verification report, and it seems pretty</p> <p>11 obvious, as a matter of common sense, that the MTR would</p> <p>12 no doubt, during the process of that consultation and</p> <p>13 receiving statistical advice from the government, take</p> <p>14 on board the views and opinions of those acting on</p> <p>15 behalf of the government at the time.</p> <p>16 So whilst the document itself obviously does come</p> <p>17 from and is authored, on its face, by the MTR, one can't</p> <p>18 help but feel that the government had some influence</p> <p>19 over its contents, although as I say trying to pin that</p> <p>20 down in terms of extent is extremely difficult.</p> <p>21 Can I then turn, I hope relatively briefly, to the</p> <p>22 closing submissions that we produced in July. That is</p> <p>23 dealing with the factual evidence in the Extended</p> <p>24 Inquiry.</p> <p>25 I think we can skip over quite a lot of introductory</p>	Page 140	<p>1 27 May to 17 June last year.</p> <p>2 Sir, so far as the stitch joints are concerned,</p> <p>3 again I'm not -- we've set out the detail of them, why</p> <p>4 they are required, et cetera, et cetera, and all that's</p> <p>5 there for you to look at and digest.</p> <p>6 We have then dealt with the division of</p> <p>7 responsibilities between the Gammon-Kaden Joint Venture</p> <p>8 and Leighton and all the interface requirements. We</p> <p>9 then dealt in detail with the steps and procedures</p> <p>10 involved with the construction of the stitch joints.</p> <p>11 Then we have asked ourselves the question at F4,</p> <p>12 starting at paragraph 84, "What went wrong?" That</p> <p>13 itself is broken down into a number of headings:</p> <p>14 "Breakdown of communication" or "Breakdown in</p> <p>15 communication" is the first one, and there we have set</p> <p>16 out a fairly detailed, I hope, analysis of the interface</p> <p>17 meetings that took place, and obviously deal with and</p> <p>18 mention the incompatibility issue, and just the basic</p> <p>19 point that Leighton's attendees at those meetings failed</p> <p>20 to communicate with the site staff responsible for</p> <p>21 ultimately procuring the materials.</p> <p>22 Then the second heading under that -- so it's</p> <p>23 "Breakdown of communication" first. Then we deal with</p> <p>24 a lack of joint inspection which was I think anticipated</p> <p>25 by the interface requirements. Then we deal with</p>

Page 141	<p>1 a matter that has been the subject matter of submissions</p> <p>2 from Mr Tsoi and Mr Shieh, that is the defective</p> <p>3 workmanship and inadequate supervision.</p> <p>4 Sir, we have made some observations about the</p> <p>5 conflicts and inconsistencies in the evidence, which</p> <p>6 again you will have heard some submissions about and</p> <p>7 you've got the submissions from Wing & Kwong and from</p> <p>8 Leighton.</p> <p>9 Sir, I am bound to say, at the end of the day -- and</p> <p>10 perhaps I can just refer you to paragraph 108 of our</p> <p>11 submissions. We say: as pointed out by the government,</p> <p>12 and we have given a reference, and apparently agreed by</p> <p>13 Leighton -- and I think we have heard more of that from</p> <p>14 Mr Shieh this afternoon -- whether Wing & Kwong or</p> <p>15 Leighton's witnesses are telling the truth, and whatever</p> <p>16 may be the answer so far as MTR's inspections are</p> <p>17 concerned, none of this may be particularly important</p> <p>18 for the purposes of the Inquiry.</p> <p>19 Perhaps I can just expand upon that a bit. I say</p> <p>20 that, "may not be important for the purposes of the</p> <p>21 Inquiry", in the context of safety and fitness for</p> <p>22 purpose, because as has been mentioned and we all know,</p> <p>23 once the problem arose, the stitch joints were -- at</p> <p>24 least the three stitch joints, forget about the shunt</p> <p>25 neck for the moment, were all remedied, they were</p>	Page 143	<p>1 conclusion that, frankly, all parties -- Wing & Kwong,</p> <p>2 Leighton and MTR -- perhaps all must accept a degree of</p> <p>3 criticism for what happened in relation to the three</p> <p>4 stitch joints.</p> <p>5 I have been standing back and thinking about this</p> <p>6 whole question of the stitch joints. It seems to me</p> <p>7 quite remarkable that all three stitch joints should all</p> <p>8 exhibit the same sort of problem, but there we are.</p> <p>9 Just one point of detail which the Commission may or</p> <p>10 may not feel it necessary to distinguish, but during the</p> <p>11 course of Mr Tsoi's submissions yesterday, he focused</p> <p>12 very much on the interface meetings and the</p> <p>13 incompatibility issue, and so forth and so on, but</p> <p>14 please don't forget one of the stitch joints didn't have</p> <p>15 that problem. One of the stitch joints was an internal</p> <p>16 stitch joint inside the 1112 contract. The other two,</p> <p>17 yes, had the incompatibility problem, but one of them</p> <p>18 didn't. And so the considerations that arise are not</p> <p>19 necessarily the same with regard to that internal stitch</p> <p>20 joint.</p> <p>21 Sir, we then go on to deal with discovery of the</p> <p>22 coupler connections and what was done there. Sir, the</p> <p>23 only point perhaps that arises, as you may recall, is</p> <p>24 that the investigations that were carried out -- and we</p> <p>25 have put a fairly detailed chronology in the closings --</p>
Page 142	<p>1 demolished and remedied under close, watchful</p> <p>2 supervision, we heard all the evidence, with full</p> <p>3 documentation and records regarding the remedial works,</p> <p>4 and there is no question as to the integrity of those</p> <p>5 stitch joints anymore. So if one is looking at it from</p> <p>6 the perspective of safety, fitness for purpose, there is</p> <p>7 no issue.</p> <p>8 What is, as we say here, rather more significant,</p> <p>9 perhaps, is the non-compliance of the requirements of</p> <p>10 contract 1112 and the systematic failure in discovering</p> <p>11 the defects. The point is there were no RISC forms,</p> <p>12 there were no records, there was really nothing to</p> <p>13 evidence the construction of the stitch joints, and it</p> <p>14 was really in that sphere more management and</p> <p>15 supervision which may be more relevant to the Commission</p> <p>16 going forward, rather than resolving issues about who's</p> <p>17 telling the truth.</p> <p>18 But we do say, of course, that but for the</p> <p>19 subsequent water seepage problem which manifested itself</p> <p>20 in August 2017, the coupler connection defects might</p> <p>21 have gone unnoticed for some time. It could have been</p> <p>22 a while, and that may have been put to use. Who knows?</p> <p>23 But thankfully it all happened fairly swiftly.</p> <p>24 So we are bound to say, from the Commission's legal</p> <p>25 team's perspective that it's difficult to avoid the</p>	Page 144	<p>1 the investigations that were carried out were done</p> <p>2 fairly speedily, one might say rather cursorily, and not</p> <p>3 in much detail.</p> <p>4 As we say at paragraph 124, right at the end of this</p> <p>5 point: a similar problem, we say, pervades the</p> <p>6 investigation process of all the joints, namely that the</p> <p>7 MTR reports on the defects discovered and the cause were</p> <p>8 at best sketchy. There is limited detail and very</p> <p>9 little analysis. In the stitch joint report and the</p> <p>10 shunt neck report, there were only limited photographic</p> <p>11 records showing the condition and extent of the defects</p> <p>12 discovered. The analysis of the actual cause was even</p> <p>13 less. It is regrettable but obvious that when MTR and</p> <p>14 Leighton discovered the defects, the focus was on speedy</p> <p>15 rectification and little or no sufficient attention was</p> <p>16 applied to investigating the cause of the defects and</p> <p>17 those responsible for them.</p> <p>18 Again, at the end of the day, sir, safety, fitness</p> <p>19 for purpose, it doesn't matter, but query again whether</p> <p>20 in terms of project management issues something needs to</p> <p>21 be said about the proper investigation of issues that</p> <p>22 arise of this nature, if only to learn lessons for the</p> <p>23 future.</p> <p>24 COMMISSIONER HANSFORD: It could arguably fall into the</p> <p>25 category of a near-miss.</p>

Page 145	<p>1 MR PENNICOTT: Yes, sir.</p> <p>2 COMMISSIONER HANSFORD: Because if it hadn't been</p> <p>3 discovered, it would still be there.</p> <p>4 MR PENNICOTT: Or might be, and might be discovered in</p> <p>5 circumstances where it could cost, frankly, an awful lot</p> <p>6 more in terms of money and time to put it right.</p> <p>7 COMMISSIONER HANSFORD: I'm thinking from a safety point of</p> <p>8 view --</p> <p>9 MR PENNICOTT: And also from a safety point of view.</p> <p>10 COMMISSIONER HANSFORD: -- it could be considered as</p> <p>11 a near-miss.</p> <p>12 MR PENNICOTT: Yes, of course.</p> <p>13 Sir, we then in those submissions go on to deal with</p> <p>14 the RISC forms and the missing RISC forms. You have</p> <p>15 heard all the evidence, you have heard submissions from</p> <p>16 the parties. Clearly, there was a breakdown in the</p> <p>17 system that should have operated, and what we have tried</p> <p>18 to do in our submissions is set out the contractual</p> <p>19 explanation for the background to the RISC forms, why</p> <p>20 they should be there. We have mentioned Leighton's</p> <p>21 inspection and test plans and hold-point inspections.</p> <p>22 It's quite clear that there was a contractual</p> <p>23 requirement as between the government and MTR, and MTR</p> <p>24 and Leighton, to have these hold-point inspections, have</p> <p>25 the pre-pour hold inspections, and RISC forms and</p>	Page 147	<p>1 individuals' performance, that was the first one, and</p> <p>2 we've got a few paragraphs about each of these;</p> <p>3 secondly, the relative importance of the pours, that's</p> <p>4 the concrete pours; thirdly, the non-user-friendly</p> <p>5 nature of the RISC form in today's construction</p> <p>6 environment; four, delay that may be caused to the works</p> <p>7 if the RISC form procedure was strictly adhered to; and</p> <p>8 five, the RISC form procedure was a contractual</p> <p>9 requirement rather than a statutory requirement.</p> <p>10 As I say, we've put in a few paragraphs about each</p> <p>11 of those matters, which I will not read out.</p> <p>12 Just by way of concluding on that point, we submit</p> <p>13 that ultimately the reason behind the missing RISC forms</p> <p>14 was essentially, we would say, poor management</p> <p>15 between/within both MTR and Leighton, in the planning,</p> <p>16 supervision and monitoring of the hold-point</p> <p>17 inspections, which led to, as we have seen in the</p> <p>18 evidence, widespread non-implementation of the RISC form</p> <p>19 system as part of the set quality assurance procedure,</p> <p>20 and it was widespread; there is no doubt there were</p> <p>21 a large number of missing RISC forms.</p> <p>22 Sir, we have then dealt with the numbers, as it</p> <p>23 were, and in terms of the missing RISC forms, various</p> <p>24 parties have had a go at trying to work out how many</p> <p>25 were missing. The MTR, we have set out their attempts.</p>
Page 146	<p>1 relevant documentation would be generated as</p> <p>2 a consequence of those hold points.</p> <p>3 There's a minor issue which I won't dwell on about</p> <p>4 whether or not the RISC forms are some form of</p> <p>5 certificate or not, and if so how long they should be</p> <p>6 kept, but as I say we have dealt with that in our</p> <p>7 submissions and I think others have as well.</p> <p>8 Sir, we then, at section G2, perhaps starting at</p> <p>9 paragraph 135, set out what we understand to be the</p> <p>10 classic procedure of a RISC form, should it be</p> <p>11 generated, and then have dealt with, over the page at</p> <p>12 G3, the reasons for the missing RISC forms. We have</p> <p>13 dealt with different parties' evidence. At G3.2 we deal</p> <p>14 with the evidence of MTR on the RISC forms, and we have</p> <p>15 done some charts for you at 155 as to the number of</p> <p>16 missing RISC forms in the different areas.</p> <p>17 Then we have, at paragraph 157 -- and this was</p> <p>18 alluded to, I can't remember by whom, perhaps</p> <p>19 Mr Boulding or somebody else, earlier today; perhaps it</p> <p>20 was Mr Shieh -- we refer to Mr Kit Chan's evidence and</p> <p>21 his five reasons to explain the missing RISC forms,</p> <p>22 which seem to us to be a fairly good starting point or</p> <p>23 platform to analyse why, in this particular situation,</p> <p>24 there were missing RISC forms. He put forward five</p> <p>25 reasons, as I say: the individual performance or the</p>	Page 148	<p>1 Then Pypun were brought in, as we know, to have a look</p> <p>2 at this whole question of RISC forms. Their conclusions</p> <p>3 are set out. WSP were also brought in, engaged by MTR,</p> <p>4 to have another look, and they did and they reported and</p> <p>5 the details of their findings we have set out.</p> <p>6 We conclude by saying that despite the various</p> <p>7 statistics compiled by the different consultants, two</p> <p>8 things are clear. Firstly, there is a substantial</p> <p>9 amount of RISC forms unavailable, and secondly, the</p> <p>10 contractual requirements in contract 1112 in respect of</p> <p>11 the preparation and maintenance of the RISC forms</p> <p>12 clearly have not been complied with, and both MTR and</p> <p>13 Leighton should, we respectfully submit, bear</p> <p>14 responsibility for that non-compliance.</p> <p>15 We've got a section on the role of Pypun in auditing</p> <p>16 the RISC forms. As I say, I'm not going to read that</p> <p>17 out; it's just a few paragraphs on that particular</p> <p>18 topic, which Mr Clayton has covered in some detail.</p> <p>19 Then so far as the recommendations in relation to</p> <p>20 the RISC forms are concerned, as we've heard and been</p> <p>21 reminded by Mr Boulding, you heard from Dr Peter Ewen</p> <p>22 regarding the introduction of a tool called iSuper.</p> <p>23 This is all part of the digitalisation process, as</p> <p>24 I understand it, that is now going to be introduced by</p> <p>25 MTR.</p>

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1 Sir, we deal briefly with material testing. That's
 2 all to do with the rebar, of course, and I don't think,
 3 in the light of what has now happened, one needs to
 4 dwell too much on that, but again I think Mr Rowsell has
 5 made and the experts have made recommendations as to
 6 what might happen to improve the prospect of rebar
 7 slipping through the net, as it were, and not being
 8 tested.
 9 Then some more conclusions on material testing.
 10 Sir, we then deal with the deviations, as they are
 11 called. That is the change from the lapped bar to the
 12 coupler. Again, I'm not going to read all that out.
 13 You know what the issue is and you know the evidence and
 14 the explanation as to why that happened.
 15 We then deal with the use of drill-in bars at the
 16 SAT, but I'm going to come back to that topic in
 17 a moment, and then just a few observations about
 18 structural safety at the end.
 19 Sir, those were our submissions in July. Can I then
 20 turn to our COI 1 submissions served earlier this week?
 21 Thank you. I've already covered the first section.
 22 We deal, starting at section B, with the statistical
 23 expert evidence, and we analyse, insofar as we've been
 24 able to, that evidence. Starting at paragraph 23, we
 25 try to, as it were, explain our understanding of the

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1 relevance of the statistical evidence. It seems to us
 2 that it goes like this, that the statistical expert
 3 evidence is really relevant to the following two
 4 situations. The first situation is, as we've heard, the
 5 capping beam coupler connections in area HKC and
 6 area B -- three panels, WH35, EH32 and EH40 -- were
 7 found in the holistic report to have a calculated
 8 defective rate/reduction factor of 68 per cent.
 9 So what happened, in broad terms, was 11 samples, if
 10 that's the right word, were taken from those three
 11 panels on the capping beam side, and seven on the slab
 12 side, the other side. So 18, in total, samples, and out
 13 of those I think four failed, and the upshot, after the
 14 statisticians or somebody had done the calculation, was
 15 to arrive at the 68 per cent reduction factor, from, as
 16 I say and as we all know, these panels in HKC and
 17 area B.
 18 But on the assumption that the capping beam coupler
 19 connections in area A have a similar defective rate or
 20 reduction factor, it was concluded that there was
 21 a potential issue of safety or fitness for purpose in
 22 respect of the structures in area A. So that's the
 23 first statistical point, as it were, area A, arising
 24 from --
 25 CHAIRMAN: Sorry, they didn't want to do the same in area A

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1 because of vibrations, noise, damage to the structure?
 2 MR PENNICOTT: Well --
 3 COMMISSIONER HANSFORD: No, the issue as I remember it was
 4 to do with access.
 5 MR PENNICOTT: Yes.
 6 CHAIRMAN: That's right, yes.
 7 COMMISSIONER HANSFORD: Although I can see that's also been
 8 disputed.
 9 MR PENNICOTT: There is an issue as to whether or not access
 10 could have been gained to area A. Certainly I'm bound
 11 to say that I think the Commission's structural
 12 engineering expert, from his knowledge from the site
 13 visits, thought that access could have been gained.
 14 COMMISSIONER HANSFORD: That's why I say that's been
 15 disputed.
 16 MR PENNICOTT: Yes. Sir, I think this is right -- I read
 17 the transcript of this the other day -- that when I --
 18 it must have been Mr Ng, I think, from MTR -- when
 19 I asked him some questions about whether area A was
 20 actually excluded in terms of -- if you put the balls in
 21 a bag and so many from B, so many from C and so many
 22 from A, were there any balls from A in the bag? I think
 23 he said, "Yes, there were", but there were certain
 24 panels or certain areas that were excluded from that.
 25 So there was the possibility -- this is all about

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1 whether it was a random sample or not, and if area A had
 2 just been excluded, one of the criticisms was it was not
 3 a random sample because you would have taken one of the
 4 areas out, but I think he said, no, that wasn't quite
 5 right because there were certain panels in A that could
 6 have been part of the investigation but it just so
 7 happened that they weren't brought out of the bag, as it
 8 were, hence the limited number that were chosen or
 9 selected.
 10 Anyway, so that's the first situation and that's
 11 obviously to do with area A in COI 1.
 12 The second statistical expert point relates, as you
 13 now know, to essentially and limited to the HHS area and
 14 the trough walls. So that's really what it comes to in
 15 terms of the relevance of the statistical evidence, and
 16 of course area A is dealt with in our submissions in
 17 COI 1 and the HHS is dealt with in the other
 18 submissions.
 19 Sir, we have set out the various directions that the
 20 Commission gave in relation to the structural
 21 engineering expert evidence and --
 22 COMMISSIONER HANSFORD: Sorry to interrupt you.
 23 MR PENNICOTT: Not at all.
 24 COMMISSIONER HANSFORD: I didn't understand subparagraph (3)
 25 of 27, before you we move on to -- you are moving on to

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<p>1 28, I believe.</p> <p>2 MR PENNICOTT: I was going to go on to 28 and onwards, yes.</p> <p>3 COMMISSIONER HANSFORD: Can we have a look at 27(3)?</p> <p>4 "The Commission should be satisfied that the</p> <p>5 defective rate/reduction factor in area A is on the low</p> <p>6 side ..."</p> <p>7 What does that mean?</p> <p>8 MR PENNICOTT: Well, that what has been used is too high.</p> <p>9 There should have been a lower, a significantly lower</p> <p>10 rate/reduction factor.</p> <p>11 COMMISSIONER HANSFORD: So do you say it's on the high side?</p> <p>12 MR PENNICOTT: Well, no. The one that has been used is on</p> <p>13 the high side.</p> <p>14 COMMISSIONER HANSFORD: Which is on the rate/reduction</p> <p>15 factor.</p> <p>16 MR PENNICOTT: Yes. I see the problem. But we say it</p> <p>17 should be much lower.</p> <p>18 COMMISSIONER HANSFORD: Okay.</p> <p>19 MR PENNICOTT: And what has been used as a matter of fact by</p> <p>20 MTR and the government is too high.</p> <p>21 COMMISSIONER HANSFORD: Yes, that's what I understood, but</p> <p>22 I couldn't quite make that out from the words. Thank</p> <p>23 you.</p> <p>24 MR PENNICOTT: Thank you. All right.</p> <p>25 So, yes, we have set out the Commission's directions</p>	<p>1 demonstrated to actually lower the factor of safety.</p> <p>2 And the government, we submit, has made no attempt to</p> <p>3 analyse and quantify the extent to which the factors of</p> <p>4 safety have been allegedly lowered by the experts. If</p> <p>5 there's an allegation that they have somehow lowered the</p> <p>6 factor of safety, let's see. If there's a calculation,</p> <p>7 show us. Why wasn't it put to each of the experts that</p> <p>8 they lowered the factor of safety and get them to</p> <p>9 explain it and put a calculation to them, an explanation</p> <p>10 to them, as to how they lowered the factor of safety.</p> <p>11 We just don't see it.</p> <p>12 COMMISSIONER HANSFORD: I recall this general point being</p> <p>13 put to Dr Glover, who was very clear that he hadn't</p> <p>14 lowered any factor of safety. That's my understanding.</p> <p>15 MR PENNICOTT: It might have been put in the most general of</p> <p>16 senses but there was nothing put to him, "Look at this</p> <p>17 document, look at this, by adopting the course you have</p> <p>18 adopted, you have lowered the factor of safety", nothing</p> <p>19 of that nature, nothing specific, nothing detailed, and</p> <p>20 I certainly don't remember the point being put to</p> <p>21 Prof McQuillan.</p> <p>22 Really, it seems to us that, putting it around the</p> <p>23 other way, so far as Dr Lau is concerned, his two</p> <p>24 primary concerns were, as we've said here at the end of</p> <p>25 paragraph 37: first of all, potential excessive crack</p>
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<p>1 in relation to the structural engineering expert</p> <p>2 evidence. Then we have returned to the question of</p> <p>3 meaning of safety and fitness for purpose which I don't</p> <p>4 need to go over.</p> <p>5 Then, sir, an important point, perhaps, which was</p> <p>6 touched on by my learned friend Mr Boulding earlier.</p> <p>7 It's paragraph 37 of our submissions. The government,</p> <p>8 as you will have seen, contends that Mr Southward,</p> <p>9 Dr Glover and Prof McQuillan have effectively adopted</p> <p>10 "lower levels of safety factor (which deviate from those</p> <p>11 required under the applicable codes)" in their</p> <p>12 assessments. So somehow those three experts have</p> <p>13 lowered the safety factor. They go on to say -- this is</p> <p>14 the government speaking -- that they have reached their</p> <p>15 opinions on safety by "applying the levels of factor of</p> <p>16 safety which they consider acceptable even though they</p> <p>17 fall short of the requirements under the applicable</p> <p>18 codes in Hong Kong."</p> <p>19 Now, we confess we don't understand that and we</p> <p>20 don't agree with it, insofar as we do understand it, and</p> <p>21 we point out, with respect, that the government fails to</p> <p>22 identify any part of the applicable codes which the</p> <p>23 experts have simply ignored, for the purposes of safety</p> <p>24 and fitness for purpose, and we submit which, as</p> <p>25 a matter of proper engineering analysis, can be</p>	<p>1 width, which has been dealt with by others, and the</p> <p>2 complete lack of shear links at critical locations,</p> <p>3 which again others have dealt with that and we deal with</p> <p>4 in here, and with the greatest of respect to Dr Lau we</p> <p>5 regard those assertions as being somewhat speculative</p> <p>6 and probably incorrect.</p> <p>7 As you have heard -- we go on to then discuss the</p> <p>8 coupler connections at the top of the EWL slab in</p> <p>9 area A -- the principal differences between the experts,</p> <p>10 that's Mr Southward, Dr Glover, Prof McQuillan on the</p> <p>11 one hand and Dr Lau on the other, appear to be, whether</p> <p>12 from an engineering perspective, the acceptance criteria</p> <p>13 are justified. That's all back to 37 millimetres and</p> <p>14 two threads. Whether from an engineering perspective</p> <p>15 the defective rate/reduction factor of 68 per cent is</p> <p>16 justified and ultimately whether the structures in</p> <p>17 area A are safe and fit for purpose. Trying to be as</p> <p>18 succinct as we can, we say the answers to those three</p> <p>19 questions are no, no and yes.</p> <p>20 Sir, we do submit that on the basis of all the test</p> <p>21 results -- this is under the heading of whether the</p> <p>22 acceptance criteria are justified -- on the basis of the</p> <p>23 test results all the experts, including Dr Lau, under</p> <p>24 cross-examination, agree that if there is a minimum</p> <p>25 engagement of seven threads or 32 millimetres, a coupler</p>

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<p>1 connection will have sufficient strength, ie satisfy 2 the strength criteria. The real issue, we thought, that 3 was raised is whether the butt-to-butt engagement is 4 required because otherwise a coupler connection would 5 fail the elongation test. 6 Sir, I'm not planning to go through all that again. 7 As Mr Shieh said just a moment ago, you have probably 8 learnt it by heart by now. But I am going to say this, 9 and this is at paragraph -- 10 CHAIRMAN: I wish I had learnt it by heart. The difficulty 11 is I learn one stanza and the following day the stanza 12 has changed. That's my misreading of everything, that 13 there appears to have been a certain measure of 14 confusion as to a correct definition of the test and 15 some consistency. 16 MR PENNICOTT: Yes. 17 COMMISSIONER HANSFORD: I find myself reciting some of it in 18 my sleep at the moment. 19 MR PENNICOTT: That's terribly sad, if I may say so! 20 What we would say is this, that it appears to us, 21 from the government's closing submissions, that they 22 accept, the government, that is, accept, that even if 23 Leighton's steel fixers properly carried out the 24 installation work in accordance with the BOSA 25 guidelines, butt-to-butt would not necessarily be</p>	<p>1 a couple of people have mentioned but didn't actually go 2 to, and that's not a criticism, but you will recall that 3 the results of the PAUT tests and the direct 4 measurements are included in a table, which is in OU5, 5 I think it is, 3309. 6 That's the first page, and I just want to pick up 7 some examples of where -- could we go to page 3314, 8 Scroll down, please, to number 9. That's it. Thank 9 you. 10 You will see, in the "Remarks" column, which is the 11 second one from the right, at number 9, it says: 12 "Direct measurement cannot be obtained as the 13 coupler cannot be unscrewed." 14 My understanding is when the dash appears 15 underneath, that comment applies to all the successive 16 ones that we are about to look at. 17 CHAIRMAN: Yes. 18 MR PENNICOTT: If we then go over the page, because the 19 dashes continue over the page, and we look at number 26 20 to start with, you see the enhanced PAUT engagement 21 length is 38.1. There are no threads exposed, but we 22 know that there's this 3 millimetre tolerance, if that's 23 the right word. So is one supposed to read this as it's 24 3.8 [sic] millimetres PAUT plus the 3 millimetres gives 25 you 41.1 -- Mr Clayton is behind me; he's good at maths.</p>
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<p>1 achieved. It seems to me the government now accept 2 that. 3 The government go on to say, as we read their 4 submissions, that the focus is not about whether the 5 connection is butt-to-butt but whether the bars were 6 fully screwed in and fully tightened. That seems to be 7 the rather more important consideration or question. 8 The government, as they must, it seems to me, 9 acknowledge that a butt-to-butt connection was not part 10 of the acceptance criteria for the coupler connections 11 in the stage 2b assessment. It must be the case. I do 12 say, and I'm not sure Mr Chow was prepared to go quite 13 this far yesterday, when asked by the Commission some 14 questions about Dr Lau's position in comparison to the 15 government's now adopted position -- we do say that the 16 government's position appears to distance itself from 17 what we unreservedly say is a rather extreme position 18 adopted by Dr Lau on the butt-to-butt issue, and we 19 respectfully submit that the government is right to so 20 distance itself. 21 Sir, we have then gone on to deal with the 22 elongation test and so forth, and so on. Could I, 23 however -- I don't want to prolong the discussion on 24 this butt-to-butt business any longer than I need to -- 25 but can I just draw your attention to something that</p>	<p>1 COMMISSIONER HANSFORD: You've lost me there. Try that 2 again. 3 MR PENNICOTT: Sir, I'm looking at item 26. I don't know if 4 you've got that. 5 COMMISSIONER HANSFORD: Yes. 6 MR PENNICOTT: So the PAUT engagement is said to be 7 38.1 millimetres. 8 COMMISSIONER HANSFORD: Yes. 9 MR PENNICOTT: There were no threads exposed. 10 COMMISSIONER HANSFORD: Yes. 11 MR PENNICOTT: This is regarded as not defective, but I'm 12 giving the benefit of the doubt to the government by 13 adding 3 millimetres onto their PAUT engagement length 14 and giving it 41.1 as a consequence. Do you see that? 15 COMMISSIONER HANSFORD: Yes. 16 MR PENNICOTT: There are reams of examples on this page -- 17 if we look at 28, it's the same; you look at 34, look at 18 36 -- if you keep adding the 3 millimetres onto all of 19 those, what you are getting is a picture, and Mr Shieh 20 said let's assume -- or he was prepared to assume that 21 they were all between 44 and 48 and made the point that 22 actually it's pretty rare to find a 48 millimetre thread 23 here, and he's right. There might be one or two if you 24 are lucky, but you very rarely find a 48. 25 What you actually do find is a range much nearer 40</p>

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<p>1 to 45/46. It's not confined, in our submission, when 2 you actually look at these results, to a position where 3 it's 44 to 48, and it's certainly nowhere near 4 an average of 46. 5 What this tends to show, it seems to us, assuming 6 all these PAUT results are right and you add the 7 3 millimetres on, what you are getting is a range of 8 somewhere around about 40, possibly a little bit lower 9 occasionally, up to -- you might find the odd one of 48. 10 So it's a much wider range. 11 What does that indicate? Perhaps the BOSA, 12 manufacturer, of this threaded bar is not quite as 13 scientific as perhaps everybody assumes it is and 14 certainly is not as scientific, with the greatest of 15 respect, as the government appears to think it is. 16 Sir, I just mention that point because it seemed to 17 us something that might be of interest. 18 Sir, I'm going to be I think probably another half 19 an hour, I would think, or 40 minutes. 20 CHAIRMAN: Would you like to have a short break? 21 MR PENNICOTT: Yes, if that's okay, because we've been going 22 for some time. 23 CHAIRMAN: Would five minutes be sufficient? 24 MR PENNICOTT: Yes, sir. 25 CHAIRMAN: Five minutes. Thank you.</p>	<p>1 hearing, page 14, line 22. I don't know whether this is 2 Mr Khaw or Mr Chow -- Mr Chow, yes. 3 COMMISSIONER HANSFORD: Sorry, this is Mr Chow -- 4 MR PENNICOTT: Mr Chow cross-examining Prof McQuillan. 5 COMMISSIONER HANSFORD: Thank you. 6 MR PENNICOTT: Line 22: 7 "As I understand what you say, basically, for you to 8 decide whether a structure is safe, you would expect 9 that at least some sort of factor of safety has to be 10 taken into consideration, although the factor of safety 11 may not be as high as is specified in the code; is that 12 right? 13 Answer: Yes. I think that sums it up." 14 So that question was in fact put to Prof McQuillan, 15 which I had forgotten. But that's it. 16 CHAIRMAN: But that doesn't mean it's -- what that means is 17 they are different. 18 MR PENNICOTT: Yes. 19 Sir, could I then go back to where I left off -- 20 CHAIRMAN: If I can put it this way. A code for the 21 building or the manufacture and sale of dining room 22 tables may specify eight legs, whereas an objective 23 assessment of what makes a dining room table that's not 24 going to fall over may be four legs. So what you've got 25 there is a difference, and you may say, I suppose,</p>
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<p>1 (3.57 pm) 2 (A short adjournment) 3 (4.08 pm) 4 MR BOULDING: Good afternoon, Mr Chairman and Commissioner. 5 Before Mr Pennicott resumes, he has told me I can assist 6 you on a couple of matters that I think caused queries 7 to be raised. 8 First of all, the shunt neck remedials, I'm told 9 they commenced in December 2019 and are still in 10 progress. As for area A and the selection process 11 involving area A or otherwise, my learned friend 12 Mr Pennicott in fact asked Mr Nelson Yeung of MTR about 13 that, and the relevant extract from the transcript is 14 Day 2, page 104, line 16, through to page 105, line 17. 15 I hope that's helpful. 16 CHAIRMAN: Yes. Thank you. 17 MR PENNICOTT: That's very helpful. Thank you very much for 18 that. 19 Sir, one correction I need to make as well has been 20 pointed out to me by Mr Khaw. It's to do with whether 21 or not the experts and in particular Prof McQuillan was 22 asked about this lowering of the factor of safety. 23 CHAIRMAN: Yes. 24 MR PENNICOTT: There are five or six relevant lines in the 25 transcript. It's Day 12, obviously of the recent</p>	<p>1 "Well, your table doesn't have eight legs, therefore the 2 safety standard is lower", but as I see it, it's more 3 a differentiation between how you approach the two 4 concepts. One is a compliance concept, which will 5 depend on varying regulations, and the other is 6 an objective engineering assessment. 7 MR PENNICOTT: I think that's right, sir. We haven't yet 8 spoken about examples of compliance on the one hand or 9 non-compliance on the one hand and safety and fitness 10 for purpose on the other, but for example, harking back 11 to one of the points in the Original Inquiry, as 12 I recall it all the experts then agreed that the bottom 13 mats of rebar were in compression, and as a matter of 14 safety, strength, fitness for purpose, didn't actually 15 need, on one view, any rebar. 16 However, the code, it is accepted, requires that 17 part of the slab to have I think 50 per cent of what's 18 in the top mat. 19 COMMISSIONER HANSFORD: That's correct. 20 MR PENNICOTT: That's a good example of where you may not 21 comply with the code if you just omit all the rebar in 22 the bottom slab, because the code requires 50 per cent, 23 but it's not affecting the safety and the fitness for 24 purpose. That's one example of it. 25 Sir, so far as -- back to area A, and we know that,</p>

Page 165	<p>1 as I mentioned earlier, suitable measures are being</p> <p>2 carried out on the footing that a rate/reduction factor</p> <p>3 of 68 per cent is used, and as I mentioned earlier</p> <p>4 that's based upon 18 samples that have been taken in HKC</p> <p>5 and area B, not area A.</p> <p>6 I'm not quite sure how far the government were</p> <p>7 proposing to take this point but I notice that in</p> <p>8 Mr Chow's submissions yesterday, he was criticising the</p> <p>9 MTR for relying upon nine concrete cores that were taken</p> <p>10 in the EWL slab, saying that that wasn't sufficient and</p> <p>11 what was needed was 80-odd-plus, see the statistical</p> <p>12 evidence. Well, frankly what's sauce for the goose is</p> <p>13 sauce for the gander. Okay, we have 18 examples here,</p> <p>14 but on that basis a reduction factor of 68 per cent has</p> <p>15 been calculated and all these suitable measures have</p> <p>16 been carried out in area A on the strength of that.</p> <p>17 So we do say, as has been said by others, that there</p> <p>18 is a serious issue about the sample size before you even</p> <p>19 get going on the exercise of whether it's right to</p> <p>20 extrapolate, and so forth.</p> <p>21 Of course the other points we make about this</p> <p>22 reduction factor, apart from the small sample, are the</p> <p>23 assumption -- sorry, the point that the works were</p> <p>24 carried out in those areas at different times. Yes,</p> <p>25 I think in that area by the same sub-contractor, but</p>	Page 167	<p>1 the shear links at the EWL and the NSL slab areas --</p> <p>2 again, in area A, and we've identified where the</p> <p>3 suitable measures are being carried out.</p> <p>4 The first question is whether the shear links should</p> <p>5 be disregarded in the structural assessment. You are</p> <p>6 aware that they have been totally disregarded, and we</p> <p>7 respectfully submit, for the reasons we've set out, that</p> <p>8 that of itself is a doubtful proposition. But, as the</p> <p>9 experts, certainly the majority of the experts, have</p> <p>10 pointed out, nonetheless, even with that step, that is</p> <p>11 to disregard them, nonetheless, through the various</p> <p>12 analyses that have been done, nonetheless the structure</p> <p>13 is safe and fit for purpose.</p> <p>14 So far as the construction joints at the EWL slab in</p> <p>15 areas B and C are concerned, again I won't say anything</p> <p>16 more about that. You have heard all about the dowel</p> <p>17 bars and what's happening to them. One of my learned</p> <p>18 friends, Mr Boulding or Mr Shieh, this morning or this</p> <p>19 afternoon, read out our paragraph 68 from our</p> <p>20 submissions, which deals with the concern that both</p> <p>21 Mr Southward and Prof McQuillan, in my submission</p> <p>22 rightly, raised about the potential for damage being</p> <p>23 caused by the drilling and more particularly by the</p> <p>24 coring, but as we've said there and as was read out</p> <p>25 earlier, it does seem to us that provided the latest</p>
Page 166	<p>1 certainly at different times.</p> <p>2 The third point we mention on that -- so there's the</p> <p>3 sample size, there's carried out at different times --</p> <p>4 then there's the undisputed fact that the working</p> <p>5 conditions for the capping beam in area A are much</p> <p>6 better than those in the general coupler connection</p> <p>7 locations in B and C.</p> <p>8 A fourth point we mention is Prof McQuillan's point</p> <p>9 that it's wrong to take both sides of the coupler; you</p> <p>10 should just take one side because the coupler is only</p> <p>11 going to fail on one side. It appears that Leighton</p> <p>12 agree with that analysis. We submit that Prof McQuillan</p> <p>13 is right. And whilst I now see that the government</p> <p>14 disagrees with that analysis, it did in fact choose not</p> <p>15 to cross-examine Prof McQuillan on that particular</p> <p>16 point.</p> <p>17 So, sir, we do respectfully submit that the taking</p> <p>18 of the defective rate/reduction factors of 68 per cent</p> <p>19 in area A is speculative and unwarranted, and it doesn't</p> <p>20 sit well, at all well, we submit, with the factual and</p> <p>21 expert engineering evidence adduced in the Inquiry.</p> <p>22 We then go on to say why it is submitted that area A</p> <p>23 is safe and fit for purpose. I don't propose to go</p> <p>24 through all of that.</p> <p>25 One then goes to the shear links, and in particular</p>	Page 168	<p>1 method statement is properly implemented, then that</p> <p>2 should hopefully address the concerns expressed by</p> <p>3 Mr Southward and Prof McQuillan.</p> <p>4 COMMISSIONER HANSFORD: At the top of page 35, which is your</p> <p>5 paragraph 68, Mr Pennicott --</p> <p>6 MR PENNICOTT: Yes.</p> <p>7 COMMISSIONER HANSFORD: -- is that a typo? You've got</p> <p>8 "14/15 per cent".</p> <p>9 MR PENNICOTT: 14 to 15 per cent, it should say.</p> <p>10 COMMISSIONER HANSFORD: Thank you.</p> <p>11 MR PENNICOTT: It's now 18 per cent, if you are interested.</p> <p>12 COMMISSIONER HANSFORD: Okay.</p> <p>13 MR PENNICOTT: Sir, I'm glad you mentioned that, because I'm</p> <p>14 not sure whether the Commission was aware but obviously</p> <p>15 you're going to be engaged in writing the report over</p> <p>16 the coming weeks. We have asked MTR and their</p> <p>17 instructing solicitors Mayer Brown who have been</p> <p>18 updating the Commission on a weekly basis as to the</p> <p>19 progress of the suitable measures works -- we have asked</p> <p>20 them to continue that operation, as it were, on a weekly</p> <p>21 basis, so that you are, week by week, brought up to</p> <p>22 date, so by the time you come to produce the final</p> <p>23 report, I suppose you will just make reference, if you</p> <p>24 need to, to the very final one that you get just before</p> <p>25 the report is published.</p>

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<p>1 CHAIRMAN: Thank you. That's excellent.</p> <p>2 MR PENNICOTT: We are grateful to the MTR for doing that for</p> <p>3 us.</p> <p>4 Sir, just while we are here, monitoring going</p> <p>5 forward. Could we just look at the holistic report, at</p> <p>6 OU5/3275. I think there's probably a similar paragraph</p> <p>7 in the verification report but I'm not 100 per cent sure</p> <p>8 about that. This is the paragraph which I think was</p> <p>9 made mention of earlier. It says:</p> <p>10 "As part of the suitable measures, a long-term</p> <p>11 structural monitoring scheme including instrumentation</p> <p>12 and inspection will be developed to monitor the ongoing</p> <p>13 structural integrity of the structure."</p> <p>14 As I've understood the submissions from government</p> <p>15 and from MTR, so far as government is concerned I think</p> <p>16 they're still expecting a submission from MTR about</p> <p>17 long-term monitoring, and that hasn't yet -- is</p> <p>18 certainly hasn't been implemented. Whether it's been</p> <p>19 received -- I don't think it's been received either, so</p> <p>20 far as the government is concerned. Aside from what MTR</p> <p>21 may or may not be proposing, obviously you've heard the</p> <p>22 evidence from Dr Glover/Prof McQuillan as to what they</p> <p>23 think would be appropriate, and at the end of the day</p> <p>24 the Commission has got to act on the evidence that it</p> <p>25 has heard. If there is going to be some other proposal</p>	<p>1 of course not become public until somewhat later, so</p> <p>2 I think your observation -- that point is very useful.</p> <p>3 MR BOULDING: Yes.</p> <p>4 MR PENNICOTT: Sir, at the end of the submissions for the</p> <p>5 COI 1 hearing, we got a heading, slightly presumptuous</p> <p>6 perhaps but I hope we will be forgiven. It says "Points</p> <p>7 arising on the interim report", page 36, paragraph 73.</p> <p>8 The first point is this, which I have mentioned already</p> <p>9 and I won't go over it, and that's the question of</p> <p>10 whether or not the Commission is going to re-evaluate</p> <p>11 its interim finding that the works were not carried out,</p> <p>12 not executed, in accordance with contract 1112.</p> <p>13 We just made one observation there or one suggestion</p> <p>14 that whilst the Commission is in the best position to</p> <p>15 re-evaluate its interim finding, it's submitted, for</p> <p>16 example, that there appear to have been clear findings</p> <p>17 as to Leighton's non-compliance with the QSP, apart from</p> <p>18 anything else.</p> <p>19 COMMISSIONER HANSFORD: Indeed, the point was made not long</p> <p>20 ago about the failure in respect of RISC forms --</p> <p>21 MR PENNICOTT: Yes, sir.</p> <p>22 COMMISSIONER HANSFORD: -- as yet another example.</p> <p>23 MR PENNICOTT: Another example, sir, yes.</p> <p>24 Sir, I mention this because the next point, at</p> <p>25 paragraph 74 -- I mean, I'm well aware, and we've</p>
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<p>1 as between MTR and the government, no doubt the</p> <p>2 Commission would be interested to hear about it and see</p> <p>3 it, but at the moment, as I understand it, it doesn't</p> <p>4 exist in any written form, although as I think Mr Khaw</p> <p>5 said yesterday the government are awaiting something.</p> <p>6 So what the MTR are about to propose, if they are,</p> <p>7 I don't know. If they are sticking with Dr Glover's</p> <p>8 evidence, then it will just be a programme of visual</p> <p>9 inspection, presumably, and not instrumentation.</p> <p>10 COMMISSIONER HANSFORD: I think we've heard Dr Glover's</p> <p>11 evidence and also Prof McQuillan's view on that. We</p> <p>12 need to consider it and see in what sense that changes</p> <p>13 the recommendation. I think the Chairman and I need to</p> <p>14 deliberate on that point.</p> <p>15 MR PENNICOTT: Yes, sir. I'm told the verification report</p> <p>16 does have a similar reference. It's at BB16, page 9957,</p> <p>17 but we don't need to look at it.</p> <p>18 MR BOULDING: Professor, can I just suggest, in that</p> <p>19 context, that perhaps if you deliberate on that and you</p> <p>20 come to a decision, I think it may well be very useful</p> <p>21 to both government and indeed MTR if you could let us</p> <p>22 know what your decision was perhaps ahead of the report,</p> <p>23 but that's a matter for you.</p> <p>24 COMMISSIONER HANSFORD: Thank you. That's noted. Our</p> <p>25 report will be completed by the end of March but it may</p>	<p>1 mentioned this elsewhere, that there have been certain</p> <p>2 noises emanating from certain involved parties who are</p> <p>3 not necessarily here today about various aspects of the</p> <p>4 Commission's work. This point is, I'm bound to say,</p> <p>5 directed at an issue that's been raised. It's this. In</p> <p>6 the context of the first change -- you will recall all</p> <p>7 that back in the interim report -- and in particular at</p> <p>8 paragraph 102, the Commission may feel it appropriate to</p> <p>9 mention, we submit, that one consequence of the first</p> <p>10 change was the clash between the EWL rebar and the</p> <p>11 D-wall rebar because the D-wall rebar arrangement was</p> <p>12 changed from two to three rows to four rows, so as to</p> <p>13 permit the use of a 300 millimetre tremie pipe.</p> <p>14 CHAIRMAN: I remember that, yes.</p> <p>15 MR PENNICOTT: Sir, so far as that clash was concerned,</p> <p>16 certain TQs, technical queries, were raised by Leighton</p> <p>17 in 2015, and one option considered by MTR and Atkins at</p> <p>18 the time was the use of approximately 4,000 T25 drill-in</p> <p>19 bars across the D-wall in substitution for the T40</p> <p>20 coupler connections. However, this option was abandoned</p> <p>21 in favour of the famous monolithic construction at the</p> <p>22 top of the East D-wall, the EWL slab and the OTE. All</p> <p>23 of this we indicate is explained in detail in</p> <p>24 paragraphs 59 to 64 of Mr James Ho's witness statement.</p> <p>25 Sir, we just wonder whether that might be worth</p>

Page 173	<p>1 spelling out in the final report.</p> <p>2 CHAIRMAN: Thank you.</p> <p>3 MR PENNICOTT: Because I think there has been</p> <p>4 a misunderstanding as to where 4,000-odd drill-in bars</p> <p>5 might have gone, to which the answer is, well, they were</p> <p>6 never there in the first place, they were just an idea</p> <p>7 and it never happened.</p> <p>8 CHAIRMAN: Yes.</p> <p>9 MR PENNICOTT: That might just clarify for others the</p> <p>10 position.</p> <p>11 CHAIRMAN: Thank you.</p> <p>12 MR PENNICOTT: Sir, so far as Leighton's contentions</p> <p>13 regarding the QSP and the ductile couplers, I will come</p> <p>14 to that in a moment in the COI 2.</p> <p>15 Then we've just made a few specific suggestions.</p> <p>16 Sir, because of what appears now the prominence of</p> <p>17 area A, which didn't really have the prominence that it</p> <p>18 does now in the earlier part of the Commission's</p> <p>19 hearings, you may wish to record at paragraph 76(b) that</p> <p>20 the area A slab is just approximately 1 metre.</p> <p>21 CHAIRMAN: 1 metre thick.</p> <p>22 MR PENNICOTT: Yes. I don't think I need to deal with</p> <p>23 collateral tests. You'll need to look at that in the</p> <p>24 light of the recent expert evidence.</p> <p>25 CHAIRMAN: Yes.</p>	Page 175	<p>1 MR PENNICOTT: -- as it were, rather than specifically in</p> <p>2 relation to what you heard in the Original Inquiry.</p> <p>3 CHAIRMAN: Yes.</p> <p>4 COMMISSIONER HANSFORD: I read that and I'm sure we take the</p> <p>5 point that you're making. I didn't understand the last</p> <p>6 point. You said, "See similarly 402".</p> <p>7 MR PENNICOTT: That's 402 of the interim report.</p> <p>8 COMMISSIONER HANSFORD: Yes.</p> <p>9 MR PENNICOTT: That will need me to look at 402 because</p> <p>10 I can't remember what it is.</p> <p>11 COMMISSIONER HANSFORD: It's about clarity in respect of</p> <p>12 designated responsibility for formal inspection and</p> <p>13 maintaining records.</p> <p>14 MR PENNICOTT: Yes. I assumed, but I don't know, that</p> <p>15 402 -- because it starts with the words "On the part of</p> <p>16 MTR" -- I think this was in relation to the RISC</p> <p>17 register. Obviously it's a matter for you. You'll be</p> <p>18 in a better position to know than I am. But it says:</p> <p>19 "On the part of MTRCL, in respect of the EWL</p> <p>20 platform slab, the Commission found that there was</p> <p>21 a lack of clarity in respect of the designated</p> <p>22 responsibility for formal inspection ..."</p> <p>23 No, it can't be that.</p> <p>24 COMMISSIONER HANSFORD: Is it related to Mr Louis Kwan's</p> <p>25 evidence, you may recall, about who was looking at</p>
Page 174	<p>1 MR PENNICOTT: There is one specific point arising on</p> <p>2 paragraph 301. Of course, the interim report is written</p> <p>3 by reference, obviously, to the evidence that you heard</p> <p>4 during the course of the Original Inquiry, and during</p> <p>5 the course of that you heard evidence from Mr Aidan</p> <p>6 Rooney, and of course this was in the context of the</p> <p>7 diaphragm walls and related matters, and he put a lot of</p> <p>8 emphasis on the fact that the RISC forms were important</p> <p>9 and they were in order and they existed, and this was</p> <p>10 very key to his thinking in terms of proving that all</p> <p>11 the works were as they should be.</p> <p>12 Now, of course that was all in the context of the</p> <p>13 matters that we were then dealing with, and of course</p> <p>14 neither he nor anybody else at that time was</p> <p>15 cross-examined about the matters that then came to light</p> <p>16 in relation to the stitch joints and all the other</p> <p>17 missing RISC forms.</p> <p>18 COMMISSIONER HANSFORD: It's a little bit like shooting</p> <p>19 oneself in the foot.</p> <p>20 MR PENNICOTT: You said that, I didn't. So it's something</p> <p>21 just to draw your attention to, that there's the</p> <p>22 prospect or some potential for some inconsistency</p> <p>23 creeping in, if one doesn't deal with that point in the</p> <p>24 round --</p> <p>25 CHAIRMAN: Exactly.</p>	Page 176	<p>1 couplers?</p> <p>2 MR PENNICOTT: I think you are absolutely right, yes. It's</p> <p>3 the bit about maintaining records.</p> <p>4 COMMISSIONER HANSFORD: But my question is: so therefore</p> <p>5 what are you saying in 78 in relation to this?</p> <p>6 MR PENNICOTT: What I'm saying is you need to, in my</p> <p>7 respectful submission, ensure that paragraph 301, 402</p> <p>8 and whatever else you are going to say on the topic so</p> <p>9 far as MTR is concerned, all square up.</p> <p>10 Sorry, I correct myself, it clearly can't be about</p> <p>11 the RISC register because that's in COI 2, not in COI 1.</p> <p>12 Again I think I was just concerned that you have a lot</p> <p>13 of evidence in COI 2 about who was supposed to maintain</p> <p>14 the MTR's records, who was to maintain the RISC</p> <p>15 register, and you will remember the process by which,</p> <p>16 when the RISC forms were issued, they would be generated</p> <p>17 by Leighton, they would make a record of them, they</p> <p>18 would then go to somebody at MTR who would enter them</p> <p>19 into the RISC register. Then there was a question of</p> <p>20 who then filled in the RISC register with the rest of</p> <p>21 the information? And you will perhaps recall that</p> <p>22 Kappa Kang, when I put it to her, she said, "No, I had</p> <p>23 nothing to do with that, I just filled in the form and</p> <p>24 I handed it on". So there is a question so far as MTR</p> <p>25 is concerned as to who should be maintaining records.</p>

Page 177	<p>1 COMMISSIONER HANSFORD: Yes, I understand that, and 2 therefore, arguably -- and we will consider this -- 3 isn't that perhaps yet another example of what we are 4 saying in 402, rather than a contradiction of 402? 5 MR PENNICOTT: It may well be, yes. I can see that. I 6 think all I was concerned with is to make sure that it 7 all lines up. 8 COMMISSIONER HANSFORD: Thank you. That's helpful. 9 MR PENNICOTT: The opening-up I don't need to deal with, and 10 future monitoring I've already dealt with. 11 CHAIRMAN: Yes. 12 MR PENNICOTT: So, sir, so far as COI 2 is concerned, I am 13 not proposing to say anything about project management. 14 You've heard from others about that. We've set out some 15 fairly extensive submissions in relation to project 16 management. But as indeed Mr Boulding indicated this 17 morning, as it happens, despite starting off thinking 18 that Mr Wall was taking a rather different view of 19 matters than Mr Rowsell and Mr Huyghe, in fact, when it 20 all came down to it, as it were, it all very much 21 narrowed, and as Mr Boulding said and he's quite right, 22 really everything that's really helpful and material is 23 in the experts' joint statement. 24 We've tried to, under different headings in our 25 submissions, just identify what it is that the experts</p>	Page 179	<p>1 evidence rather than any perceived negatives. 2 Sir, the headings under which we have looked at the 3 experts' agreements are the project management plan, the 4 PIMS, RISC forms and inspection procedures, interface 5 risks, testing of reinforcement, and then Mr Rowsell's 6 recommendations, which, as Mr Boulding indicated 7 earlier, all the other experts agree with. 8 I was going to not say anything further about 9 project management. 10 We then deal with the statistical evidence, and 11 again, as I've already indicated, this is really only 12 relevant to the work in the trough walls and the 13 application of a 35 per cent reduction factor. The 14 question is whether or not that reduction factor was 15 justified in all the circumstances. 16 Sir, I should perhaps say, when you next see 17 a bulletin from the MTR about the trough walls, you will 18 see that in fact the work has now been completed. The 19 last bulletin we had on 15 January was an indication 20 that they were substantially completed. 21 Sir, we raise a number of questions/queries/doubts 22 about the applicability, justification for the 23 applicability of that 35 per cent reduction factor, and 24 we list out the task force group considerations, 25 certainly, and it was the task force group on this</p>
Page 178	<p>1 agree should be done going forward. Frankly, when you 2 analyse Mr Wall's disagreements, which we do in 3 section B4, they all seem ultimately to really fizzle 4 out and certainly don't amount, it seems to us, to 5 a great deal. 6 Sir, just perhaps one point to pick up from MTR's 7 submissions earlier. In paragraph 9 of our submissions 8 on page 8, we make some observations about the 9 observations MTR have made about Mr Wall and his 10 expertise and his independence. I certainly did not 11 characterise MTR's submissions as suggesting that they 12 thought his views should be completely dismissed. We 13 did not say that. What we have said, I hope helpfully, 14 is that our take on the position is that if one looks at 15 the joint statement and one looks at the 16 cross-examination of Mr Wall in the round, he displayed, 17 we submit, a sufficient degree of independence from 18 Leighton to dispel any perception of partisanship. And 19 we say the sort of point MTR might be seeking to make 20 perhaps would be more relevant if there was a big 21 difference of opinion between Mr Wall on the one hand 22 and Messrs Huyghe and Rowsell on the other, but there 23 isn't. 24 So we respectfully submit that the Commission would 25 be better served by taking the positives from Mr Wall's</p>	Page 180	<p>1 particular occasion that took the decision to use that 2 reduction factor rather than opening up, structural 3 investigation. One can see, perhaps, the logic of that. 4 But of course there are serious questions 5 nonetheless about the justification for extrapolating 6 the results from the NAT, SAT -- from other areas to the 7 NAT, SAT and HHS. 8 We do say, sir, in paragraph 55, that if one stands 9 back and looks at the decision-making process insofar as 10 one can discern it, about using this 35 per cent 11 reduction factor, it's based more, we would submit, on 12 pragmatism, the various practical reasons that were put 13 forward, rather than evidence demonstrating any 14 correlation of the defective rate at the two different 15 areas, that is the EWL/NSL slabs on the one hand and the 16 NAT, SAT and HHS on the other. There seemed little 17 engineering justification for the adoption, we submit, 18 of that reduction factor. 19 CHAIRMAN: So the Hong Kong Police, why were they in the 20 task force again? 21 MR PENNICOTT: Sir, the Hong Kong Police have been involved, 22 as I understand it, in the opening-up process almost 23 from day 1 and have been present at that site. 24 CHAIRMAN: That was to see if there's any evidence of 25 criminal or intentional mishandling?</p>

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<p>1 MR PENNICOTT: To be honest, sir, I don't know the answer to</p> <p>2 that question, but that they were part of the task force</p> <p>3 is not in dispute.</p> <p>4 Sir, I don't think I need to say anything more about</p> <p>5 the HHS. You will have to take a view on that.</p> <p>6 Sir, so far as the shear links are concerned, so far</p> <p>7 as COI 2 is concerned, the only area in which suitable</p> <p>8 measures are being carried out is in the SAT at the NSL</p> <p>9 level. It's a relatively modest area, and again the</p> <p>10 same considerations apply as applied in the shear link</p> <p>11 issues in COI 1, that is whether you disregard them all</p> <p>12 or whether you take them into account, but again you've</p> <p>13 heard all the evidence in relation to this.</p> <p>14 The only additional point that I have to say the</p> <p>15 industry of those sat to my right and my left have</p> <p>16 discovered recently is the point we make at</p> <p>17 paragraph 101 of our submissions. That is this, that at</p> <p>18 the reference we have given -- and I'm afraid they are</p> <p>19 all in soft copy but I've got a hard copy myself --</p> <p>20 records in respect of the construction of the SAT NSL</p> <p>21 bays 1 and 2 can be found. These are the areas where</p> <p>22 suitable measures are actually being carried out. For</p> <p>23 those two bays of track slab, there are, remarkably,</p> <p>24 contemporaneous RISC forms for both rebar, pre-pour</p> <p>25 checks, supported by a large quantity of photographs,</p>	<p>1 works in that area.</p> <p>2 Sir, I then, I hope, I think finally, before I sit</p> <p>3 down, would like to -- I have mentioned the drill bars</p> <p>4 already. I am not mentioning Pypun's obligations again</p> <p>5 which we deal with later. But just this question of</p> <p>6 supervision and the QSP, and Leighton's new submissions</p> <p>7 on this particular topic. We have actually dealt with</p> <p>8 them at some length, and there is, as we say in</p> <p>9 paragraph 129 and onwards, a fair amount of common</p> <p>10 ground, but unfortunately also a larger part of</p> <p>11 disagreement.</p> <p>12 Sir, firstly, at paragraph 130 -- perhaps I ought to</p> <p>13 deal with this -- Leighton's supervisory obligations,</p> <p>14 whether by reference to the QSP or otherwise, is, we</p> <p>15 accept, a matter of contractual interpretation and</p> <p>16 therefore primarily a legal issue. It is conceivable,</p> <p>17 however, that matters of estoppel and waiver may be</p> <p>18 raised.</p> <p>19 COMMISSIONER HANSFORD: Sorry, just on that, you are aware</p> <p>20 I'm an engineer, not a lawyer.</p> <p>21 MR PENNICOTT: Yes.</p> <p>22 COMMISSIONER HANSFORD: Could you just briefly help me with</p> <p>23 estoppel and waiver --</p> <p>24 MR PENNICOTT: It's just that it might be, for example,</p> <p>25 contended by Leighton that there was no obligation to</p>
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<p>1 and there are also pre-pour checklists available.</p> <p>2 So it's slightly ironic that it appears that the</p> <p>3 suitable measures are being carried out in an area</p> <p>4 where, frankly, all the necessary and proper records</p> <p>5 exist.</p> <p>6 COMMISSIONER HANSFORD: And presumably the RISC forms and</p> <p>7 the photographs indicate that necessary shear</p> <p>8 reinforcement was installed?</p> <p>9 MR PENNICOTT: Well, sir, I can show you some photographs --</p> <p>10 COMMISSIONER HANSFORD: I don't think so.</p> <p>11 MR PENNICOTT: There are a lot of them, and yes, you can</p> <p>12 see -- the problem is they are progress photographs so</p> <p>13 you are not always going to see the shear links, but you</p> <p>14 can certainly see some unfitted, as it were, shear links</p> <p>15 in some of the photographs, and other ones that look</p> <p>16 like they are shear links. But the point is also that</p> <p>17 the RISC forms are there, all signed, properly signed,</p> <p>18 and they are there for those particular bays.</p> <p>19 COMMISSIONER HANSFORD: And these are at BB13/9222?</p> <p>20 MR PENNICOTT: That's right, and onwards. They go on for --</p> <p>21 COMMISSIONER HANSFORD: So we can look at that in our</p> <p>22 leisure?</p> <p>23 MR PENNICOTT: You can indeed, in your leisure, if you wish,</p> <p>24 or we could provide you with a hard copy.</p> <p>25 Sir, I don't say any more about shear links and the</p>	<p>1 provide ductile couplers in particular areas, and the</p> <p>2 MTR might say, "Hang on a minute, you produced a QSP</p> <p>3 which says you were going to supervise ductility</p> <p>4 couplers in these areas, and by the way you did supply</p> <p>5 ductile couplers in these areas, so you are now estopped</p> <p>6 from contending that you didn't have that obligation in</p> <p>7 the first place." It is a legal point.</p> <p>8 COMMISSIONER HANSFORD: Yes.</p> <p>9 MR PENNICOTT: But it's only speculative on my part as to</p> <p>10 where all this might lead.</p> <p>11 But as I think both the MTR and Leighton accept,</p> <p>12 because this is in the nature of a contractual</p> <p>13 interpretation, determinations by the Commission will</p> <p>14 not be binding on either MTR or Leighton.</p> <p>15 Thirdly, we say, given the nature of the issue, the</p> <p>16 view of the experts, whether they are structural</p> <p>17 engineers or project management, whilst no doubt of</p> <p>18 interest, are not of direct relevance.</p> <p>19 Fourthly, we are agreed that in principle there is</p> <p>20 a distinction between couplers with and without</p> <p>21 a ductility requirement. But we say for the avoidance</p> <p>22 of doubt it's not accepted that ductile couplers were</p> <p>23 only required in areas specifically marked as "ductile</p> <p>24 zones", it depends where you look at on the drawings.</p> <p>25 Fifthly, it is accepted that the assessment as to</p>

<p style="text-align: right;">Page 185</p> <p>1 whether a coupler in a particular location of the works 2 was subject to a ductility requirement should be made at 3 the time of construction when supervision was required. 4 However, that's as far as we go in agreeing with 5 Leighton. Then there's a big departure, because 6 Leighton effectively say they have to look at the 7 working drawings that they had at the time and they can 8 look at the code, and those are the key documents for 9 the assessment of their obligations. But we 10 respectfully submit that the authorities that also need 11 to be looked at -- and all of these documents need to be 12 looked at together -- include the QSP, which were 13 a contractual requirement to be provided and were in 14 fact provided to the BD pursuant to the acceptance 15 letters, and at least formed part of the general factual 16 matrix against which the couplers were installed. 17 And also, most importantly, the approved accepted 18 drawings which clearly show ductile couplers were 19 required in the D-wall and slab joint, and we have given 20 a reference to all of those drawings there. 21 We do therefore submit that the underlying factual 22 premise of Leighton's contention, namely that there was 23 only one ductility zone to which the QSP could relate is 24 not right. Mr Shieh says, "These drawings are accepted 25 drawings; they may have been prepared at the end of the</p>	<p style="text-align: right;">Page 187</p> <p>1 findings about this, but certainly as we see it, the 2 findings that have been made in the interim report are 3 perfectly justified on the evidence that you've heard, 4 and there's been really no further evidence since the 5 interim report. There have been more submissions but no 6 real further evidence about this particular topic. 7 So, sir, on that note, I am not proposing to say any 8 more, other than to say it's been a pleasure. It's been 9 a long time. I'd like to thank Mr Cheuk and Mr Lam in 10 particular for all the assistance they have given me, 11 and of course, very importantly, Messrs Lo & Lo who have 12 given me enormous support. 13 CHAIRMAN: Yes. Thank you very much indeed. 14 MR KHAW: Sorry, Mr Chairman and Mr Commissioner, I promise 15 that it will not take more than one minute and then 16 I will allow Mr Shieh to continue to sing his song. 17 Just two relatively mundane matters. One is in 18 relation to a typo in our closing submissions that 19 Mr Shieh referred to. If I can just take the Commission 20 to our COI 1 closing submissions on experts, 21 paragraph 94. We have referred to Leighton's expert 22 witness, Mr Wall. In fact we intended to refer to MTR's 23 expert witness, Mr Huyghe here, and in fact the 24 transcript reference should be a transcript reference to 25 Mr Huyghe's evidence here, instead of Mr Wall.</p>
<p style="text-align: right;">Page 186</p> <p>1 day." Well, that's all very interesting, but we believe 2 that the original drawings at the outset also required 3 these couplers to be ductile. But even if we are wrong 4 about that, the problem that the Commission faces is 5 this, that there's no doubt -- if you just look at the 6 drawings that we have referred to here -- that the 7 accepted approved drawings by the Buildings Department 8 at the end of the day clearly show the vertical and the 9 horizontal couplers to be ductile, in ductility zones. 10 It's on the drawings. There's just no doubt about it. 11 We can look at them if you want. 12 But if somehow Leighton are saying, "Well, those 13 accepted drawings, at the end of the day they are not 14 really relevant" -- well, because this is a point that 15 was taken in the final submissions, the Commission has 16 been deprived of the opportunity of trying to look at 17 the evidence to see where we started with the drawings, 18 how things changed and how it came to be that there were 19 ductile zones and ductile couplers shown on the accepted 20 drawings. So that whole factual investigation has never 21 taken place. 22 So again, that's perhaps another reason why -- 23 perhaps I am to some extent in agreement with Mr Shieh 24 on this -- the Commission is going to have to tread 25 rather cautiously about making too many definitive</p>	<p style="text-align: right;">Page 188</p> <p>1 I apologise for that. 2 I have also heard the other parties' submissions 3 regarding the concept of full-time and continuous 4 supervision. We have dealt with that point in our 5 closing submissions, even though I did not specifically 6 highlight that point yesterday. Just for the sake of 7 completeness, our submissions are contained in 8 paragraphs 87 to 93 of our closing submissions on expert 9 evidence for both COI 1 and COI 2. 10 Those are the only two points I wish to make. It 11 remains for me to say that it has also been a pleasure 12 appearing before this Commission. I am also grateful 13 for the tremendous assistance provided by all members of 14 my counsel team and the DoJ team and also the parties we 15 represent. 16 Thank you. 17 CHAIRMAN: Thank you. Anything else? 18 MR SHIEH: At the invitation of Mr Khaw, I rise but not to 19 sing, although the end is nearer. Can I pick up on 20 a couple of points raised by the Chairman, and that is 21 in relation to the question of redaction, because at 22 an earlier stage Mr Chairman indicated in relation to 23 our argument concerning the applicability of the QSP -- 24 Mr Chairman indicated the possibility that certain parts 25 of the redacted part of the interim report could</p>

Page 189	<p>1 conceivably be regarded as relevant or of assistance on 2 that part.</p> <p>3 Now, that got nowhere because the relevant parts, 4 whatever they may be, were not unredacted.</p> <p>5 Mr Chairman then raised not so long ago about the 6 involvement of the police. We don't know how the police 7 got involved but it may well be that at the initial 8 stages of this matter, when people are saying or 9 alleging all kinds of things, people then say, "Let's 10 call the police", but the involvement of the police 11 resulted in this, and that is, as I understand it, when 12 the Commission completes its report, interim or 13 otherwise, it is submitted to the Chief Executive. The 14 Chief Executive then obviously decides whether and if so 15 how and when and in what form the report is published, 16 and in doing so it would probably seek advice of the DoJ 17 in relation to, let's say, possible prejudice it may 18 cause in relation to any criminal proceedings or 19 whatever prejudice of any other nature.</p> <p>20 Now, that puts us in this conundrum, because 21 a report is only as good as -- a report is only of use 22 if it's actually read by the public, because it's 23 something concerning the public interest, and Leighton 24 and no doubt other parties would obviously wish to see 25 what the Commission has decided or may decide on matters</p>	Page 191	<p>1 can say the police have now stopped, so for as long as 2 there is a risk that the police may take steps they 3 should forever and ever remain redacted, so comments 4 made by the Commission which may or may not be useful or 5 helpful to one party or another never see the light of 6 day?</p> <p>7 CHAIRMAN: The front page or one of the front pages of the 8 interim report, the redacted version, says, "With a view 9 to avoiding any prejudice (actual or perceived) to 10 relevant criminal proceedings". So it seems to be 11 looking at criminal proceedings only. That would seem 12 to be the case. How long it takes the relevant 13 authorities to make decisions there I simply don't know.</p> <p>14 I will rethink what I said a bit earlier. I think 15 you make a very good point, Mr Shieh, and that is this. 16 I said earlier that I may consider or we may consider 17 re-drafting some of the paragraphs which those who have 18 the responsibility of doing so have decided should not 19 be seen by anybody, other than presumably the Chief 20 Executive-in-Council, and that's it.</p> <p>21 The problem with that is that if we water those down 22 so that they will no longer be redacted, we may do 23 an injustice to certain parties, and I think that that 24 would be wrong.</p> <p>25 So we will be careful that if we do re-draft</p>
Page 190	<p>1 relevant to accusations made against them.</p> <p>2 Now, we know that in the interim report not only are 3 parts potentially relevant to the QSP redacted, there 4 are parts concerning, for example, accusations made 5 against Leighton which had been redacted. We do not 6 know what reason. Presumably, the matter was redacted 7 because of advice received from the DoJ, given to the 8 Chief Executive, which is the head of the government. 9 We know that in this case, unlike other cases, the 10 government has not merely sat and taken a rather passive 11 view of answering allegations; the government has taken 12 a rather proactive and positive stance in the matter, no 13 doubt for the government's own purposes.</p> <p>14 But it all creates a kind of uncertainty and my 15 point is this. I know it may not be within the 16 Commission's power or control, but perhaps Mr Khaw for 17 the government or the DoJ instructing Mr Khaw could well 18 assist -- it may not be the same team but the DoJ as 19 DoJ -- whether or not there is to be any end in sight as 20 to how any redactions are going to be dealt with in 21 future.</p> <p>22 More specifically, we know that the police may not 23 officially say, "I now close my file, there's no more 24 investigation", so are the redacted parts forever and 25 ever to be concealed from the public? Because no one</p>	Page 192	<p>1 anything, we do not inadvertently do an injustice to any 2 particular party in respect of whom those words may be 3 very supportive, in respect of whom those words may well 4 amount to acquittal of reputation. So we will be very 5 careful in that regard and thank you for raising it.</p> <p>6 As to how long these redacted portions remain 7 redacted -- well, that's in the lap of the gods and 8 I suspect it may be a very long time, but I simply don't 9 know.</p> <p>10 MR PENNICOTT: Sir, I have no idea either in terms of 11 timing, but one does notice, from the wording that you 12 have just referred to and has been put up on the screen, 13 the words in parentheses which say "criminal 14 investigations and criminal prosecutions (if so decided 15 to be justified after the relevant investigations)". It 16 seems to me that the only real answer to Mr Shieh's 17 question, which isn't really is an answer, is to say 18 once the relevant investigations have been completed, 19 and let's assume no prosecutions are going to be 20 instituted, then at that point in time one would have 21 thought the report then ought to be unredacted, I mean, 22 as a matter of logic.</p> <p>23 So the answer to the question is only when the 24 relevant investigations have been completed and there's 25 an express indication that they have been completed</p>

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<p>1 would they become unredacted. I can't see any other 2 circumstances in which they would be, unsatisfactory as 3 it is. 4 CHAIRMAN: Obviously there's a degree of frustration felt. 5 MR PENNICOTT: Yes. 6 CHAIRMAN: And that's not a criticism of those whose job it 7 is to do the redacting or the exercise of their 8 discretion, but one puts out a public document, knowing 9 that it's expected to be in the public domain, even 10 though it may be initially or even entirely a document 11 for the Chief Executive-in-Council, for the Chief 12 Executive-in-Council to do with as she wishes. 13 MR PENNICOTT: Yes. 14 CHAIRMAN: But the fact is the public perception is not 15 that. The public perception is that there's a desire 16 that it should move into the public domain, and when 17 large chunks of it are in black so that nobody knows 18 quite what's happening about particular areas, it may be 19 of particular importance to them. 20 MR PENNICOTT: Yes. Of course the problem -- I don't know 21 if it's a unique problem, I have no idea -- what we've 22 got here of course is that this is an interim report 23 which is now moving on to a final report. Normally, if 24 it's a final report -- I remember the Lead-in-Water 25 Inquiry had some redactions in it but that was a final</p>	<p>1 2012, and it was subsequently released in 2015, after 2 all the criminal prosecutions had been completed. 3 But it's just that this issue of redaction, I wish 4 I could assist the Commission more on this point, but 5 this issue of redaction has been handled by another team 6 of the DoJ which is different from the team that has 7 been instructing us. 8 CHAIRMAN: I appreciate that, yes. 9 MR KHAW: But all I know is that this is just to ensure 10 fairness for the purpose of the potential criminal 11 investigation. 12 CHAIRMAN: All right. That doesn't help anybody, other than 13 that it's an airing of perhaps a nascent frustration, 14 which is understandable, but equally that's not meant to 15 imply a criticism of those whose job it is to exercise 16 discretion to ensure the protection of individual 17 rights. 18 MR SHIEH: At least the media now knows what's happening. 19 CHAIRMAN: Yes, that's true. 20 All right. Good. Anything more? No? 21 Can I also thank everybody. Thank you particularly 22 for your patience. It's been a very long and arduous 23 affair in many respects, but it's been necessary to have 24 these breaks, for example, so that the holistic report 25 could be completed, so that the experts could be ready.</p>
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<p>1 report. 2 CHAIRMAN: How long did they stay? 3 MR PENNICOTT: I have no idea. I don't know. They may 4 still be there. It was published in 2016. 5 MR SHIEH: Lamma Island, parts have been redacted but they 6 have been unredacted, as far as I understand, because 7 the relevant criminal prosecutions have reached 8 a result. So there's a result one way or the other, so 9 those parts concerning the shipmasters have been 10 unredacted. 11 Lead in Drinking Water, I know there are parts which 12 have been redacted because I think eventually there were 13 some arrests but I don't believe I have read about what 14 happened to those arrests and it may well be that the 15 redactions have simply remained. And in criminal 16 prosecution, I don't believe that there is actually any 17 procedure called "we formally close our investigation" 18 because investigations just continue forever and ever. 19 CHAIRMAN: That's right. You carry on until somebody raises 20 a finger and says, "By the way, the statute of 21 limitation now applies", or something similar. 22 MR SHIEH: Yes. 23 CHAIRMAN: Mr Khaw? 24 MR KHAW: Regarding the Lamma collision report, I understand 25 that the redacted full report was first released in</p>	<p>1 Over very long trials and very long commissions of 2 inquiry, I am well aware that barristers appearing 3 before the body do have to often restrain themselves 4 a bit, hearing the same old jokes and the same old 5 various cliches falling from the bench, and so please 6 bear with me in that regard and thank you for your 7 patience, and the same from Prof Hansford. 8 Thank you all very much. 9 (5.08 pm) 10 (The hearing concluded) 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>

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