

1 Tuesday, 28 May 2019

2 (10.03 am)

3 Opening submissions by MR CHOW

4 CHAIRMAN: Yes.

5 MR CHOW: Good morning, Chairman. Good morning,  
6 Prof Hansford.

7 Before I proceed to provide an update on the  
8 progress of the work under the holistic assessment,  
9 I would like to pick up on a point made by my learned  
10 senior, Mr Khaw, yesterday, about the type of couplers  
11 approved to be used at the interface, which appears to  
12 Prof Hansford to be in contradiction with what is  
13 recorded in the meeting minutes of the interface  
14 meeting.

15 I hope I am able to clear up some of the confusion.  
16 Yesterday, Mr Khaw said:

17 "Insofar as contract 1111 is concerned only one type  
18 of coupler has been accepted by BO team for the rebar  
19 connections at the interface."

20 This statement is correct insofar as joint 1 and  
21 joint 3 of the NSL Tunnel are concerned. What is  
22 recorded in the meeting minutes, saying that approved  
23 mechanical splicing system of rebar, T40 couplers is  
24 BOSA, others are Lenton, is also correct. But there is  
25 really no contradiction between the two.

26 If I may further explain by taking the Commission to

1 a few documents. In short, the position is this. Under  
2 contract 1111, two types, both BOSA and Lenton couplers,  
3 had been approved. The question is whether Lenton's or  
4 BOSA's couplers are being used at the interface.

5 If we can first go to look at --

6 CHAIRMAN: Sorry to interrupt. As I saw it at the close of  
7 business yesterday, obviously it would have been better  
8 if everybody had known -- if the same couplers had been  
9 used, there would not have been a problem. But the  
10 problem was not so much the use of different couplers.  
11 The problem was that the people responsible for bar  
12 fixing and supplying the rebars weren't aware of the  
13 fact that there were the Lenton couplers, and therefore  
14 the reinforcing bars didn't have the necessary threading  
15 at the end.

16 So the core issue is a bar without the correct  
17 threading; would that be right?

18 MR CHOW: That's correct. But I would like to at least  
19 clarify the position in terms of design, in order to  
20 identify, at a later stage, which party has committed  
21 fault or not. So I would like to assist, just to  
22 clarify what is included in the design and what Leighton  
23 is supposed to be aware of at the time of the  
24 construction.

25 CHAIRMAN: Yes. Thank you.

26 MR CHOW: If I may refer you to MTR's submission, at

1 bundle DD7, page 10487, please. This is a submission  
2 made by the MTRC to the government on 30 November 2015,  
3 to which a number of QSPs and quality assurance schemes  
4 were attached.

5 Now, both BOSA's couplers and Lenton's couplers were  
6 submitted by MTRC under that submission.

7 Now, the first one, if you can go to page 10488,  
8 this is the first page of the quality assurance system  
9 for Lenton type 2.

10 If we turn over the page, go to the following page,  
11 we see at the bottom of the page:

12 "This submission only applicable to the following  
13 sizes of steel reinforcement bars in diameter:

14 32mm.

15 25mm.

16 20mm."

17 Then if we go to look at the corresponding QSP,  
18 starting at page 10599 -- this is the corresponding QSP.  
19 On the following page, 10600, at the bottom of the  
20 page -- now, this is in line with what is set out in the  
21 quality assurance scheme. Again, Leighton couplers are  
22 supposed to be used for diameters 32, 25 and 20.

23 If we go to another quality assurance scheme for  
24 BOSA's type II couplers, at page 10652, this is for  
25 BOSA's ductility couplers.

26 If we turn over the page to 10653, at the bottom it

1 is stated:

2 "This BD submission shall only refer to SCL contract  
3 1111 Hung Hom North Approach Tunnels related works.

4 This submission only applicable to the following  
5 sizes of steel reinforcement bars in diameter:

6 40mm."

7 So, according to these various submissions, it is  
8 clear that the position is that, as far as the approval  
9 is concerned, two types of couplers have been approved  
10 to be used under contract 1111. Now, as to which type  
11 of couplers that has to be employed at a certain  
12 location, it all depends on the diameter of the  
13 reinforcing bar at that particular location, as shown in  
14 the design drawings.

15 If you go back to the interface, we have looked at  
16 joint 1 and joint 3. Joint 1 and joint 3 are two of the  
17 three stitch joints --

18 CHAIRMAN: Sorry, if you go back to where?

19 MR CHOW: Yesterday, we talked about issue 1. Issue 1  
20 concerns three stitch joints.

21 CHAIRMAN: Yes.

22 MR CHOW: Joint 1 is the joint at the interface at the NSL  
23 Tunnel between contract 1111 and 1112. Joint 3 again is  
24 at the interface. However, joint 2, the one in between,  
25 is actually an internal stitch joint --

26 CHAIRMAN: Internal, yes.

1 MR CHOW: -- of NSL, where we should not have the problem of  
2 different types of couplers, because they are all BOSA.

3 So for joint 1 and joint 3, we need to look at the  
4 drawings, what size diameter of the rebar were being  
5 used under the accepted design.

6 In this connection, I would like to first of all  
7 establish the exact location of the interface first.

8 I would like to refer the Commission to the drawing at  
9 bundle BB1/484.

10 Sir, this is a drawing that shows the profile along  
11 the NSL Tunnel. If we move a little bit to the centre  
12 of the drawings -- now, the lower part of the drawing  
13 shows the alignment, the elevation, which is  
14 a cross-sectional elevation of the tunnel, and in the  
15 middle of the drawing we see a vertical dotted line  
16 which shows the location of the interface, the interface  
17 between contract 1111 and 1112.

18 If we follow the dotted line down to the bottom, we  
19 see a figure. This is a chainage. Now, the chainage,  
20 for the present purposes, we can take it as --  
21 a chainage is a reference point along the alignment of  
22 the tunnel.

23 CHAIRMAN: That's what a chainage is, is it?

24 MR CHOW: Yes.

25 CHAIRMAN: I didn't know, sorry.

26 MR CHOW: It's somewhere along the line of the tunnel, we

1 fix a reference point.

2 The relevant reference point here is chainage 100.

3 So, at a certain location from this reference point, we  
4 will refer to that at chainage 100 plus a certain length  
5 away from this reference point.

6 So if we see the dotted line where the location of  
7 the interface is, it shows that the location is at  
8 chainage 100+466.289. It's about that point. That is  
9 the location of the interface. Then, having determined  
10 the location of the interface, we can go and look at the  
11 corresponding reinforcement details under the two  
12 contracts, to see what sort of diameter of reinforcing  
13 bars are being used at that location.

14 If I can then refer you to another drawing, in the  
15 same bundle, at page 481. Sir, you will see on this  
16 drawing, there are two cross-sections on the upper part  
17 of the drawing.

18 Now, the one on the right-hand side, you will see  
19 a box structure. This is a cross-section showing the  
20 box structure of the NSL Tunnel. The description  
21 underneath that section is, "Reinforcement details of  
22 double track tunnel expanded section due to stitch joint  
23 at NSL uptrack chainage 100+463.789 to chainage  
24 100+465.289".

25 So this is a location very close to the interface.  
26 It's about 1 metre. So it shows the details of the

1 reinforcement to be provided at that location, and it  
2 also shows exactly the reinforcing details that we say  
3 are defective.

4 If you look at the cross-section, we see a lot of  
5 lines. First of all, we have the darker black line  
6 going around the perimeter of the cross-section. The  
7 dark black lines show the reinforcement. As you may be  
8 aware, the reinforcement runs in two directions. Under  
9 the dark black line, we see a lot of dots, the black  
10 dots. Now, the black dots represents reinforcement,  
11 another layer of reinforcement, running parallel with  
12 the alignment of the tunnel. So those black dots are  
13 the reinforcement that needs to be connected by  
14 couplers.

15 Those reinforcement which run around the perimeter  
16 of the box structure are self-contained; they don't need  
17 to be connected with the reinforcement from  
18 contract 1112. So what we should be focusing on is  
19 those black dots.

20 If you look at -- on this section we see a lot of  
21 arrows and a lot of figures. Can I just pick one as  
22 an example to explain what they are about? For example,  
23 if you look at the one right at the top corner, you will  
24 see "T16-150-300 links"; do you see that?

25 MR PENNICOTT: Yes.

26 MR CHOW: Right below that, you see there is another

1 description, "T40-150 T1". For that description, the  
2 T40, the first T denotes a high-yield reinforcing bar,  
3 and the 40 represents the diameter of the bar. The 150  
4 actually is the spacing between the bars, and the T1  
5 shows the first layer of the top mat.

6 So this is how we represent reinforcement, and this  
7 is the way we show to the steel fixers, as to how they  
8 should fix the reinforcement.

9 We see T40 -- if we go around the perimeter, we see  
10 a number of descriptions "T40" at the spacing of 150.  
11 The next one is the one in the middle, on the top, you  
12 will see we have another "T40", at the spacing of 150,  
13 and then the third one will be at the other end of the  
14 corner, on the left-hand corner, "T40". And the arrow  
15 that the description points to shows the relevant  
16 reinforcement. So you will see all these arrows which  
17 show T40 bars refers to the transverse reinforcement  
18 going alongside the perimeter of the box structure, and  
19 this reinforcement does not have to be connected by  
20 couplers.

21 What have to be connected are those black dots. If  
22 you look at those black dots, they are T20 -- T32, for  
23 example -- if you go back to the top part of the  
24 right-hand side, we see, in the middle, "T32-150 EF".  
25 The line refers to a cross, and the cross actually  
26 refers to the four reinforcements, two on the top and



1 two on the bottom. This is the way we represent  
2 reinforcement, reinforcing detail, which basically means  
3 that for all the black dots we see, they are T25 bars at  
4 150 spacing.

5 COMMISSIONER HANSFORD: T32.

6 MR CHOW: Sorry, T32. We have similar description along the  
7 side and the inner wall of the cross-section.

8 What it means is, at the stitch joint, the bar, that  
9 needs to be connected by couplers, they are all T32.

10 COMMISSIONER HANSFORD: So what you are telling us, Mr Chow,  
11 is all the longitudinal bars are T32s?

12 MR CHOW: That's correct.

13 COMMISSIONER HANSFORD: And you've checked that in joints 2  
14 and 3? Sorry, joints 1 and 3.

15 MR CHOW: Joints 1 and 3, that's correct.

16 COMMISSIONER HANSFORD: And they are all T32s?

17 MR CHOW: T32, yes.

18 COMMISSIONER HANSFORD: So, therefore, all of the couplers  
19 inserted at the interface, at the stitch joint  
20 interface, by contract 1111 will be 32s?

21 MR CHOW: That's correct.

22 COMMISSIONER HANSFORD: And therefore they will be Lentons?

23 MR CHOW: That's correct. This is one of the drawings for  
24 contract 1112. In other words, Leighton ought to be  
25 aware of that.

26 MR PENNICOTT: 1111.

1 COMMISSIONER HANSFORD: This is 1111, is it not?

2 MR CHOW: No, this is 1112.

3 COMMISSIONER HANSFORD: So how do we know the details are  
4 the same the other side of the interface?

5 MR CHOW: We can go to check the corresponding drawings  
6 under contract 1111, but as far as Leightons are  
7 concerned, to them, this is the kind of diameter that  
8 they need to provide.

9 COMMISSIONER HANSFORD: Yes, but if this is the Leighton  
10 one, then this is the BOSA -- even though they are the  
11 32s, they would be BOSA?

12 MR CHOW: Well, the record that we see set out in the  
13 meeting minute of the interface meeting says that for  
14 T40, it is BOSA, but for the other bar diameters, it  
15 would be Lenton.

16 So, as far as Leightons are concerned, they knew  
17 that --

18 COMMISSIONER HANSFORD: No. I don't think that's quite  
19 correct. I think what we are hearing is that, at the  
20 interface, 1111 will provide Lenton couplers for T32 and  
21 below.

22 MR CHOW: Yes.

23 COMMISSIONER HANSFORD: And BOSA couplers for T40, but 1112  
24 will provide BOSA for all diameters, and that's not  
25 inconsistent, because if you look at the detail, BB91 is  
26 the best reference because it shows the stitch joint

1 details; the 1112 reinforcement doesn't actually join  
2 the 1111 reinforcement, except through the pink part  
3 which is the stitch joint.

4 So it's quite consistent that you would have BOSA  
5 couplers in the left-hand side, which is the Leighton  
6 contract, and provided they are T32 or below diameter  
7 the couplers in the yellow part would be Lentons, and  
8 then the interface is made across the pink stitch joint.  
9 That would be my reading of this drawing.

10 MR CHOW: Yes. This is also consistent with my reading as  
11 well, Prof Hansford.

12 COMMISSIONER HANSFORD: Good.

13 MR CHOW: But on that reading, my understanding is the pink  
14 part was to be constructed by Leighton.

15 COMMISSIONER HANSFORD: Correct.

16 MR CHOW: So, in order to connect to the couplers on the  
17 right part, Leighton has to prepare appropriately  
18 threaded bar, which is a cone-shaped threaded bar --

19 COMMISSIONER HANSFORD: Yes.

20 MR CHOW: -- in order to connect into the Lenton couplers.

21 Now, given that under Leighton's drawing --

22 COMMISSIONER HANSFORD: We agree.

23 MR CHOW: Under Leighton's drawings, it clearly shows  
24 a diameter of the bar to be used, and together with what  
25 they have heard from the interface meeting, saying that  
26 for diameter 32 and below it would be Lenton, then

1           Leighton, as far as the government is concerned, ought  
2           to be aware that the cone-shaped threaded bar has to be  
3           prepared.

4           COMMISSIONER HANSFORD: Yes. The only question I had,  
5           Mr Chow, was the long sections you took us to, which  
6           showed us the reinforcement, just now, related to the  
7           blue part, and what we haven't seen -- sorry, can we go  
8           back to BB91 -- is a long section with reinforcement for  
9           the yellow part.

10          MR CHOW: That's correct. The section that I have just  
11          shown to the Commission actually covers a chainage from  
12          100+463 to 100+465. This covers a range of -- a width  
13          of 2 metres. So that is the range, as far as I see,  
14          within the pink section.

15          COMMISSIONER HANSFORD: I see.

16          MR CHOW: My instructions are that this cross-section shows  
17          the reinforcement layout at the stitch joints. In other  
18          words, that is what Leighton has to fix --

19          COMMISSIONER HANSFORD: Okay.

20          MR CHOW: -- to do the stitch joint, and if we check the  
21          chainage, it is about right in terms of location.

22          COMMISSIONER HANSFORD: So therefore that would be the same  
23          reinforcement in 1112 and 1111?

24          MR CHOW: That's correct. This is my interpretation,  
25          Prof Hansford.

26          COMMISSIONER HANSFORD: Right. Subject to checking, that

1 makes sense.

2 MR CHOW: If we then go back to the same drawing, 481, on  
3 the left-top corner we see another section. This is  
4 joint 3, the cross-section showing a location very close  
5 to the interface and this shows a trough structure of  
6 the EWL slab.

7 If we look at the details of the reinforcement, they  
8 are all T32. So, again, for joint 3, only -- there was  
9 no T40 bar being used, and what follows is that the  
10 Lenton couplers would have been cast in by the  
11 contractor of contract 1111.

12 COMMISSIONER HANSFORD: Yes.

13 MR CHOW: Now, the position is slightly different in the  
14 case of the shunt neck joint. We only realised it last  
15 night when we went through some of the relevant  
16 drawings.

17 If I may then refer you to a drawing showing the  
18 alignment of the shunt neck joint, at bundle DD7/10381,  
19 please. Sorry, perhaps before that, 10374, please.

20 10374 is a similar layout drawing, showing the  
21 location of the interface, and we see that -- now, in  
22 the middle of the drawing, we see again a dotted line  
23 showing the location of the interface, and if we just  
24 follow the line going down and check the corresponding  
25 chainage, although we don't have the exact location, but  
26 we can tell that it is around chainage 0+31-something.

1 This is the rough location of the interface of the shunt  
2 neck joint.

3 Then we can go to look at the corresponding  
4 reinforcement detail. The first one, under  
5 contract 1111, bundle DD7, page 10381. Sir, you will  
6 see there are a number of cross-sections on the  
7 drawings. The relevant one is the one at the middle but  
8 to the right, which says, "Reinforcement of shunt neck  
9 trough HHS chainage 0+291 to chainage 0+312  
10 approximately". Do you see that, the one in the middle  
11 of the page but to the right?

12 So if we blow up that particular section, we see  
13 that all the longitudinal bars are T25, except there is  
14 a layer of longitudinal bar on the slab; the top of the  
15 slab, the T2, is T40. The middle part is the slab,  
16 shows the cross-section of the slab. At the top  
17 reinforcement for the slab, we have two layers. First  
18 of all, we have the T1 layer, which is the top one,  
19 which is transverse reinforcement, T32; but the lower  
20 layer, T2, shows the diameter of the bar to be T40.

21 In other words, in the shunt neck joint, the  
22 longitudinal bar needs to be connected, a T40 bar.

23 If you then now go to look at the corresponding  
24 drawings, under contract 1112, at bundle BB1/538, the  
25 cross-section at the bottom of the page, again to the  
26 right. This is a cross-section shown almost at the same

1 location. This one is for the length from chainage  
2 0+312 to chainage 0+323. The other one that we have  
3 just looked at is from +323 to further down the  
4 alignment.

5 We see that the top reinforcement, the second layer  
6 of the top reinforcement, is T25.

7 Both cross-sections, in a way, stop at chainage  
8 0+323 -- no, 312 as the dividing line. If we recall  
9 that just now we looked at the layout plan, we know that  
10 the location of the interface is somewhere around  
11 0+31-something. So the location of the interface should  
12 be very likely to be around 0+312.

13 Now, if this is the case, then we see that there is,  
14 in a way, mismatch between the reinforcement details  
15 under the two different contracts. Under contract 1111,  
16 the top layer of the longitudinal bar should be T40,  
17 whereas under contract 1112, it shows that it is 25.

18 Sir, you will recall that under the contract,  
19 originally, this joint is supposed to be a stitch joint.  
20 In other words, Leighton has to first of all connect to  
21 the couplers cast in under contract 1111 first, and then  
22 at the same time Leighton needs to provide another set  
23 of threaded bar connected to its own part of the  
24 structure. So that would be BOSA.

25 Even if we have different diameter sizes under two  
26 different contracts, that can still be achieved, because

1 on 1112 side Leighton can provide T25 bars, and then  
2 these T25 bars can be lapped with the T40 bars from the  
3 other side. But subsequently this stitch joint was  
4 changed to a construction joint. Again, it is a matter  
5 for the technical people to advise the Commission as to  
6 how they should go about it, but as far as I'm concerned  
7 that can still be achieved. The 40mm diameter bars  
8 sticking out from the interface can still be left with  
9 T25 bars.

10 I think that is as far as I can go. The purpose of  
11 my submission is just to show to the Commission what are  
12 the requirements in the contract drawings, and if there  
13 is any mismatch, this is the way that we can say there  
14 is some kind of mismatch, but technically perhaps it is  
15 not a problem at all. It all depends on how the  
16 contractor went on to execute the work.

17 Unless the Commission has any question for me on  
18 this particular question, then I will move on to provide  
19 an update.

20 (Discussion off the record)

21 If you have no questions on this aspect, I will move  
22 on --

23 CHAIRMAN: I was just being assured by my professional  
24 co-Commissioner that some of my indications that I was  
25 lagging behind on the technicalities will be made clear  
26 to me over coffee break.



1 MR CHOW: Thank you.

2 CHAIRMAN: That's one of the good things about having two of  
3 us sitting. We can enlighten each other in our own  
4 respective areas.

5 COMMISSIONER HANSFORD: That seems to be part of my role  
6 here.

7 MR CHOW: Thank you. Having said that, at any time,  
8 Mr Chairman, if you have any questions, I will try my  
9 best to assist.

10 CHAIRMAN: I appreciate that. Thank you.

11 MR CHOW: In that case I will move on to provide an update  
12 on progress of the works under the holistic assessment.  
13 Sir, you will recall that under the holistic assessment,  
14 the works are to be carried out in three stages.

15 CHAIRMAN: Yes.

16 MR CHOW: At the time when we concluded our evidence of the  
17 first part of the Inquiry, we were at stage 2, when  
18 opening work was being carried out at various locations  
19 of the platform slab. These locations were sampled on  
20 a statistical basis, and what we knew at that stage was  
21 we would have to expose at the minimum 168 coupler  
22 assemblies for verification and for measurement for the  
23 purpose of statistical analysis.

24 After those had been opened up, we would measure by  
25 a non-destructive method the engagement length, and that  
26 has been done. At the time when we concluded the first

1 part of the evidence, there was some problem as to the  
2 accuracy of the measurements taken up to that stage, and  
3 subsequently, upon further effort being put in by the  
4 technical personnel, they have revised the method and it  
5 has been improved, checked, and we are now satisfied  
6 that the final method of measurement used was reliable  
7 and all the exposed couplers have been re-measured.

8 The stage 2 investigation was largely completed on  
9 29 April, last month. As the position stands, my  
10 instruction is that there were altogether 225 samples of  
11 coupler connections exposed for examination, and the  
12 result of the examination has already been uploaded on  
13 to the website of the Highways Department, and  
14 I understand that MTRC has also helpfully summarised it  
15 and updated it on a continuous basis in its report.

16 Just to give an overall account of the result, out  
17 of the 225 samples opened up, 152 of them show  
18 an engagement length of 37 millimetres or more, which  
19 are measured by our ultrasonic test, and 39 of them show  
20 an engagement of less than 37mm. There remain  
21 34 samples. They were either -- after they were  
22 exposed, they were found to be not connected at all,  
23 therefore no measurement can be made. My understanding  
24 is it accounts for seven to eight number of them are not  
25 connected. As to the remaining 25 or 26 samples, the  
26 technicians were not able to measure or to produce

1 a valid reading.

2 What happened is, during this measurement process,  
3 the measurements were done by two separate technicians,  
4 doing exactly the same thing, and the reading would only  
5 be accepted as valid if both of them came up with a very  
6 similar measurement. Now, if the two technicians came  
7 up with different measurements with a deviation larger  
8 than a certain range, then we consider those readings as  
9 invalid, and my understanding is, out of these  
10 34 samples, a number of them are of that type; two  
11 different technicians came up with different figures and  
12 we therefore ignore those readings. So this is the  
13 position.

14 Going back to the stage 3 structural assessment, the  
15 stage 3 structural assessment, according to the agreed  
16 holistic proposal, is to be made on the basis of the  
17 verification findings in stage 1 and stage 2. So the  
18 result of the opening-up and the measurement we have  
19 taken would be taken into account.

20 At the moment, the target date for the submission of  
21 a final report of stage 3 structural assessment is set  
22 on 30 June, ie the end of next month.

23 The government is as keen as MTR, if not more, to  
24 resolve the present problem and have the Shatin to  
25 Central Link commissioned and put in operation, and for  
26 this purpose, to avoid any unnecessary delay in stage 3

1 structural assessment, the government has set up  
2 a special taskforce in mid-April. Now, this taskforce  
3 is a different one, different than the one that Mr Khaw  
4 mentioned yesterday. Mr Khaw mentioned a taskforce set  
5 up to deal with the verification proposal, but a further  
6 taskforce has been set up in mid-April this year, just  
7 to handle the stage 3 structural assessment, and this  
8 special taskforce actually comprises the technical staff  
9 from the Buildings Department, from the Highways  
10 Department, and also from the expert adviser team.

11 This special taskforce holds almost daily meetings  
12 with the corresponding technical staff from MTRC, to  
13 discuss various matters relevant to the stage 3  
14 assessment, in particular the design assumptions, the  
15 design parameters. The purpose is to avoid getting into  
16 a situation when the final report is produced by MTRC  
17 and then the government has to get into a big argument  
18 with MTRC on the validity of certain design parameters  
19 adopted in the assessment. So what the government did  
20 is to set up a taskforce, have continuous dialogue with  
21 the technical staff of MTRC, and also the consultants of  
22 MTRC, to agree on various design parameters and  
23 assumptions.

24 At the moment, almost all the design parameters and  
25 assumptions have been agreed, except one, and the one  
26 that remains outstanding actually relates to the

1 question of whether, and if so how, the ground support  
2 provided by the existing ground to the NSL slab are to  
3 be taken into account, because, sir, you will recall  
4 from the evidence of the first part of the Inquiry, we  
5 were told that actually NSL slab was cast on the ground.  
6 Although in terms of design, they were designed to be  
7 self-supported, in other words to be supported by the  
8 diaphragm wall, but in actual fact, when they were cast,  
9 there was ground underneath. So there is some  
10 discussion at the moment between the government's  
11 technical department and MTRC as to whether one can take  
12 into account the support from the ground during this  
13 construction stage, in the stage 3 assessment, and  
14 hopefully this can be agreed very quickly.

15 Regarding the structural assessment itself, this has  
16 been going on in parallel with the discussion between  
17 MTRC and the government. According to the agreed  
18 timetable between the government and MTRC, MTRC will  
19 produce a draft final report by the end of this month.  
20 In other words, in a few days' time. There are,  
21 however, two matters I would like to spend some time on,  
22 which I think would be of particular interest to the  
23 Commission. The first one relates to the adequacy of  
24 the connection between the east diaphragm wall and the  
25 EWL slab. I recall that Mr Chairman at the preliminary  
26 meeting actually mentioned it, because Mr Chairman

1 recalled the concern of Prof Au. In the first part of  
2 our Inquiry, Prof Au carried out a quick check and  
3 expressed concern as to the adequacy of the connection.

4 Sir, you will recall that in the first part of the  
5 Inquiry, we have been exploring two different design  
6 changes. My learned friend Mr Cheuk labelled it as  
7 a first change and a second change. The first change  
8 relates to the omission of a U-bar on top of the  
9 diaphragm wall and the second change is the change from  
10 a coupler connection to through-bar. But to implement  
11 the second change, Leighton actually hacked off part of  
12 the top of the diaphragm wall and then put in  
13 through-bar and then recast the remaining concrete as  
14 the second phase.

15 CHAIRMAN: Described occasionally as a monolithic pour.

16 MR CHOW: Exactly. This is what the discussion is about.

17 But you will recall that one of the concerns of Prof Au  
18 is because of this operation, we have actually created  
19 an additional horizontal joint inside the connection,  
20 and Prof Au expressed concern about the adequacy of the  
21 joint because of that.

22 At the conclusion of the evidence, upon the  
23 invitation of the Commission and upon receipt of the  
24 base data from Atkins, Prof Au has carried out a quick  
25 check, structural design check, on the basis of the data  
26 provided by Atkins, and he has produced a report on

1 1 March 2019.

2 In short, Prof Au opines that there may be potential  
3 problems of excessive horizontal shear stress at the  
4 additional construction joint we have just mentioned,  
5 and also there may be excessive shear stress at some of  
6 the vertical critical shear plane close to the exterior  
7 surface of the diaphragm wall.

8 So Prof Au maintains the same concern, and in the  
9 report he recommended that a more sophisticated analysis  
10 or assessment has to be carried out. Now, this more  
11 sophisticated assessment has now been taken on board by  
12 MTR's consultants.

13 COMMISSIONER HANSFORD: Is this a finite element analysis?

14 MR CHOW: I am not 100 per cent sure, because I was not  
15 involved in the discussion.

16 COMMISSIONER HANSFORD: I'm just wondering what a more  
17 sophisticated assessment is.

18 MR CHOW: Probably yes, because --

19 COMMISSIONER HANSFORD: I believe it's a finite element  
20 analysis.

21 MR CHOW: Because as far as I understand, all these  
22 sophisticated computer programs are based on finite  
23 element, so inevitably I think the finite element  
24 analysis will be involved.

25 The important point is that now Prof Au's concern  
26 has been passed on to MTRC's consultants. As far as

1 I understand, there are three consultants involved:  
2 Atkins, Arup and AECOM. Prof Au's concern was explained  
3 in detail to the consultants, and I understand that the  
4 more sophisticated analysis will be done by the  
5 consultant and will form part of the stage 3 structural  
6 assessment. In other words, by the time when the  
7 Commission receives the stage 3 structural assessment  
8 final report, then the concerns of Prof Au should have  
9 been addressed. We are not in a position to foresee  
10 what is the result or whether any remedial work will be  
11 required, but what is important that we have to take  
12 note is Prof Au's concern has now been taken on board by  
13 the consultant and this more sophisticated analysis is  
14 being carried out.

15 The second matter, Mr Chairman, you have mentioned  
16 at the preliminary meeting, is the test to be performed  
17 on partially engaged couplers. There is always  
18 a question as to whether there is any contribution from  
19 the partially engaged couplers to the strength of the  
20 structure, and that was really the main disagreement  
21 during the first part of the evidence between the  
22 government and MTRC.

23 What happened is -- we have put down in our written  
24 opening, saying there is not much progress on this  
25 aspect of the disagreement. The government -- as  
26 I mentioned earlier, a special taskforce has been set up



1           since mid-April, so the government was aware that MTRC  
2           was going to carry out further tests on partially  
3           engaged couplers by the end of April, so last month.  
4           And the government has received a draft test plan for  
5           the partial engagement couplers from MTRC, also in  
6           mid-April.

7           In response to that, the government has provided its  
8           comments on the draft test plan, and since then, during  
9           the almost daily coordination meetings of the special  
10          taskforce, between the government and MTRC, the  
11          government asked for details of the test results that  
12          MTRC apparently has performed at the end of April, and  
13          the government expressed to MTRC that if MTRC intended  
14          to make use of the test results for the purpose of  
15          stage 3 structural assessment, those results have to be  
16          disclosed to the government, have to be tabled for  
17          discussion, and the requirement for test can be  
18          discussed and agreed.

19          My instruction is that until last Saturday,  
20          government received nothing from MTRC about that, and  
21          meanwhile, the consultant of MTRC has been proceeding  
22          with the stage 3 structural assessment on the basis that  
23          the partially engaged couplers were not giving any  
24          contribution. In other words, the partially engaged  
25          couplers were ignored in their structural assessment, up  
26          to last Saturday, two days ago.

1           Last Saturday --

2       CHAIRMAN: When you say "partially engaged couplers", you  
3           mean less than 35?

4       MR CHOW: Less than 37mm engagement length.

5           So this is what the consultant has been working on  
6           during the month of May or before May.

7           But last Saturday night we received, the government  
8           received, from MTRC, by email, copies of the test  
9           reports, about tests MTRC had performed back in April on  
10          couplers with various degrees of partial engagement.  
11          The government immediately wrote back to MTRC, seeking  
12          their clarification as to their intention with that test  
13          report. Meanwhile, the government observed from the  
14          test result of this second batch of tests, coupler  
15          tests, that the overwhelming majority of the test  
16          samples actually failed against the requirement, the code  
17          requirement, in relation to permanent elongation, which  
18          is not to be in excess of 0.1 millimetre.

19          While the government observed that the new test  
20          report shows that most of the samples still failed to  
21          comply with the code requirement, but we don't know why  
22          MTRC chose to pass on these further tests that had been  
23          done almost a month ago to the government, at this  
24          stage, two days before we commenced the substantive  
25          hearing. So we are yet to hear from MTRC as to what  
26          MTRC intends to do. Because, as far as government is

1           concerned, the consultants of MTRC have been proceeding  
2           with the stage 3 structural assessment on the assumption  
3           that the partially engaged couplers were to be ignored.  
4           So perhaps MTRC has a new plan, then this is something  
5           that we have to hear from MTRC.

6           COMMISSIONER HANSFORD: Because it must be the case,  
7           Mr Chow, mustn't it, that ignoring partially engaged  
8           couplers, with engagement less than 37 millimetres, is  
9           a very conservative approach?

10          MR CHOW: Prof Hansford, I am not actually in a position to  
11          give any opinion, but possibly, yes, if the partially  
12          engaged couplers are ignored. But again, from the  
13          evidence, there are concerns in relation to cracks, the  
14          development of cracks, the deformation, and that is  
15          something the experts have no doubt considered as well,  
16          which I am not in a position to advise or form any view  
17          on.

18          COMMISSIONER HANSFORD: Okay.

19          MR CHOW: So this is something that the MTRC -- if MTRC  
20          intends to make use of this test report for the purposes  
21          of stage 3, this is something that MTRC has to discuss  
22          with the government. Of course the government is open  
23          to different ideas, but we are concerned with timing  
24          because, according to the agreed timetable, the final  
25          report has to be issued by the end of next month, and  
26          the draft report is supposed to be ready by the end of

1           this week. So if we start looking into new things, then  
2           we have to think about the timetable as well.

3           That is all I can say at the moment. The government  
4           is open to discuss, but we have to hear from MTRC on  
5           that.

6   CHAIRMAN: All right. Sorry, this is not a criticism. I'm  
7           just trying to understand. I appreciate that all tests  
8           must have parameters. I would imagine the more  
9           sophisticated tests tend to have more sophisticated  
10          parameters, but I may be wrong; I'm not an engineer.  
11          But would it be then on the basis that a length less  
12          than 37 millimetres would be ignored, so that if you've  
13          got 37 millimetres, that would be accepted, but  
14          36 millimetres --

15   COMMISSIONER HANSFORD: Or 36.9.

16   CHAIRMAN: -- or 36.9 millimetres -- means it's not helping  
17          the structural integrity of the structure one bit.

18          I'm not querying it. I accept there must be  
19          parameters. It just seems to me, as a complete  
20          layperson, that's a very small difference. Is there no  
21          gradation, or does it all suddenly stop at  
22          37 millimetres and thereafter of no benefit whatsoever  
23          to the structural integrity?

24   MR CHOW: Sir, as a layperson, of course the answer is no,  
25          there must be some contribution, but at the same time  
26          I appreciate that a line has to be drawn somewhere.

1           It's a matter of where to draw that line. And if  
2           someone has --

3           CHAIRMAN: Or perhaps several lines can be drawn.

4           MR CHOW: Or several lines.

5           CHAIRMAN: You get decreasing percentages, for example. But  
6           again, I keep my ground.

7           MR CHOW: I fully appreciate that.

8           COMMISSIONER HANSFORD: I'm just observing this appears  
9           rather conservative.

10          MR CHOW: But this is something that the technical people  
11          from the two parties have to put their heads together to  
12          work out.

13          CHAIRMAN: And the other thing you mentioned is the  
14          elongation tests. Again, I'm not querying it, because  
15          no doubt it's going to be discussed, and it's absolutely  
16          for government and MTR to decide on what basis they wish  
17          to proceed. It's an independent exercise. But there  
18          was quite a bit of evidence saying that this particular  
19          type of test was actually not relevant, in the  
20          circumstances of the building of the structures.

21                 I can remember, in my rather primitive way, talking  
22          about, in order to get into a government elite commando  
23          unit, you may have to be able to swim a mile underwater,  
24          but if in fact, having shown that ability, you then have  
25          to carry out a raid in the middle of a desert, the  
26          swimming a mile underwater is not really of great

1           relevance. Perhaps the ability to run up rocky  
2           hillsides is. Do you see the point?

3       MR CHOW: Yes.

4       CHAIRMAN: So one wonders, to some degree, about the  
5           appropriateness of particular tests for the particular  
6           circumstances. Again, I just mention that. That's all.  
7           I don't query it. I just remember that being raised.

8       MR CHOW: Yes. We take note of that. As I mentioned  
9           earlier, the government actually welcomes further  
10          discussion. That's why, during the taskforce meetings,  
11          we have been asking MTRC about the test result and  
12          whether MTRC intends to make use of the test results,  
13          and at the moment we are concerned with the timing only.  
14          But, having said that, my instructions are that the  
15          latest test plan that we received yesterday is now being  
16          considered by the government.

17                I also mentioned that an earlier version of the test  
18          plan has been commented by the government, and we are  
19          now looking at the revised test plan to see whether our  
20          comments have been fully addressed.

21                These new documents only came in on Saturday night  
22          and I would expect that the government will act  
23          immediately and look at the details, then we will go  
24          back to MTRC.

25                But first of all we need to have an indication from  
26          MTRC as to what is their intention with the test results

1 and what they plan to do. Dialogue is very important  
2 and that's the reason why a taskforce is set up and  
3 that's the reason why daily meetings were held, to  
4 facilitate and to speed up the stage 3 structural  
5 analysis.

6 The fact is that we are a few days away from a draft  
7 report, having to produce, and a little bit more than  
8 a month before the final report has to be submitted to  
9 the Commission, and of course the government is willing  
10 to work closely with the MTRC to achieve that target,  
11 but it takes two to cooperate.

12 CHAIRMAN: Yes. Thank you very much.

13 MR CHOW: Sir, I think that is all I intended to say by way  
14 of an update. Unless, sir, you have any questions for  
15 me on that, this is my submission.

16 MR PENNICOTT: Sir, before we go on -- I think it's Mr Shieh  
17 next -- can I just make a couple of observations?

18 As we all know, we are here for this hearing to  
19 listen to the opening submissions and then the evidence  
20 in relation to the extended part of the Inquiry. Whilst  
21 I have no problem with Mr Chow giving the Commission  
22 an update, as he has done over the last half an hour or  
23 so, on what's happening in relation to the holistic  
24 proposal, Mr Chow having done so and raised the sorts of  
25 points that he has, no doubt the MTRC are going to want  
26 to respond in some fashion, which of course they are

1 perfectly entitled to do.

2 My concern is that we are working under a pretty  
3 tight timetable, with a lot of witnesses coming, with  
4 a lot of growing issues about availability of witnesses,  
5 and it does, with respect, seem to me that if the  
6 government and the MTRC wish to discuss with the  
7 Commission matters not directly connected with the  
8 extended part of the Inquiry, then an indication should  
9 be given to the Commission, either through me or through  
10 those instructing me, and we can perhaps find time, half  
11 an hour or an hour, at the end of the day, between 5 and  
12 6 o'clock, or whatever it might be, to listen to that  
13 material.

14 But we cannot, in my respectful submission, have too  
15 much time taken away from us in relation to what we are  
16 supposed to be dealing with. It's not a criticism of  
17 Mr Chow, because I accept entirely that the Commission  
18 does need to be updated, but I just think we need to  
19 bear that in mind, if I may say so.

20 CHAIRMAN: All right. Thank you.

21 Good.

22 MR PENNICOTT: So it's Mr Shieh, I think.

23 MR SHIEH: Yes, I am next in line. I hope I can be forgiven  
24 for still being seated when I address the Commission.  
25 I can start now or I can start after the mid-morning  
26 break, if the Commission --



1 CHAIRMAN: Again, these are your submissions and we're happy  
2 to go with how you would best like to proceed.

3 MR SHIEH: I would wish to proceed, if it suits the  
4 Commission.

5 CHAIRMAN: Good. Thank you.

6 Opening submissions by MR SHIEH

7 MR SHIEH: The Commission will have read our written  
8 opening. I don't propose to go through them. I propose  
9 to make five points on five topics.

10 First, issues of connection have been identified or  
11 discovered in the stitch joints and at the shunt neck  
12 joint. One of the issues or one contributing factor to  
13 the issues of connection was what has been called the  
14 material mismatch or the shape mismatch between BOSA  
15 rebars and Lenton couplers on the interface of 1111 and  
16 1112.

17 As Leighton's witness statement acknowledged, there  
18 had been issues of communication internally, within  
19 Leighton, where personnel who attended interface  
20 meetings were aware of the possible use of Lenton  
21 couplers but had not communicated that to the  
22 engineering staff. We have squarely acknowledged that.  
23 And during the inspection process, opportunities of  
24 spotting any issues of connection had been missed,  
25 during routine inspection and hold-point inspection.

26 So that is the shape of the evidence broadly in

1 relation to that aspect of the issues concerning the  
2 interface.

3 There are other possible causes or reasons  
4 identified in the evidence for difficulty or  
5 impossibility of fixing rebars into couplers. I name,  
6 by way of example, some couplers are said to have been  
7 not completely hacked off from concrete, so that the  
8 couplers were not fully exposed. That's one cause which  
9 has been mentioned in the evidence. Another cause of  
10 the difficulty or impossibility of fixing the rebar was  
11 what has been called the size mismatch, because apart  
12 from the shape mismatch we have seen some evidence in  
13 relation to a size mismatch, in the sense that the bars  
14 were too thin or too narrow for the couplers. I believe  
15 that related to the shunt neck joint.

16 There are also suggestions that there might have  
17 been couplers which were damaged, which therefore made  
18 connection difficult or impossible.

19 Now, evidence on those aspects is, I would  
20 acknowledge, a little bit murky. From Leighton's  
21 perspective, Leighton witnesses have explained and  
22 testified in their witness statements, as far as they  
23 are concerned, they are not aware of any issues or  
24 difficulties over connection during the construction  
25 process. But of course, as the matter goes on, we would  
26 continue to explore that with our witnesses, and no

1           doubt these would be explored with them when they are in  
2           the box for cross-examination.

3           But if we were to stand back, these difficulties or  
4           impossibility of fixing the rebar, whether it is because  
5           of the shape mismatch or size mismatch, in our  
6           submission, were not the reason for the actual  
7           inadequate connection or non-connection. The reason for  
8           the actual non-connection or inadequate connection, in  
9           our submission, was the act or omission of the rebar  
10          fixers, that is Wing & Kwong, in actually doing the  
11          physical work. That, in our submission, was the cause  
12          for the issue.

13          Now, Wing & Kwong obviously has its own version of  
14          events which we have heard from Mr Tsoi, and the  
15          Commission will know that we have a classic case of  
16          a collision in the witnesses' oral testimony, on which  
17          I prefer to say little because these are obviously  
18          matters which will be tested rather severely in  
19          cross-examination, but suffice it to say, in terms of  
20          what was actually said or not said, or instructed or  
21          reported during the actual fixing process, it really is  
22          a matter of clash of oral testimony.

23          The reasons, the different reasons, as to why there  
24          were these impossibilities, were useful by way of  
25          background, and if one were to attribute any earlier  
26          responsibility, the Commission may well wish to look at

1           that, but the immediate reason for non-connection or  
2           inadequate connection was Wing & Kwong's act or omission  
3           in not fixing.

4           That is my observation on the first point, namely  
5           the issues concerning non-connection or inadequate  
6           connection.

7           The next big topic I address is what's been called  
8           issue 3, issues concerning RISC forms. It has been  
9           loosely called, in some quarters, "missing RISC forms".  
10          I prefer to call that "outstanding RISC forms" because  
11          of a subtle difference: because if one calls someone  
12          missing, a missing person, you presuppose a person  
13          existed in the first place before he can be made  
14          missing, with a rather sinister connotation that he has  
15          been somehow destructed. On Leighton's evidence, the  
16          RISC forms which cannot be found were not missing, they  
17          were outstanding, for the simple reason, as frankly  
18          acknowledged by Leighton's witness testimony, the  
19          relevant engineering staff were too overwhelmed and busy  
20          with their workload.

21          One can make submissions as to whether that's good  
22          enough or not good enough as a matter of management, but  
23          in our submission the absence of RISC forms does not  
24          mean that, as a matter of primary fact, the requisite  
25          inspection has not taken place, or that the requisite  
26          inspection and permission has not in fact been given

1 before the pouring took place. There is evidence both  
2 from Leighton and from MTRC as to, as a matter of fact,  
3 the inspection and permission-seeking process that had  
4 been gone through when the relevant hold points were  
5 reached. Again, that would be a matter of primary  
6 witness testimony that the Commission would have to  
7 consider.

8 So that is what I have to say in respect of the  
9 second big point, the question about outstanding RISC  
10 forms.

11 The third big point relates to material testing.  
12 The Commission will be aware that all the rebars used  
13 on site would have had test certificates issued by their  
14 manufacturers. So it's not as if there were no quality  
15 checks on the rebars delivered to site.

16 What happens is that additional testing in Hong Kong  
17 was supposed to be done by sample on the rebars  
18 delivered on site by a HOKLAS accredited laboratory. On  
19 Leighton's calculation or reckoning, about 7 per cent of  
20 the rebars delivered to site were not so tested by  
21 sample. In our submission, it has no bearing on safety  
22 because, first of all, as I said, this is not to say  
23 that the rebars have not already been tested by the  
24 manufacturers, as evidenced by their relevant test  
25 certificates. Secondly, Leighton will be putting  
26 forward evidence of an expert which hopefully should

1           assist the Commission in viewing the significance or the  
2           lack of significance of the testing of this 7 per cent  
3           of rebars in the overall scheme of things. But, as  
4           directed by the Commission when the time comes, when the  
5           report is ready, we will put forward the report in the  
6           usual way to seek leave, but all I need to say now is,  
7           yes, Leighton has in mind adducing expert evidence on  
8           that.

9           So that is my address on the third big topic,  
10          material testing.

11          On the fourth topic, that is the alleged design  
12          change, the Commission is aware that there is this  
13          question about couplers versus lapping. The Commission  
14          will remember, or it might have been so long ago that  
15          one might have forgotten, the evidence, there is  
16          technical evidence, that in the present context couplers  
17          and lappings are interchangeable. Certainly there is no  
18          suggestion, in terms of the evidence that we have been  
19          able to see for the purpose of part 2 of the Inquiry,  
20          that somehow, as a matter of principle, one is superior  
21          to the other. And the approved drawings and the  
22          approved designs, they did not stipulate precisely  
23          whether or not couplers or lappings are to be used.

24          So it is Leighton's submission that it really boils  
25          down to a matter of judgment whether to use one or the  
26          other, so to have used couplers instead of lap is really

1 a matter of detail, a matter of judgment, which in our  
2 submission would not have impacted on safety and would  
3 not have required consultation or approval by the  
4 Buildings Department. So that is our position on the  
5 fourth big point.

6 On the fifth point, that is the applicability of  
7 QSP, the Commission would have read our submission, and  
8 the government classified our stance as being a re-run  
9 of the points that we had put forward before the  
10 Commission during part 1.

11 Now, I have a few observations to make in that  
12 regard. First, as we read it, the Commission had not  
13 rejected, as a matter of principle, the submission that  
14 we had made in part 1, namely the requirement for QSP  
15 depended upon whether or not there is a requirement for  
16 ductility. Secondly, the Commission, in part 1,  
17 attached some weight on the fact that Leighton seem to  
18 have thought or acknowledged within itself that QSP is  
19 applicable.

20 Now, we would wish to urge upon the Commission, at  
21 this part 2 hearing, that there is a difference between,  
22 on the one hand, a party thinking to itself that it was  
23 subject to a higher or more onerous requirement, which  
24 may be more than is necessary under the regulatory  
25 regime. There's a difference between this, on the one  
26 hand, and, two, a party really being under a regulatory

1 requirement to adhere to a higher threshold. If it is  
2 merely the former, then the fact that a party has failed  
3 to meet its internally imposed higher threshold -- it  
4 may be a matter of failing to meet that party's own high  
5 standard, but it does not mean that it had not acted  
6 within the regulatory framework, according to the  
7 rule -- but if, as a matter of regulatory regime, there  
8 is indeed a requirement, then of course that party had  
9 to act in accordance with it.

10 It is a matter, in our submission, of some  
11 fundamental importance in public administration as to  
12 the applicability of a certain regime that if it is  
13 regarded as a re-run, then in our submission so be it.  
14 The Commission's view taken at the interim report is, in  
15 our submission, only an interim one, and we hope, at  
16 this stage too, we would be able to persuade the  
17 Commission to come to a firmer view as to the  
18 in-principle applicability of the higher threshold QSP  
19 to the facts of this case.

20 We note from the government's submission, and to  
21 a certain extent the Commission's submission, that they  
22 do not seem to be taking the position that simply  
23 because a party had somehow thought that it needed to  
24 adhere to a QSP or it had prepared a QSP, then  
25 therefore, as a matter of regulatory regime, it had to  
26 be subject to a QSP.



1           For example, the government seems to be taking the  
2           view that the line may be drawn at whether or not  
3           ductile couplers were in fact used. We take issue with  
4           that. We say the question turns on whether there is  
5           a ductility requirement. But the point I make is that  
6           even the government seem to accept that the requirement  
7           of QSP hinges upon satisfaction of some prerequisite, as  
8           a matter of regulatory regime, rather than whether or  
9           not a party itself, for whatever reason, had prepared  
10          a QSP. I hope the distinction is adequately drawn, but  
11          if not then we hope to be able to develop that by way of  
12          closing submissions.

13          We will be obviously looking at the plans again to  
14          see whether or not, as a matter of proper reading, they  
15          impose a requirement of ductile couplers. The  
16          Commission will recall that there is a difference  
17          between being subject to a requirement to use ductile  
18          couplers on the one hand and on the other hand not  
19          subject to such a requirement but it so happened that  
20          a party had, as a matter of fact, used ductile couplers.  
21          These are matters of detailed submission. But since the  
22          Commission has asked for assistance, I would simply wish  
23          to outline the stance taken by Leighton in this part 2.  
24          If it appears to be a re-run, so be it. We are seeking  
25          to persuade the Commission to consider our submissions  
26          in greater detail.

1 CHAIRMAN: It's an interim report that exists, it's not  
2 a final report, so obviously we are open to submissions  
3 of that kind. How we accept the submissions is another  
4 matter, but we are open to these submissions.

5 MR SHIEH: We are very grateful.

6 So these are the five big topics that I wish to  
7 address the Commission on by way of opening address.

8 CHAIRMAN: Good. Thank you.

9 Then who is going to be next?

10 MR BOULDING: I am next, sir.

11 CHAIRMAN: Mr Boulding, good. How long for coffee?

12 MR PENNICOTT: 15 minutes.

13 CHAIRMAN: 15 minutes. Thank you.

14 (11.20 am)

15 (A short adjournment)

16 (11.40 am)

17 Opening submissions by MR BOULDING

18 MR BOULDING: Good morning, Chairman, good morning,  
19 Professor, may it please you.

20 This is the MTR opening, and you will not be  
21 surprised to hear that I do not intend to repeat my  
22 written opening. What I want to do is to emphasise what  
23 I regard as certain important points in that opening,  
24 and of course to deal with one or two points arising  
25 from my learned friend's opening.

26 I ought to say immediately that, having listened to

1 Mr Chow's opening this morning and his update, I am not  
2 in a position to say whether or not that is correct, but  
3 you will not be surprised to hear that those instructing  
4 me are considering the transcript now with a view to  
5 giving me instructions on that.

6 The one thing I do agree is that we shouldn't lose  
7 any time dealing with that matter in the ordinary  
8 sitting hours, and as Mr Pennicott suggests, to the  
9 extent we need to trouble you on that, it ought to be  
10 outside the sitting hours, providing that's convenient  
11 to you.

12 CHAIRMAN: Yes, certainly.

13 MR PENNICOTT: Sir, can I just say on that point, there was  
14 an additional point I should have made earlier.

15 Of course there are three involved parties who are not  
16 here, who may have an interest in that aspect of the  
17 discussion. Of course we can, as we will, as a matter  
18 of courtesy, inform those three involved parties who are  
19 not here that there has been some discussion and they  
20 may wish to read the transcript, but I also bear in mind  
21 the fact that we don't have everybody here who may be  
22 interested in the discussion.

23 CHAIRMAN: Thank you.

24 MR BOULDING: That's an important observation.

25 Notwithstanding what I've said already, I'm going to  
26 concentrate on the following three issues, in respect of

1 the North Approach Tunnel, the South Approach Tunnel,  
2 and the Hung Hom Stabling Sidings. First of all, we  
3 have issue 1, and that of course involves the three  
4 defective stitch joints at the North Approach Tunnel.  
5 Two of these joints are located at the North South Line  
6 Tunnel level, and one is located at the East West Line  
7 Tunnel level. The latter stitch joint is known as  
8 joint 3, that was Mr Pennicott's references, and the two  
9 other joints, located at the North South Line Tunnel  
10 level, are joints 1 and 2.

11 Turning to the location of joint 3, its specific  
12 location is at the interface between the East West Line  
13 bay 5 under contract 1112 and the East West Line Tunnel  
14 structures under contract 1111.

15 What about the two stitch joints in the North South  
16 Line Tunnel? Well, joint 1 is located at the interface  
17 between North South Line bay 6/7 under contract 1112 and  
18 the North South Line Tunnel structures under  
19 contract 1111, and joint 2 -- again using Mr Pennicott's  
20 numbers -- is located at the interface between  
21 contract 1112 between the North South Line bay 5 and  
22 North South Line bay 6/7.

23 Now, it's not disputed that these three stitch  
24 joints were all constructed by Leighton and its  
25 following sub-contractors: firstly, Wing & Kwong Steel  
26 Engineering, they carried out the rebar cutting, the

1 bending and fixing; and secondly, Hills Construction  
2 Ltd, who carried out the formwork and concreting.  
3 That's issue 1.

4 Issue 2, in summary, concerns non-compliance issues  
5 at the North Approach Tunnel shunt neck, and then  
6 issue 3, two matters essentially, the alleged lack of  
7 inspection and supervisory records, ie the RISC forms,  
8 that's the first element of issue 3; and the second one  
9 is the alleged deviations at the North Approach Tunnel,  
10 the South Approach Tunnel and the Hung Hom Stabling  
11 Sidings.

12 The Commission of Inquiry has already been educated  
13 as to the sort of organisation MTR is, its roles and  
14 responsibilities under the entrustment agreement, and  
15 the various project management systems it has in place.  
16 That all occurred in part 1 of the Commission of  
17 Inquiry, and you will not be surprised to hear that I'm  
18 not going to go back over old ground there.

19 What I do want to do, though, is to concentrate on  
20 new factual matters which are relevant to issues 1 to 3  
21 inclusive in this extended Commission of Inquiry. In  
22 doing so, some points have already been covered in  
23 varying degrees of detail by my learned friends, but  
24 where they are important points they do bear repetition.

25 First of all, I would like to deal with the  
26 construction of the North Approach Tunnel. The North

1 Approach Tunnel consists of three parts. Firstly, the  
2 North South Line Tunnel, and that we've heard is  
3 a twin-boxed underground tunnel. Secondly, the East  
4 West Line Tunnel, and that by contrast is an open  
5 trough, aboveground tunnel. And finally, the third  
6 element, the shunt neck, and we know that that connects  
7 the East West Line to the Hung Hom Stabling Sidings.

8 Not surprisingly -- and you've heard this already --  
9 the construction of these structures required  
10 collaboration between Leighton, under contract 1112, and  
11 the Gammon-Kaden joint venture under contract 1111.  
12 Now, as touched upon already, you will know that the  
13 purpose of a stitch joint is to minimise the potential  
14 for stress or pressure at a joint where there is  
15 a possibility of different degrees of settlement or  
16 movement.

17 For example, that could occur where concrete  
18 structures which are on either side of a joint and which  
19 are connected were built on different foundations, as in  
20 the case of joint 2. Alternatively, where one of the  
21 two concrete structures which are to be joined was  
22 constructed well in advance of the other, as was the  
23 case in joint 3 and joint 1.

24 Now, it bears emphasis in this context, that the  
25 North South Line bay 5 tunnel structures were supported  
26 by socket H-piles, whereas the North South Line bay 6/7

1 structures were at grade. Now, as for joint 3 and  
2 joint 1, the interfacing tunnel structures were all  
3 built at grade, but the tunnel structures under  
4 contract 1111 were constructed well ahead of the tunnel  
5 structures under contract 1112.

6 What about the connection details and the interface  
7 requirements for these stitch joints? These are set  
8 out, conveniently, in appendix Z2 to the Particular  
9 Specification for contract 1112. For the reference,  
10 that's BB1/420 to 432. But there are also a number of  
11 relevant working drawings. I don't intend you to go to  
12 those, but I can tell you that the matter is spoken to  
13 in some detail by MTR's Mr Michael Fu, in particular in  
14 paragraph 14 of his statement. That's page BB/70.

15 In terms of understanding the defects in the three  
16 stitch joints, it is important, in our submission, to  
17 note various points. First of all, for the  
18 contract 1111 tunnel structures, the GKJV used Lenton  
19 couplers which, as we've heard, was based on  
20 a taper-threaded splicing system, requiring, not  
21 surprisingly, taper-threaded rebars.

22 For the contract 1112 tunnel structures, Leighton  
23 used BOSA couplers, as in the construction of the  
24 Hung Hom Station box structure, which required the use  
25 of cylindrically threaded rebars. Now, the practical  
26 consequence of this was at the 1111/1112 stitch joints,

1           which of course are Mr Pennicott's joints 1 and 2. That  
2           consisted of an interface between the Lenton couplers  
3           and the threaded rebars which were required for such  
4           couplers and the BOSA couplers, and of course the  
5           threaded rebars which were required to fit into those  
6           couplers.

7           What about the construction sequence? I think this  
8           was something touched upon by Mr Pennicott yesterday.  
9           Using the 1111/1112 North South Line, that's joint 1, as  
10          an example, the construction sequence was as follows.  
11          First of all, GKJV constructed the contract 1111 North  
12          South Line Tunnel structures with Lenton couplers fixed  
13          at the end of a structure. Then Leighton constructed  
14          the contract 1112 North South Line Tunnel structures  
15          with BOSA couplers fixed at the end of a structure.

16          Both structures required a collar on the exterior  
17          with an external waterproof membrane and, in addition,  
18          a waterstop. Moreover, what's termed an Omega seal had  
19          to be installed at the inner intersection of the two  
20          collars, and this was also intended to prevent leakage.

21          What happened then is that the stitch joint would be  
22          constructed by Leighton and its sub-contractors after  
23          the differential movements of the two connecting  
24          structures had stabilised. There's a note to that  
25          effect on working drawing 1112/W/000/ATK/C11/101A,  
26          conveniently found in the bundle at BB/433.



1 I point out that hydrophilic strips had to be  
2 installed on the internal surface of the connecting  
3 structures to ensure the necessary waterproofing  
4 qualities.

5 As you've heard, to construct the stitch joint,  
6 Leighton had to expose the Lenton couplers fixed at the  
7 end of the contract 1111 North South Line Tunnel  
8 structures for its sub-contractor, Wing & Kwong, to  
9 install starter bars. What happened then is that  
10 Leighton would expose the BOSA couplers fixed at the end  
11 of the contract 1112 North South Line Tunnel structures,  
12 again for Wing & Kwong to install the starter bars.  
13 Then, finally, the contract 1111 rebars would be lapped  
14 with the contract 1112 rebars.

15 A question arose, I think yesterday, as to the  
16 diameter of the rebars used at the interface, and on our  
17 reading of the evidence, for joints 1 and 3, T40 rebars  
18 were used for the BOSA couplers, whereas the Lenton  
19 couplers were used for rebars under 40 millimetres  
20 nominal bar diameter.

21 In that regard, I am quoting, in the first instance,  
22 from paragraph 29 of the fifth statement of Leighton's  
23 Mr Karl Speed. That's CC1/59. I also have in mind  
24 paragraph 27 of the second statement of BD's Mr Lok  
25 Pui Fai. That's DD/10279. He actually refers to T20  
26 and T32 rebars.

1           I was a little bit surprised this morning to hear  
2           what Mr Chow had to say, because it appeared to us that  
3           he was seeking to depart from that evidence. We will  
4           simply have to see how that develops in due course. But  
5           in any event, this rebar lapping had to be done for the  
6           connection of the base slabs, the roof slabs, the  
7           external walls and finally the dividing walls, and  
8           of course after all that the concrete would be poured by  
9           Leighton's relevant sub-contractor, Hills Construction  
10          Ltd.

11          Now, this construction sequence, which I have given  
12          you as an example, similarly applied to joint 3. That's  
13          the contract 1111/1112 East West Line stitch joint.  
14          Now, the only difference is that there were no roof  
15          slabs or dividing walls to connect. This of course was  
16          due to the fact that it was indeed an open-trough tunnel  
17          structure.

18          As for joint 2, again, the construction sequence,  
19          which I've described in a little bit of detail, applied  
20          to joint 2, except in this case Leightons were  
21          responsible for constructing both sides of the joint  
22          under contract 1112 using, as I've told you already,  
23          BOSA couplers.

24          That's the three stitch joints, but we also know  
25          that there was a construction joint located at the shunt  
26          neck, at the interface between shunt neck bay 3 under

1 contract 1112 and the shunt neck structures under  
2 contract 1111.

3 Now, there are two or three points to note on this.  
4 This joint was originally designed to be a stitch joint,  
5 and we can look at the working drawings in due course at  
6 pages BB/435 and BB/436. No need to turn them up at the  
7 moment. But in the event, this stitch joint, the  
8 original design, was unnecessary, because the  
9 interfacing structures under contract 1111 and  
10 contract 1112 were all founded on piles, and the  
11 consequence of this was that they were not subject to  
12 any soil overburden pressure. This meant that  
13 a construction joint was sufficient.

14 Now, as a result of this, and as one would expect,  
15 MTR confirmed to GKJV that the joint would be  
16 constructed as a construction joint. If you want  
17 a reference for that, it's paragraph 3.6 of the report  
18 entitled, "Shunt neck connection report at 1111/1112  
19 interface of NAT structure contract 1112". That was  
20 dated 26 October 2018 and can be found at  
21 pages DD1/38.64 to 38.65.

22 But that wasn't the end of the matter, because such  
23 fact was also confirmed to Leightons when an email from  
24 MTR's Mr Louis Lam, who was a senior design management  
25 engineer, sent an email dated 25 November 2015; that's  
26 CC6/3355-3356. That was in fact forwarded, as we can

1 see if we looked it up, to the GKJV, who sent it on to  
2 Leightons.

3 In addition, that a construction joint was not  
4 a stitch joint -- that a construction joint and not  
5 a stitch joint was required was reiterated in the  
6 response to Leighton's RFI, request for information,  
7 number 1112-RFI-LCA-CS-001510 -- that's CC6/3333-3341 --  
8 which was raised in May 2016 and concerned a working  
9 drawing which showed the contracts 1111/1112 East West  
10 Line stitch joint -- that's joint 3 -- and the shunt  
11 neck, and in that response the MTR made it palpably  
12 obvious that there would be no stitch joint at the shunt  
13 neck except at the interface with 1111.

14 So what they were saying, in response to that RFI,  
15 is that a stitch joint was still required for contracts  
16 1111/1112 East West Line stitch joint -- that's  
17 joint 3 -- but not for the shunt neck. If that wasn't  
18 clear enough already, this is helpfully acknowledged by  
19 Leighton's Mr Karl Speed in paragraphs 61 to 62 of his  
20 fifth witness statement. That's CC1/66.

21 Now, as with the contracts 1111/1112 stitch joints,  
22 that's joints 1 and 3, GKJV used Lenton couplers for the  
23 contract 1111 shunt neck structures. This had the  
24 following consequences. Firstly, the contracts  
25 1111/1112 shunt neck construction joint also consisted  
26 of an interface, and at this interface Leighton was

1 required to screw Lenton threaded rebars into the Lenton  
2 couplers fixed by GKJV at the contract 1111 shunt neck  
3 structures. That's a matter you have heard something  
4 about already.

5 Now, what about the timing of the construction?  
6 This is helpfully dealt with at paragraph 1.7 of  
7 a report entitled, "Report on defective works identified  
8 at tunnel stitch joints", dated 26 March 2018. That's  
9 page AA1/57. First of all, the joint 3, that's the  
10 shunt neck construction joint and the contracts  
11 1111/1112 East West Line stitch joint, was constructed  
12 from around January to March 2017.

13 The contracts 1112/1112 North South Line stitch  
14 joint -- that's joint 1 -- was constructed from around  
15 May to September 2017.

16 Finally, the contracts 1111/1112 North South Line  
17 stitch joint -- Mr Pennicott's joint 1 -- was  
18 constructed from around July to August 2017.

19 In this context, it should be pointed out that  
20 a more detailed North Approach Tunnel pour summary has  
21 indeed been provided to the Commission of Inquiry.  
22 That's BB9/6363.

23 So what about the South Approach Tunnel then? Well,  
24 the South Approach Tunnel was also constructed by  
25 Leighton and its sub-contractors, but in this instance  
26 the sub-contractors were Fang Sheung Construction

1           Company; they carried out rebar cutting, bending and  
2           fixing -- I understand we are going to hear from their  
3           relevant witness later today -- and China Technology  
4           Corporation Ltd, formwork and concreting; they are well  
5           known to you because they played a large part in part 1  
6           of the Commission of Inquiry.

7           Now, these construction works were carried out from  
8           around November 2015 to February 2017, quite a long  
9           period, and these dates, these construction dates, are  
10          evidenced by the South Approach Tunnel pour summary  
11          which has also been provided to the Commission of  
12          Inquiry. That's BB13/8816.

13          Now, what did the South Approach Tunnel consist of?  
14          There were essentially three elements. Firstly, the  
15          East West Line -- which as I've said is an open-trough  
16          structure -- secondly, what are referred to as the  
17          launching and retrieval tracks, and these connect the  
18          East West Line with the Hung Hom Stabling Sidings; and  
19          finally, the North South Line which, as I've said, is  
20          a box-section structure.

21          I ought to emphasise that certainly at this time MTR  
22          is not aware of any structural safety issues concerning  
23          the South Approach Tunnel.

24          Finally, I move on to the construction of the  
25          Hung Hom Stabling Sidings. These works were carried out  
26          by Leightons and its various sub-contractors from around

1 December 2014 to May 2017. As you will have noted on  
2 your view, the stabling sidings cover a large  
3 geographical area, and not least because of that fact,  
4 MTR is still in the process of preparing the Hung Hom  
5 Stabling Sidings pour summary, but you will get that as  
6 soon as it's been prepared.

7 As you probably saw, this stabling sidings consists  
8 of essentially seven elements of work. Firstly, the  
9 underpinning works; secondly, stabling siding tracks;  
10 thirdly, what's referred to as the North Fan Area, which  
11 connects the siding tracks with the East West Line  
12 mainline in the North Approach Tunnel; fourthly, two  
13 launching and retrieval tracks -- I've just told you  
14 what they are for; fifthly, eight accommodation blocks,  
15 I'm sure you were shown those if you had the same site  
16 view as I had; two underpasses between the stabling  
17 sidings; and lastly what's referred to as the emergency  
18 vehicular access.

19 Now, MTR's Kit Chan's witness statement -- see in  
20 particular paragraph 16; reference, that's BB8/5190 to  
21 5191 -- he helpfully explains that the steps and  
22 procedures for the construction of these key structures  
23 within the stabling sidings areas are set out, as one  
24 might expect, firstly in the method statements and  
25 secondly in what are referred to as inspection and test  
26 plans, which Mr Kit Chan helpfully summarises.

1           At this time, I'm happy to tell you that there is no  
2           issue concerning the structural safety of the Hung Hom  
3           Stabling Sidings, certainly that MTR is aware of anyway.

4           Now I'd like to tell you a little bit about MTR's  
5           site surveillance and inspection process, and of course  
6           in due course there will be detailed evidence on this,  
7           but for the time being I'd like to point out that MTR's  
8           construction engineers and inspectors of works carried  
9           out, firstly, routine site surveillance. That's what is  
10          referred to, and that's in accordance with  
11          paragraph 5.7.1 of both versions A5 and A6 of PIMS,  
12          a document which I'm sure you are still familiar with as  
13          a result of the abundance of evidence we had on it  
14          during the part 1 hearing.

15          Secondly, there are what is called hold-point  
16          inspections, in accordance with the inspection and test  
17          plans that I've already referred to. This is something  
18          that Kit Chan speaks to.

19          Now, this site surveillance and the hold-point  
20          inspections were carried out in respect of the  
21          construction works at the North Approach Tunnel, the  
22          South Approach Tunnel, and of course the Hung Hom  
23          Stabling Sidings, and there are indeed lists of current  
24          and former MTR officers involved in the checking,  
25          inspecting and testing of rebars and couplers for each  
26          of those structures. That's at BB3/1796. I shan't



1 trouble you with that at the moment.

2 I would like to say just a little bit more about  
3 both elements of this. Firstly, routine site  
4 surveillance. This was the primary responsibility of  
5 the MTR inspectors of works team, and the daily  
6 surveillance involved monitoring the day-to-day site  
7 work of both Leightons and its sub-contractors.  
8 Against, Mr Kit Chan's evidence is in point, as indeed,  
9 in this instance, is the evidence of MTR's Mr Fu Yin  
10 Chit. The references respectively to those witness  
11 statements are BB8/5191 and 5194, and BB8/5218-5219.  
12 They both explain that the daily site surveillance  
13 typically covered, firstly, the general works being  
14 constructed/installed; secondly, the general progress of  
15 site works; thirdly, general site management; and  
16 finally and importantly, as you've heard from a number  
17 of MTR witnesses in the past, safety. And the relevant  
18 inspector of works -- he's a gentleman called Tony Tang,  
19 and you will hear from him in due course -- explains  
20 that if during the surveillance he observed any issue  
21 relating to the spacing or the size of the rebars being  
22 fixed, or the coupler splicing assemblies, he would  
23 immediately raise it with the workers on site and,  
24 moreover, report the matter to MTR's senior inspector of  
25 works and/or the MTR construction engineers.

26 It bears emphasis that the MTR construction

1           engineering team also conducted site surveillance by  
2           means of what I'll refer to as regular site walks.  
3           Again, that evidence comes in the form of Mr Kit Chan's  
4           statement and Mr Fu Yin Kit's statement, BB8/5191 and  
5           BB8/5218-5219 again. They also say, you will not be  
6           surprised to hear, I'm sure, that they would raise the  
7           matter with Leighton if they observed any issues; for  
8           example, with the installation of couplers.

9           In this regard, Mr Chris Chan of MTR's evidence is  
10          in point -- that's BB1/116 -- as is a Mr Sebastian Kong  
11          who you'll hear from in due course; he was a graduate  
12          engineer, a very bright chap -- BB8/5244-5246.

13          But it didn't stop there because, in addition, MTR  
14          staff also made ad hoc visits at Leighton's request to  
15          resolve specific site issues. Examples would be safety,  
16          utilities or operations. And they also made site visits  
17          for a specific purpose and at a specific location, again  
18          at Leighton's request. And MTR's Chris Chan deals with  
19          this in a little bit of detail at BB1/116.

20          MTR takes this opportunity to emphasise, as indeed  
21          it did at the last hearing, that it was not its  
22          responsibility to conduct any man-marking or, moreover,  
23          continuous supervision over the rebar fixers when they  
24          were conducting their works. I submit that the project  
25          manager's expert opinion, that MTR was not expected to  
26          conduct any man-marking during the East West Line/North

1 South Line slab works -- that's paragraphs 26 to 27 of  
2 their joint statement; ER1/9/T-4 -- is equally  
3 applicable to the North Approach Tunnel, the South  
4 Approach Tunnel, and the Hung Hom stabling siding works.

5 Now, that's site surveyors, but what about  
6 hold-point inspections? The most relevant hold-point  
7 inspections for the three stitch joints and the shunt  
8 neck construction joint were, firstly, the rebar fixing  
9 inspections and, secondly, the pre-pour checks.

10 I think you would probably like to be told what the  
11 relevant procedure was, so I'm going to tell you. What  
12 happened was that when Leighton's works reached a hold  
13 point, Leighton should have submitted a request for  
14 inspection/survey check form, which you will now know is  
15 abbreviated to "a RISC form", and this should have done  
16 to MTR's administrative assistants, and indeed when they  
17 were produced, they went to MTR's administrative  
18 assistants. Leighton candidly accepts, as you have  
19 probably read in their statements already, that due to  
20 staff shortages it was constantly late in submitting  
21 RISC forms, and indeed, in many instances, it didn't  
22 submit them at all.

23 Notwithstanding this, if and when Leighton submitted  
24 the RISC form, it would then be passed on by the  
25 administrative assistants to MTR's senior inspector of  
26 works for him to distribute the form to the relevant

1 inspector of works or the construction engineers to  
2 conduct an inspection for their respective areas  
3 because, as you probably recall from the last hearing,  
4 certain different inspectors, certain different  
5 engineers, covered different areas. This was indeed  
6 a big site.

7 Now, once MTR's inspector of works or the  
8 construction engineer had completed the inspection, he  
9 would fill in his part of the form, and that happened to  
10 be parts B and C. In due course, I'm sure we will look  
11 at these in a little bit of detail.

12 The senior inspector of works would then endorse the  
13 RISC form and return it to Leightons. Leightons then  
14 took the process over, and they signed off what was  
15 called, and I quote, the "contractor's confirmation of  
16 receipt", and this was located at the bottom of the RISC  
17 form, and they then returned the pink and yellow carbon  
18 copies to MTR. You've probably read somewhere that  
19 there were four copies, all in different colours, but  
20 anyway, the pink and the yellow carbon copies went back  
21 to MTR.

22 The MTR construction engineers, and they will tell  
23 you this, were typically responsible for inspecting the  
24 rebar fixing works, and the reason for this is that they  
25 had the most up-to-date working drawings and the  
26 relevant design amendment sheets and the RFI responses.

1 This was important because all of these documents, in  
2 particular the amendment sheets and the RFI responses,  
3 were used to check the diameter, spacing, layering and  
4 lap length of the rebars, and the arrangement of starter  
5 bars, if indeed there were any, and again the shear  
6 links, if there were any. These inspections were -- and  
7 they will tell you this -- in relative terms a simple  
8 and straightforward matter.

9 The MTR inspectors of works would assist with the  
10 rebar fixing inspections when requested to do so by the  
11 construction engineers, but these inspectors of works  
12 routinely carried out other hold-point inspections at  
13 a number of stages. These inspections included the  
14 following matters: concrete blinding, waterproofing,  
15 cathodic protection, formwork, and finally pre-pour  
16 checks, which focus particularly on checking for  
17 cleanliness and debris. In addition, they will tell you  
18 that they took and kept photographs of their  
19 inspections.

20 Now, what about the situation, you are probably  
21 saying to yourself, when a RISC form was not submitted  
22 by Leighton or it was late? What happened so far as the  
23 relevant hold-point inspections are concerned?

24 Well, the evidence is that MTR's inspectorate staff  
25 performed the necessary hold-point inspections based on  
26 Leighton's verbal notifications. You have probably read

1           that Leighton would often pick up the phone, phone up  
2           their opposite number and say, "We are ready for  
3           an inspection, please come along and inspect." This  
4           evidence is corroborated by many, many of Leighton's  
5           witnesses who give evidence in virtually identical  
6           terms, and having inspected, the MTR witnesses say, the  
7           permission to proceed was mostly given verbally by MTR  
8           to Leightons.

9           Now, what about the quality supervision plan? This  
10          was a matter raised by Mr Pennicott yesterday, and  
11          Mr Chow also raised it I think this morning. Of course,  
12          you have invited the involved parties to clarify the  
13          position in relation to the QSPs for the relevant areas  
14          of works that we are talking about, and Mr Pennicott  
15          pointed out yesterday that we touched upon it in our  
16          opening and at that stage we were checking the position.

17          I am now in a position to firm up on where we are.  
18          In relation to the Hung Hom Stabling Sidings, I point  
19          out that the relevant acceptance letters for the  
20          Hung Hom Stabling Sidings can be found at exhibits  
21          LPF-32 to LPF-36. That's DD8/DD11433-11646, and these  
22          are referred to in paragraph 11 of the fourth witness  
23          statement of BD's Mr Lok Pui Fai. That's  
24          DD7/DD10294-10295.

25          CHAIRMAN: Sorry, "relevant acceptance letters", meaning?

26          MR BOULDING: The acceptance letters from the Buildings

1 Department.

2 CHAIRMAN: Thank you.

3 MR BOULDING: And the position under these letters, we say,  
4 is straightforward. None of these letters imposed any  
5 requirements for couplers, let alone any requirement for  
6 a QSP, a quality supervision plan. In this context, we  
7 say, as confirmed by paragraph 51 of Leighton's opening  
8 statement and paragraph 26 of government's opening  
9 statement, which perhaps I can be forgiven for  
10 reading -- the government says, in paragraph 26:

11 "According to the accepted drawings, no ductility  
12 couplers were used at NAT and no couplers were used at  
13 HHS. Thus, QSP does not apply to coupler installation  
14 works at NAT and HHS."

15 So, in those circumstances, we say we agree, no QSP  
16 applied to the Hung Hom Stabling Sidings.

17 What about the South Approach Tunnel? The  
18 acceptance letter here is dated 25 February 2013 and can  
19 be found at exhibit LPF-26. That's DD8/DD10905-10996.  
20 This is referred to in paragraph 13 of the third witness  
21 statement of Buildings Department's Mr Lok Pui Fai.  
22 That's DD7/DD10289.

23 Now, in paragraph 3 of appendix IX to the acceptance  
24 letter, which is entitled, "Mechanical couplers for  
25 steel reinforcing bars for ductility requirement" --  
26 that's DD8/DD10936 and 10938 -- this required a QSP for

1 type II couplers for rebar with ductility requirements.

2 Appendix X of the acceptance letter, entitled,  
3 "Mechanical couplers for steel reinforcing bars without  
4 ductility requirements" -- that's DD8/10940-10942 -- did  
5 not require a QSP for type I couplers for rebars without  
6 ductility requirements. But, having regard to the terms  
7 of the letter I've just referred you to, MTR accepts  
8 that the QSP applied to the ductility requirements in  
9 the diaphragm walls, as shown in the accepted drawings.

10 So that's two of the structures. What about the  
11 third one, the North Approach Tunnel? Here, the  
12 acceptance letter dated 5 November 2014 applied to the  
13 contract 1112 side of the works. Once again, we go to  
14 Mr Lok Pui Fai's statement for that. That letter can be  
15 found in exhibit LPF-19, that's DD7/DD10327-10344, and  
16 that's referred to in paragraph 8, this time of the  
17 second witness statement of Mr Lok. That's DD7/DD10273.

18 Now, this letter only contained requirements for  
19 couplers without ductility requirements, and that's set  
20 out in appendix V, entitled, "Mechanical couplers for  
21 steel reinforcing bars without ductility requirements",  
22 at DD7/DD10339-10341. This did not, thus, require any  
23 QSP for the works.

24 Now, what about the contract 1111 side of the works?  
25 Here, the acceptance letter was dated 11 July 2013, and  
26 this letter only required a QSP for couplers with



1 ductility requirements, and this was set out in  
2 paragraph 3 of appendix XI, entitled, "Mechanical  
3 couplers for steel reinforcing bars for ductility  
4 requirements". The reference for that letter is GG230  
5 and paragraph 3 that I just quoted in terms of its title  
6 is at GG256.

7 Now, importantly, as confirmed by paragraphs 38 to  
8 43 of Leighton's written opening statement, and  
9 paragraph 26 of government's written opening statement,  
10 which I quote again:

11 "According to the accepted drawings, no ductility  
12 couplers were used at NAT and no couplers were used at  
13 HHS. Thus, QSP does not apply to coupler installation  
14 works at NAT and HHS."

15 Now, the situation is that Atkins did not specify  
16 any couplers with ductility requirements in the accepted  
17 design for the North Approach Tunnel, and as such no  
18 quality supervision applied to those works.

19 But, having said that, when the stitch joints were  
20 reconstructed, heightened supervision requirements were  
21 in fact applied in the light of the nature and extent of  
22 the defective workmanship identified by MTR. But that,  
23 I emphasise, should not be conflated with the position  
24 regarding the original works, which of course was  
25 governed strictly by the acceptance letters that I have  
26 just referred you to.

1           Moving on to another topic that I would like to say  
2           just a little about -- you have heard something about it  
3           already -- but it's MTR's material submission and  
4           sampling process. You will not be surprised to hear,  
5           and you have probably read about it already, that MTR  
6           implemented a contractual material submission and  
7           sampling process in order to control the quality of  
8           materials used in the SCL project. This process  
9           covered, amongst other things, the rebars and couplers  
10          which were used for the construction of the NAT, the SAT  
11          and the stabling sidings.

12          What did it involve? Well, in summary, it was as  
13          follows. Clause 15.3.1 of the General Specification for  
14          Civil Engineering Works required contractors to submit  
15          a materials submission form in respect of the types of  
16          rebars and the couplers that they proposed to use. For  
17          example, if you were to look at the materials submission  
18          forms for the couplers and rebars used in the North  
19          Approach Tunnel -- that's BB2/1214 to BB3/1659 -- you  
20          would see that.

21          What would happen then was that MTR would review the  
22          contractor's material submissions by reference to,  
23          amongst other things, the acceptance letter issued by  
24          the RDO and the BD, and in addition the Materials and  
25          Workmanship Specification for Civil Engineering Works.

26          Now, if MTR approved a material submission, what

1           happened next was that the contractor would place the  
2           orders with the approved suppliers, and when the rebars  
3           and couplers were delivered to site they would then be  
4           sampled and tested in accordance with two documents, the  
5           provisions of two documents: firstly, section X of the  
6           Materials and Workmanship Specification for Civil  
7           Engineering Works; and, secondly, the Construction  
8           Standard on Carbon Steel Bars for Reinforcement of  
9           Concrete. The reference there is BB2/1178-1213.

10           It's important to note that MTR's team of inspectors  
11           of works and work supervisors as well as Leighton's  
12           construction engineering team were involved in the  
13           material sampling process. As far as this testing and  
14           sampling is concerned, even though it has to be accepted  
15           that there are gaps in the RISC form records, the sample  
16           details were nevertheless recorded in what's referred to  
17           as steel test requests. These were submitted by  
18           Leighton on MTR's material testing system to MTR, and  
19           based on each steel test request Leighton would attach  
20           an orange tag, with a unique steel test request tie  
21           number, to each specimen. Then what happened next was  
22           that the inspectors of works would then verify and  
23           confirm the steel test request form on the material  
24           testing system, in order to enable Leighton to deliver  
25           the specimens to MTR's designated laboratory for  
26           testing.

1           Now, we've got evidence on this, and importantly the  
2           evidence of MTR's inspectorate staff, in particular Tony  
3           Tang -- that's BB1/137 -- and a Mr Tung Hiu Yeung --  
4           BB8/5260 -- as well, I emphasise, as Leighton's  
5           construction team, is that so far as they are aware,  
6           firstly, the rebars used under contract 1112, including  
7           the three stitch joints and the shunt neck construction  
8           joint, were both acceptable and compliant. And,  
9           moreover, the results of all the steel bar tests entered  
10          into the material testing system were recorded as  
11          a "pass". That's BB2/543-1040.

12          Against that background, I'd like to say a little  
13          bit more about the issues which form the subject of this  
14          part of the reference, so I turn to issues 1 and 2,  
15          defective stitch joints and the shunt neck construction  
16          joint at the North Approach Tunnel.

17          First of all, I want to say a little bit about the  
18          investigation and remedying of the defective stitch  
19          joints in 2018. Here, it bears emphasis that as set out  
20          in section II of the report on defective works  
21          identified at the tunnel stitch joints -- now, that was  
22          dated 26 March 2018; it's located in the bundle at  
23          AA1/57, in particular at page 58 -- what happened was  
24          that MTR observed water seepage at the newly completed  
25          North South Line stitch joint during routine site  
26          surveillance.

1           Consequently, and after the leak was found, from  
2           October 2017 Leighton carried out cement and what's  
3           referred to as PU grouting works -- and I understand  
4           that that's a specialised grouting technique that  
5           involves the injection of expanding polyurethane to stop  
6           any water flowing down or through cracks, to fill voids  
7           under slabs, concrete joints, or behind concrete walls  
8           and joints.

9           Now, unfortunately, these grouting works did not  
10          effectively resolve the water seepage, and as a result,  
11          from 6 to 8 February 2018, MTR instructed Leighton to  
12          chip off the concrete at three locations, to expose the  
13          rebars at Mr Pennicott's joint 1 for further  
14          investigation.

15          This chipping off revealed that some of the rebars  
16          at the stitch joints were not properly spliced and,  
17          moreover, were only slotted into the couplers.

18          Then further investigations from 9 to 12 February at  
19          joints 2 and 3 revealed similar defects in the coupler  
20          splicing assemblies. Not surprisingly, you might think,  
21          as a result of these investigations, MTR issued three  
22          non-conformance reports to Leighton to record Leighton's  
23          defective workmanship, and these were as follows: NCR066  
24          dated 22 December 2017 was issued in respect of joint 1,  
25          that was BB7/5087-5098; NCR095 dated 9 February 2018 was  
26          issued in respect of both joints 1 and joint 3, that's

1 BB7/5099-5111; and last but not least, NCR096, dated  
2 14 March 2018, was issued in respect of joint 2, and  
3 that's BB7/5112-5115.

4 Now, Leightons carried out the necessary remedial  
5 works from March to July 2018, as to which these  
6 remedial works, you will not be surprised to hear, were  
7 governed by various method statements. These can be  
8 found at BB7/4717 through to 4737; CC3/1914 through to  
9 1972; and, finally, BB7/4778-4843. They make rather  
10 turgid reading. I don't intend to take you there at the  
11 moment.

12 But what I can tell you is that where the existing  
13 couplers were damaged or could not be reused, post-drill  
14 rebars or couplers were installed, using what is  
15 referred to as Hilti 200 injectable mortar. But if the  
16 existing couplers could be reused, appropriate lapping  
17 rebars were screwed into the couplers.

18 And MTR, having found these defects, implemented  
19 a quality assurance and control system for the remedial  
20 works. The remedial works were subject firstly to  
21 hold-point inspections by MTR's inspectorate staff, and  
22 these inspections were recorded in both the RISC forms  
23 and record photographs. That's a matter spoken to by  
24 MTR's Mr Jacky Lee, see in particular paragraph 30 of  
25 his statement. That's BB102-103.

26 The finally updated versions of the QSP for the BOSA

1 type II couplers and the Lenton couplers were submitted  
2 by MTR to RDO by a letter dated 26 March 2018. That's  
3 BB7/4424-4459. And the quality assurance scheme was  
4 submitted to RDO by letter dated 27 July 2018. That's  
5 BB7/4460-4716.

6 Now, I emphasise that in accordance with the BOSA  
7 and the Lenton QSPs, firstly the technically competent  
8 persons -- a term you've heard before -- identified in  
9 the site supervision plans were also responsible for the  
10 quality control of the remedial works. Specifically,  
11 MTR was responsible for inspecting 20 per cent of the  
12 splicing assemblies, whereby Leightons were responsible  
13 for providing full-time and continuous supervision.

14 Now, whilst this was going on, previously, by  
15 a letter dated 22 March 2018, MTR had submitted the  
16 updated site supervision plans to RDO -- that's  
17 BB7/4844-4874 -- and they had also identified the  
18 relevant technically competent persons for the  
19 supervision and inspection of the remedial works.

20 It didn't stop there though, because these site  
21 supervision plans were further updated by MTR's letters  
22 dated 14 June 2018 -- that's BB7/4875-4899 -- and  
23 a letter dated 21 August 2018; that's BB7/4900-4916.  
24 And Leighton has duly signed and MTR has kept and  
25 countersigned both the BOSA and the Lenton coupler  
26 checklists -- they can be seen at BB7/4278 through to

1           4389 -- and, it bears emphasis, the BOSA and the Lenton  
2           thread preparation records; that's BB7/4917 through to  
3           4956. That's to ensure compliance with the BOSA and the  
4           Lenton quality supervision plans.

5           On this basis, NCRs 066 and 096 and 095 were all  
6           closed out, the first two on 5 September 2018 and the  
7           last one, 095, on 28 June 2018.

8           Given the importance of the quality and structural  
9           safety of the remedial works to MTR, I point out that in  
10          the period 22 March to 1 June 2018, Mr Aidan Rooney, the  
11          general manager for the SCL project, who gave evidence  
12          before you last time, deployed an independent quality  
13          control team on site.

14          This team consisted of a senior construction  
15          engineer, a senior inspector of works, and two  
16          construction engineers. None of these engineers, none  
17          of these persons, had had any prior involvement with  
18          either contract 1111 or contract 1112. They wanted  
19          a clean slate.

20          Now, these people oversaw the remedial works for the  
21          defective stitch joints every day, and they witnessed  
22          the hold-point inspections for the rectification works  
23          which were recorded in RISC forms, including, for  
24          example, the remedial works to the top slab. And as  
25          a reference to that, I'd invite your attention in due  
26          course to paragraph 30 of MTR Jacky Lee's statement.



1 That's BB102-103. And as to the remedial works to the  
2 top slab, that's RISC form 12832, BB400.

3 My learned junior has pointed out that perhaps  
4 I ought to say that the RISC form 12832 responds  
5 specifically I think to Prof Hansford's point about  
6 a missing RISC form. In fact, that is the relevant RISC  
7 form for it. We could turn it up but I don't think  
8 there's any need to do that at the moment unless you  
9 would have me do so.

10 This inspectorate team worked very closely with the  
11 MTR inspectorate staff on site and they also provided  
12 daily reports containing observations and  
13 recommendations that Aidan Rooney considered and  
14 followed up on, where appropriate, in the light of  
15 actual site conditions.

16 What about submitting a report on all of this?  
17 Well, MTR submitted a report on the eighth design  
18 amendment for the NAT tunnel structures, NSL Tunnel,  
19 East West Line Tunnel, stitch joint remedial details,  
20 and it was referred to as "deliverable no. 3 13B" by  
21 a letter dated 15 February 2019 to the RDO. That's  
22 BB6/3678 through to 4214. And the purpose of this was  
23 to keep the RDO apprised of the nature and locations of  
24 the remedial works carried out by Leighton, but also to  
25 provide the RDO with the as-built records of the  
26 drill-in holes and the reused couplers.

1 I'm happy to say that the RDO's letter of 4 April  
2 2019 -- that's BB6/4275 through to 4277 -- formally  
3 accepted the design amendments. The current position is  
4 that MTR has requested Leighton to provide all details,  
5 records and information relating to these defective  
6 stitch joints, and the purpose of this is twofold: so  
7 that it can, firstly, fully investigate the safety and  
8 quality of Leighton's works; and, secondly, the causes  
9 of the defective stitch joints to which Leighton  
10 responded.

11 Now, that was not the end of the matter, because in  
12 or around mid-February 2019, MTR's inspectors identified  
13 further water seepage at the stitch joints. This, as  
14 you might expect, was recorded in a snag list as well as  
15 in a number of RISC forms, which also contained  
16 photographic records; bundle reference BB7/4959 through  
17 to 5066. Unfortunately, thereafter, further water  
18 seepage was observed in the period March through to  
19 April 2019 and various grouting injection works were  
20 carried out with a view to rectifying the same.

21 As at 18 April 2019, just over a month ago, there  
22 was still one location with, I emphasise, minor water  
23 leakage. The current situation, to respond specifically  
24 to a point made by my learned friend Mr Pennicott in  
25 paragraph 73 of the Commission of Inquiry written  
26 opening, is that there are no other technical

1 investigations on this matter, apart from the two North  
2 Approach Tunnel reports. MTR is carrying out ongoing  
3 investigations and follow-up works in respect of water  
4 seepage at the stitch joints, and, as you would expect,  
5 will provide the Commission of Inquiry with further  
6 information as and when it becomes available.

7 So that's the stitch joints. What about the shunt  
8 neck? As set out in section III of a report entitled,  
9 "Shunt neck connection report at 1111/1112 interface of  
10 NAT structure contract 1112" dated 26 October 2018, at  
11 DD1/3864 through to 3865, what it says is, in summary:  
12 the shunt neck structure was completed in May 2017.  
13 During the site inspections for the energisation of the  
14 overhead line at or about the end of 2017, MTR observed  
15 minor cracks in the shunt neck structure. On 6 March  
16 2018, MTR instructed Leighton to chip off the concrete  
17 at the three locations to expose the rebars at the shunt  
18 neck construction joint for investigation, and these  
19 investigations revealed that some of the rebars at the  
20 construction joint were, unfortunately, just like the  
21 stitch joints, not properly spliced and only slotted  
22 into the couplers.

23 Again, MTR raised a non-conformance report, in this  
24 case number 267, and issued that to Leighton on  
25 30 October 2018. That's DD2/1103 through to 1105. And  
26 that non-conformance report remains open to this day,

1 pending Leighton's remedial works.

2 The current situation is that the resubmission of  
3 the remedial proposal was made to RDO on 29 April 2019,  
4 and RDO's acceptance or otherwise of that remedial  
5 proposal is still awaited.

6 I now, having identified the defect and the remedial  
7 work, would like to say just a little bit about MTR's  
8 position on the defective coupler splicing assemblies in  
9 the three stitch joints. I should say immediately that  
10 MTR does not accept that there are any design issues  
11 involved in respect of the three stitch joints,  
12 certainly so far as the defects are concerned, and you  
13 may well recall, sirs, that MTR's position on this, ie  
14 on no design issue, was set out in some detail in  
15 Mayer Brown's letter to the Commission of Inquiry, dated  
16 3 May 2019, when it served its first-round witness  
17 statements. That's paragraph 6 of the letter, and the  
18 letter can be found in the bundle at BB1/62. Quite  
19 frankly, I have nothing further to say than what's set  
20 out in the letter.

21 Now, MTR contends that in the light of the existing  
22 evidence, effective coupler splicing assemblies at the  
23 three stitch joints, and indeed at the shunt neck  
24 construction joint, are attributable to the defective  
25 workmanship of Leighton and/or its sub-contractor, Wing  
26 & Kwong. We would say that if it be the case that the

1 defective coupler assemblies were due to any mismatch  
2 between the rebars used by Leighton and the Lenton  
3 couplers at the contracts 1111/1112 interfaces at the  
4 stitch joint and the shunt neck construction joint, it  
5 was incumbent on Leighton to address the issue.

6 Why do I say that? I say that for a number of  
7 reasons. Firstly, Leighton were well aware of the fact  
8 that Lenton couplers and not BOSA couplers were used,  
9 were going to be used, by GKJV at the contract 1111 side  
10 of the 1111/1112 interfaces; and, moreover, the fact  
11 that BOSA T40 rebars, which we have heard were not  
12 taper-threaded and in fact the exhibits have turned up,  
13 we've got the exhibits to show you later today if  
14 necessary, could not be screwed into the Lenton  
15 couplers.

16 What's the evidence here? Both Leighton's Mr Karl  
17 Speed and Mr Joe Tam accept that certain members of  
18 Leighton's construction and engineering team were aware  
19 of this, because it was specifically and extensively  
20 discussed at numerous contract 1111/1112 interface  
21 meetings between 2014 and 2017. That was a point that  
22 I think Mr Tsoi referred to yesterday.

23 In that regard, in due course, I'm sure we will go  
24 back to the minutes of these meetings, that's at  
25 BB3/1678 through to 1795, which record that the material  
26 related submission form for Lenton couplers was tabled

1 by GKJV, and Leighton said it would check with their  
2 supplier regarding compatibility at a later stage.

3 It was discovered in July 2017 that perhaps, not  
4 surprisingly, the parallel threaded BOSA T40 rebars  
5 could not be fully screwed into the Lenton couplers  
6 which required tapered threads. But, according to Wing  
7 & Kwong's evidence -- and we heard some of this  
8 yesterday -- Leightons instructed Wing & Kwong to carry  
9 on with the parallel threaded rebars, as there was not  
10 enough time to rethread the rebar. I think we saw both  
11 of these letters yesterday but a couple of Wing & Kwong  
12 letters which are to that effect can be found at  
13 CC3/1358 and CC3/1363.

14 What ought to have happened, we say, is that any  
15 incompatibility issues between the rebars procured by  
16 Leightons and the couplers exposed at the stitch joint  
17 interfaces -- first of all, the matter ought to have  
18 been raised with MTR promptly, and then resolved,  
19 resolved at the time, for example by Leightons ordering  
20 the correct Lenton threaded rebars for the  
21 contract 1111/1112 interfaces. But, in the event,  
22 Leighton gave no such complaint or notification, at the  
23 time when the stitch joints were constructed.

24 Now, defective coupler splicing assemblies were also  
25 identified at the contract 1112/1112 North Line stitch  
26 joint, that's Mr Pennicott's joint 2; and the

1 contract 1112 side of the contracts 1111/1112  
2 interfaces, that's Mr Pennicott's joints 1 and 3. But  
3 there was no issue of mismatch given that only BOSA  
4 couplers and rebars were adopted on contract 1112. So  
5 we would say, again, that this problem was obviously  
6 attributable to Leighton's defective workmanship.

7 Now, the necessary remedial works have already been  
8 carried out in respect of the defective coupler  
9 assemblies in the stitch joints, and on the current  
10 evidence there are no concerns with the overall  
11 structural safety or indeed the integrity of NAT, SAT or  
12 the Hung Hom Stabling Sidings. I also point out in this  
13 regard that they show no signs of discretion, and  
14 there's no signs of distress in other structures either.

15 That's confirmed by Pypun's recent site inspections.

16 I now come to quite an important matter, and that is  
17 what was MTR's involvement in the construction of the  
18 stitch joints and the shunt neck construction joint?  
19 Here -- and we will hear about this in due course, so  
20 I'm not going to spend too long on it -- MTR's relevant  
21 evidence is to the effect that, firstly, MTR's Tony  
22 Tang, he would inspect the rebar fixing works at the  
23 three stitch joints and the shunt neck construction  
24 joint activities in the course of his day-to-day site  
25 surveillance activities. He had also carried out the  
26 pre-pour checks. His statement is at BB/129-130. It's

1 essentially paragraphs 33 to 36.

2 Not surprisingly, you might think, he says that he  
3 would raise objections with Leightons if couplers were  
4 not properly installed, but in fact none were identified  
5 at the time.

6 You will also hear from a Mr Chris Chan in due  
7 course. His statement, the relevant part thereof, are  
8 paragraphs 22 to 25. That's BB116-117. He tells the  
9 Commission of Inquiry that his regular site surveillance  
10 also covered the three stitch joints and the shunt neck  
11 construction joint, but he was never asked by anyone at  
12 Leighton to conduct formal inspections of such areas.

13 As I've said, we will hear from those witnesses in  
14 due course, and no doubt their evidence will be tested  
15 as appropriate.

16 I now want to move on to issue 3(a), and essentially  
17 there are two elements in issue 3, and the first  
18 I describe as 3(a), and that's the alleged lack of  
19 inspection and supervisory records.

20 First of all, MTR accepts that there are gaps in the  
21 RISC form records in respect of the hold-point  
22 inspections carried out at NAT, other than in the North  
23 Fan Area where the RISC forms are generally in order.  
24 There are also gaps at SAT and also at the Hung Hom  
25 Stabling Sidings.

26 So what's the current situation? MTR has conducted



1 a number of searches to identify the RISC forms which  
2 appear to be missing. At the moment, there are 138  
3 outstanding NCRs in relation to the missing RISC forms  
4 for these three structures. As you can imagine, the  
5 position is constantly being reviewed.

6 Of these NCRs, numbers 204 through to 217, and 246  
7 through to 247 specifically related to missing RISC  
8 forms for the three stitch joints, although it's  
9 expected that these NCRs will be closed out upon the  
10 completion of all the remedial works.

11 In this context, what does the evidence tell us?  
12 The evidence at the moment tells us that the gaps in the  
13 RISC forms were occasioned by Leighton's omissions  
14 during the construction works, and this unfortunately  
15 was the case despite MTR's repeated complaints to  
16 Leighton, through its construction management team, in  
17 the period 2014 to 2017. You will read evidence about  
18 that in due course.

19 As I touched upon already, and you have heard from  
20 one or two of my learned friends, the reality of the  
21 situation is that Leighton's paperwork was persistently  
22 behind the actual progress of the works, and that meant  
23 that RISC forms, if served at all, were very late.  
24 We've heard that this was due to a lack of resources,  
25 and where the RISC forms were only received after the  
26 relevant hold-point inspections, the MTR construction

1 engineers and inspectors of works tell you that they  
2 often marked the RISC forms as late submissions -- if  
3 you look at them, you can see that written on some of  
4 them -- and indeed record the date and time of the  
5 inspections by reference to record photos they had  
6 taken.

7 But it didn't stop there because, in addition, the  
8 MTR inspectors of works created WhatsApp groups, and  
9 these WhatsApp groups served to illustrate and record  
10 the issues with the RISC forms, including the modus  
11 operandi of the hold-point inspection process.

12 What happened in the field? Well, the reality was  
13 that MTR say that had it insisted on receiving all of  
14 the RISC forms before the works were allowed to proceed,  
15 there would have been significant and unacceptable  
16 delays to all of the works. So what should they do?  
17 Well, MTR's construction engineers and inspectors of  
18 works tell you that they adopted a collaborative  
19 approach and acceded to Leighton's verbal requests for  
20 hold-point inspections. But having adopted that  
21 approach, they relied, in good faith, on Leighton's  
22 assurance that the requisite paperwork had been  
23 submitted or would be made good subsequently, which  
24 unfortunately often turned out not to be the case.

25 But did this lack of a RISC form mean no inspection?  
26 Fortunately, that question is answered in the negative.

1           That's answered in the negative because MTR's evidence  
2           is that their construction engineers and inspectors of  
3           works carried out the necessary hold-point inspections  
4           and gave permission to Leightons before the work  
5           proceeded to the next stage; and, moreover,  
6           specifically, pre-pour checks were only carried out  
7           after the rebar fixing inspections had been carried out,  
8           and they say it would have been very difficult, if not  
9           impossible, for any of the works to proceed beyond the  
10          rebar fixing and the pre-pour check hold points without  
11          any prior permission from MTR being sought and obtained.

12           And MTR, in this regard, they are not a voice in the  
13          wilderness, because MTR's evidence is entirely  
14          consistent with the evidence of Leighton and indeed Wing  
15          & Kwong's sub-sub-contractor, Loyal Ease Engineering  
16          Ltd, and of course they are not the only records,  
17          because contemporaneous records of the construction  
18          works and the inspection works carried out by MTR were  
19          kept in the form of daily photographs by the inspector  
20          of works.

21           Sir, I see the time. I've got a little bit more to  
22          do. That would be a convenient moment because I'm  
23          moving on to a slightly different topic, if that's  
24          convenient for you.

25          CHAIRMAN: That sounds excellent. Thank you very much  
26          indeed.

1 MR BOULDING: Thank you very much.

2 CHAIRMAN: So you will be, it looks like, about quarter of  
3 an hour or so, 20 minutes maybe?

4 MR BOULDING: Yes.

5 CHAIRMAN: Mr Clayton, then you will follow.

6 MR CLAYTON: I think I will be about ten minutes, subject to  
7 any questions from the tribunal.

8 CHAIRMAN: Good. Thank you.

9 Then, Mr Pennicott?

10 MR PENNICOTT: We've got Mr Pun from Fang Sheung standing by  
11 to give evidence later this afternoon.

12 CHAIRMAN: Good. Thank you very much indeed.

13 What time should we start? I'm happy to start  
14 that little bit earlier.

15 MR PENNICOTT: I think, given the indication that both  
16 Mr Boulding and Mr Clayton have given, we are okay to  
17 start at 2.30.

18 CHAIRMAN: Good. 2.30.

19 (1.03 pm)

20 (The luncheon adjournment)

21 (2.32 pm)

22 MR BOULDING: Good afternoon, sir. Good afternoon,  
23 Professor. There are just two or three further matters  
24 I would like to address you on. Before the luncheon  
25 adjournment I was telling you that notwithstanding the  
26 absence of RISC forms, the necessary inspections still

1           took place.

2           In this respect, I anticipate the evidence of  
3           Dr Peter Ewen, MTR's engineering director, who is coming  
4           along to give evidence in due course. He tells you, and  
5           will explain in further detail when he takes the witness  
6           stand, that the well-known consultancy firm of WSP has  
7           been engaged as an independent audit consultant to  
8           verify that the works in the NAT, the SAT and the HHS  
9           were indeed properly inspected in terms of hold points,  
10          even though there's an absence of full RISC forms.

11          In terms of what it involved, the audit was as  
12          follows. It involved WSP reviewing the RISC forms  
13          provided by MTR for any inconsistencies or  
14          irregularities. But even where there were no RISC forms  
15          available for audit, WSP carried out various further  
16          investigations with a view to establishing whether or  
17          not the necessary inspections had been made, and this  
18          involved evaluating supplementary documentation such as  
19          photographs and site diaries, to determine whether or  
20          not there was sufficient evidence of hold-point  
21          inspections having taken place.

22          Against that background and utilising that  
23          information, they adopted a colour coding to record the  
24          results of their audit: red, no supporting materials;  
25          yellow, insufficient supporting materials; green,  
26          sufficient supporting materials to confirm that the

1 necessary inspections had in fact been made. This  
2 resulted in WSP preparing a report for both the NAT and  
3 the SAT. They were both dated 15 May. The NAT report  
4 is at BB11/7625 through to 7646, and that for SAT is at  
5 BB13/9199 through to 9218.

6 Consistent, I emphasise, with MTR's factual  
7 evidence, and of course the evidence from Leighton,  
8 WSP's reports demonstrate that it has assigned green  
9 audit results for most -- I emphasise "most" -- of the  
10 essential hold-point inspections on key structural  
11 elements of the North Approach Tunnel and for all of the  
12 essential hold-point inspections for the South Approach  
13 Tunnel.

14 At the moment, not least because of its size, the  
15 report for the Hung Hom Stabling Sidings is still being  
16 prepared, but obviously it will be furnished to you and  
17 of course the other interested parties as soon as it is  
18 available.

19 You heard last time that MTR are always seeking to  
20 improve themselves, and you will probably recall that it  
21 was common ground between the project management experts  
22 last time that there is no project management system  
23 that could avoid any and all mistakes during the  
24 construction process. I don't want to sound like  
25 a cracked record but notwithstanding that fact, MTR is  
26 constantly seeking to develop and improve its project

1 management system. The recommendations canvassed by  
2 Turner & Townsend and Mr Steve Huyghe and your own  
3 Mr Steve Rowsell, which you heard so much about last  
4 time, are continuously being implemented by MTR's  
5 cross-disciplinary special taskforce; again, a matter to  
6 which Dr Peter Ewen speaks.

7 An interim health check by Turner & Townsend is  
8 scheduled for about now, and in addition I can tell you  
9 that the following measures are either in place or to be  
10 put in place with a view to addressing the project  
11 management issues which are relevant to this extended  
12 Commission of Inquiry, and MTR and its advisers are  
13 confident that they will satisfactorily address any  
14 failings.

15 So what are they? First of all, there's the  
16 digitalisation of the site inspection process and the  
17 adoption of a building information modelling scheme,  
18 otherwise known as BIM. That's going to be introduced  
19 and it's being overseen by the project digitalisation  
20 taskforce. It involves the introduction of various  
21 measures, firstly iComm -- this, I'm told, is an instant  
22 messaging tool; iSuper, that's an intelligent  
23 supervision tool for the digitalisation of, amongst  
24 other things, the RISC form process, non-conformance  
25 reports and site diaries; and, last but not least,  
26 something called iRISC -- this is underpinned by iSuper

1 and keeps track of the number of RISC forms that have to  
2 be submitted.

3 What's the effect of all this? It's confidently  
4 predicted that these measures will enable the frontline  
5 staff to complete the record-keeping process digitally  
6 and reduce the risk of records being missed.

7 In addition, there is going to be better training.  
8 MTR's frontline staff are receiving enhanced training  
9 for better PIMS implementation, and all of this is going  
10 to be overseen by MTR's newly established project  
11 division quality working group. This training, overseen  
12 by this group, has involved all of MTR's frontline  
13 project staff attending a PIMS training module between  
14 the end of 2018 and the first quarter of 2019. But it  
15 doesn't stop there because that's been followed by more  
16 specific job training.

17 You heard about the three lines of defence policy  
18 last time. I'm not going to go into that in detail, but  
19 I can tell you that that's been re-formulated and  
20 enhanced, and it's going to be introduced, rolled out,  
21 through 2019.

22 Last but not least, a PIMS review panel has been  
23 established, and in or around the second half of 2019,  
24 about June, I'm told, an external consultant will be  
25 appointed to oversee the complete overhaul of the PIMS  
26 in line with Turner & Townsend's recommendations. You



1 will hear, as I've said, more about that from Dr Peter  
2 Ewen in due course.

3 I told you that there were two parts to issue 3.  
4 I've dealt with the first part, that was RISC forms.  
5 The second point is the alleged deviation to the change  
6 or the change from lapped bars to coupler connections at  
7 the construction joints, and that was in the North  
8 Approach Tunnel, the South Approach Tunnel, and the  
9 Hung Hom Stabling Sidings.

10 Now, what happened here, according to the evidence  
11 of both Leighton and indeed MTR, is that during the  
12 construction of these elements of the structure, and to  
13 firstly suit site conditions, and secondly accommodate  
14 the coordination and programme sequence of the works,  
15 coupler connections were introduced instead of lapped  
16 bars at a number of slab-to-slab wall construction  
17 joints.

18 How and why did this occur? The relevant evidence  
19 comes in particular from Mr Kit Chan -- you have heard  
20 from him before -- MTR's former construction manager,  
21 and he says that at the design stage of the works, and  
22 in accordance with convention and common practice within  
23 the construction industry, no consideration was given to  
24 coordination, programming or sequencing issues, for  
25 either the North Approach Tunnel, South Approach Tunnel  
26 or the stabling sidings. He tells us that such

1 coordination, programming and sequencing would typically  
2 arise for consideration during the construction phase of  
3 the works, when the structure is being progressively  
4 built and the work areas become increasingly congested.

5 Why is that? He says it's at this stage that the  
6 clashes and other coordination sequencing issues which  
7 arise on a site -- it's at that stage that they arise,  
8 and not only do they arise but they have to be resolved,  
9 and they have to be resolved to take account of or suit  
10 site conditions.

11 Certainly one reason for the change to coupler  
12 connections was, as you have possibly read, to form  
13 an opening and a permanent structure for the provision  
14 of a temporary site access for a short period of time.

15 This could not have been achieved if the structure  
16 was built with lapped bars and concreted all at the same  
17 time. I'm told, and Mr Kit Chan tells you, that this is  
18 a very common practice in construction and engineering  
19 projects like the SCL project, and not only does he tell  
20 you that but I repeat it because it's important, this  
21 reason for the change and the way in fact the change was  
22 implemented on site is entirely consistent with the  
23 evidence of both Leighton and its sub-sub-contractor,  
24 Loyal Ease Engineering Ltd.

25 Now, in the context of this change -- and I'm sure  
26 you will remember this -- you have received expert

1 evidence from Prof Don McQuillan. See, for example,  
2 paragraph 53 of his expert report. That's ER1/3/28.  
3 His evidence was given in the context of the change  
4 which was under consideration in part 1 of the  
5 Commission of Inquiry. That of course related to the  
6 change in connection details in the east diaphragm wall  
7 of the East West Line slab. I'm sure you will recall  
8 that he confirmed that couplers or welding can indeed be  
9 used in lieu of lapped rebars and vice versa; and,  
10 moreover, that such a use was contemplated by  
11 paragraph 8.7.1 of the Code of Practice for Structural  
12 Use of Concrete, 2004, second edition. That's H8/2946.

13 MTR contends that this is equally applicable to the  
14 change from lapped rebars to couplers in the NAT, the  
15 SAT and the HHSS; and, moreover, we point out that such  
16 fact is expressly acknowledged in government's evidence.  
17 In this regard, we have in mind paragraph 40 of the  
18 second witness statement of Mr Lok Pui Fai. In summary,  
19 he says, and to quote:

20 "Couplers is an alternative splicing method as  
21 stipulated ..."

22 And then he refers to the 2004 Code of Practice that  
23 I just identified for you.

24 This is where appendix 7 to the project management  
25 plan is relevant. It is, I think, the only document  
26 that I'm going to flash up on the screen, just to show

1           you what I'm talking about. Appendix 7 of the PMP dated  
2           June 2016, which was submitted to the Buildings  
3           Department and the Railway Development Office on 20 June  
4           2016, can be found at B4/2475.

5           Let's just see what it says at the top: "Flow chart  
6           for design management and assurance procedure". Then if  
7           we scroll down, please, and we can see it's a flow  
8           chart. What the evidence is going to tell you in due  
9           course, Commissioners, is that this change falls within  
10          the rhombus entitled, "Amendments necessary to suit site  
11          condition?" Not only that, but it's a minor change, and  
12          MTR and indeed Leighton contend it need not be the  
13          subject of design and consultation submissions; unless  
14          it be the case, and this is clear from the flow chart,  
15          that the amendment does not conform to MTR's design  
16          standards, manuals or specifications, and we say that  
17          they do.

18         COMMISSIONER HANSFORD: Sorry, Mr Boulding, is that the  
19            "Yes" and "No" on this diagram?

20         MR BOULDING: Yes, absolutely rights.

21         COMMISSIONER HANSFORD: So what does "Yes" mean?

22         MR BOULDING: If amendments are necessary to suit site  
23            conditions, you then -- if the answer to that is "Yes",  
24            which we would say it is, you then get shunted back to  
25            "Conform to DSM/specification?", and we would say that  
26            they do. So then you go down through the lines again

1 and you go straight through the "Amendments necessary to  
2 suit site condition?", because obviously there are no  
3 further amendments required. "Construction in  
4 accordance with working drawings?" -- we certainly say  
5 they are not in contravention of the working drawings,  
6 and in those circumstances the only obligation is to  
7 record the change in the as-built records, as to which  
8 we will have more evidence later.

9 That's really anticipated, that question -- thank  
10 you very much indeed -- where I was going next, but  
11 I will say that the change had no structural  
12 ramifications and, as such, did not have to be recorded  
13 as deviations or non-conformances in any non-conformance  
14 report, and nor, we would submit, in a RISC form,  
15 certainly so long as the couplers used were properly  
16 tested and there was no change to the rebar diameter or  
17 spacing, which in fact was the case.

18 What government say here is that, "No, no, no, no,  
19 appendix 9 of the project management plan applies", as  
20 to which we say, with the greatest of respect, that that  
21 is misconceived. But we will elaborate upon that in due  
22 course in the evidence, and again I suspect in closing  
23 submissions. But so far as the current position is  
24 concerned, MTR has made a number of requests to Leighton  
25 to provide the details and locations of the change from  
26 lapped rebars to coupler connections, and Leighton is in

1 the course of preparing the as-constructed drawings.

2 We confirm that the as-constructed conditions of  
3 NAT, SAT and HHSS will all fall under the verification  
4 proposal of which we have heard so much over the course  
5 of the last few weeks and even during the last day or so  
6 in this hearing.

7 Paragraph 5.1 of that verification proposal  
8 describes the proposed approach which is as follows. It  
9 can be found at AA/146 through to 147. Part 1a provides  
10 for the consolidation and verification of all available  
11 construction records to identify the gaps in the  
12 records. Part b refers to the formulation and  
13 implementation of a proposal for reviewing and  
14 ascertaining as-constructed conditions. And part 2  
15 provides for a structural review to be conducted and for  
16 schematic remedial works and a monitoring scheme to be  
17 devised as and where necessary.

18 As always, sir, we undertake to provide you with  
19 further relevant information as soon as it becomes  
20 available.

21 That's all I wanted to say to you at the moment,  
22 sir. I hope you found it helpful. If I can answer any  
23 questions, I will endeavour to do so, and of course I'm  
24 in the process of taking instructions as to Mr Chow's  
25 update that he gave this morning and we will revert as  
26 soon as possible.

1 Thank you very much.

2 COMMISSIONER HANSFORD: Mr Boulding, I have one question.

3 In your paragraph 49, on page 17 of your written  
4 submission, which you didn't take us to, I don't  
5 think --

6 MR BOULDING: No, I haven't really taken you to any of the  
7 written opening.

8 COMMISSIONER HANSFORD: Some of it you have, actually. But  
9 in paragraph 49 on page 17, where you acknowledge there  
10 are gaps in the RISC form records, but you say:

11 "This is an administrative/procedural issue, given  
12 that RISC forms do not constitute a statutory or  
13 regulatory requirement."

14 MR BOULDING: Correct.

15 COMMISSIONER HANSFORD: But they do, of course, constitute  
16 part of the quality assurance records, and are you  
17 saying, as such, they are an administrative/procedural  
18 issue? Are you saying quality assurance records are  
19 an administrative/procedural issue?

20 MR BOULDING: In effect, yes, sir, and you will see that the  
21 witness statements of government are their reference  
22 144, and that statement, certainly as we understand  
23 their evidence, is consistent with the evidence of  
24 Mr Lok Pui Fai, and he makes two statements to that  
25 effect. So there we are.

26 COMMISSIONER HANSFORD: But they are of course part of the

1 quality assurance?

2 MR BOULDING: That's right.

3 COMMISSIONER HANSFORD: Thank you.

4 MR BOULDING: Thank you very much, sir.

5 CHAIRMAN: Good. Thank you, Mr Boulding.

6 Yes, Mr Clayton.

7 Opening submissions by MR CLAYTON

8 MR CLAYTON: I'm most obliged. It now falls for me, the  
9 last man on the block, to make the opening. May it  
10 please the commission, I, along with those instructing  
11 me, MinterEllison, appear for Pypun, the government's  
12 consultant.

13 I don't intend to repeat the written opening in oral  
14 opening. I would just like to highlight a few matters  
15 and obviously answer any matters the Commission might  
16 wish to raise with me.

17 Pypun's function was to assist the Highways  
18 Department in accordance with the M&V agreement with  
19 regard to the construction, testing and commissioning  
20 phase of the project. A consideration of Pypun's  
21 involvement in respect of the issues raised, it is  
22 respectfully submitted, can only be made in the context  
23 of its obligations under the M&V agreement.

24 And paragraphs 5 to 12 of Pypun's opening,  
25 I believe, set out Pypun's role by reference to the  
26 provisions from that agreement. These paragraphs also



1 address one aspect of Pypun's work, site visits and  
2 audits, by reference to the relevant entrustment  
3 agreement within which Pypun, being the government's  
4 consultant, will be operating, as well as by reference  
5 to the M&V agreement. Again, Pypun's performance can  
6 only, it is respectfully submitted, be considered in the  
7 light of those provisions.

8 Obviously -- and this is borne out by the witness  
9 statements, both Pypun's and the governments -- Pypun's  
10 role assisting the Highways Department was performed in  
11 the light of ongoing and frequent discussions at  
12 meetings and elsewhere and email and other exchanges  
13 between Pypun, Highways Department and the  
14 representatives of the Buildings Department who had been  
15 seconded to the Highways Department. This would  
16 inevitably be a two-way process, with suggestions and  
17 input coming from Pypun, the Highways Department, and no  
18 doubt the seconded Buildings Department representatives.

19 Paragraphs 13 to 16 of Pypun's opening deal with the  
20 scale of the SCL project. It is, on any view,  
21 extensive. Pypun's involvement was across the whole  
22 project, and the Commission is here considering matters  
23 arising in respect of one contract.

24 Mention has been made of Pypun's obligation to act  
25 proactively, and I would like to consider that just  
26 briefly in oral opening. Being proactive or not would

1           have to be considered in context, ie in relation to  
2           a particular activity or set of activities. There were  
3           many different aspects of Pypun's involvement, and  
4           different considerations would likely apply in this  
5           regard to these different activities.

6           Further, it might have, but I'm not suggesting it  
7           did happen, Pypun might, on a particular aspect or  
8           issue, have put forward proposals that were not then  
9           taken up by the Highways Department or the Buildings  
10          Department representative on its behalf. Were one  
11          considering the question of Pypun being proactive on  
12          a particular matter, that would need to be investigated.  
13          The point I am trying to make, probably not very well,  
14          is that in my respectful submission an investigation  
15          would need to be made in the evidence in the context of  
16          a particular activity before a view could be formed in  
17          relation to Pypun's involvement or indeed I could really  
18          address the point in relation to it being proactive.

19          Then I move from that to one other point I would  
20          like to make. I'd like briefly to look at one other  
21          matter in opening, the RISC forms, forming part of  
22          MTRCL's quality control documents. Under the M&V  
23          agreement, Pypun did not have a quality-checking role.  
24          RISC forms were under the MTRCL's scheme of supervision  
25          to arise for three matters: inspections, testing and  
26          survey checks. The relevant sample form from the PIMS

1 is identified at paragraph 21(2) of Pypun's opening,  
2 showing those three matters.

3 Mr Yueng from Pypun, at paragraphs 64 to 66 of his  
4 second witness statement -- and that's GG1, pages 38 to  
5 39 -- deals with the difference, as he understands it,  
6 between the M&V consultant's role for government under  
7 the separate MTRCL project, the XRL project, and under  
8 this SCL project.

9 There was a quality monitoring role under the XRL  
10 project for the M&V consultant. That's his evidence.  
11 As part of its obligations under its agreement, Mr Yueng  
12 also mentions that on the XRL project, he understands  
13 a separate team was set up by the M&V consultant there,  
14 because of this obligation to monitor quality. Pypun,  
15 as additional work, has now undertaken two exercises, in  
16 June, July and September 2018, with a final report in  
17 December 2018, and there is then the latest report  
18 produced a few days ago in relation to the RISC forms.  
19 Those are at GG2, pages 442 to 883, and in GG3, in the  
20 bundles.

21 In those exercises, it's been looking at the RISC  
22 forms in relation to some inspections for which they  
23 should have been produced only, and under only one  
24 contract. One can see how long that took and the  
25 products of those exercises.

26 It seems to me, and I make this submission,

1           inevitable, in the light of what we can see was involved  
2           in those exercises, that a quality check, even for RISC  
3           forms alone, would require a separate full-time  
4           consultant team, to audit the RISC forms alone for the  
5           relevant contracts in the SCL project. This was not  
6           envisaged by or allowed for, in my respectful  
7           submission, in the M&V agreement at all, and indeed,  
8           until this problem arose and was identified in 2018,  
9           nobody suggested that Pypun should have been looking at  
10          RISC forms at all.

11           Now, those are the only points I wish to make in  
12          opening. Unless the Commission has some questions of  
13          me, that's my opening.

14          CHAIRMAN: Thank you very much indeed, Mr Clayton.

15          MR CLAYTON: I'm most obliged.

16          MR PENNICOTT: Thank you. Sir, can I thank all my learned  
17          friends for their openings. With that, we now move to  
18          the evidence.

19                 Sir, as you are aware, Fang Sheung, although not  
20          an involved party, have played a part in the issues, or  
21          at least some of the issues, with which the Extended  
22          Inquiry is concerned. They do not have their own legal  
23          representation, for primarily financial reasons, as they  
24          have explained to the Commission.

25                 In those circumstances, the Commission's legal team  
26          felt it appropriate to approach Fang Sheung to obtain

1 a witness statement or witness statements from relevant  
2 personnel.

3 The upshot is that we just have one witness  
4 statement from Mr Pun, the sole proprietor of  
5 Fang Sheung, and in order not to inconvenience him, as  
6 it were, we have taken the view that we should call him  
7 first, now. I anticipate he will not be that long, and  
8 I would respectfully suggest we just get on with it now,  
9 if that is all right with everybody else.

10 CHAIRMAN: Certainly. We have only been sitting for half  
11 an hour.

12 MR PENNICOTT: Quite. So somebody, I hope, will fetch  
13 Mr Pun.

14 He will be giving his evidence in Cantonese, so  
15 I think we need the headphones, or at least those of us  
16 who don't speak Cantonese.

17 MR PUN WAI SHAN (affirmed in Cantonese)

18 Examination by MR PENNICOTT

19 MR PENNICOTT: Mr Pun, please sit down.

20 Mr Pun, thank you very much for coming along to give  
21 evidence to the Commission this afternoon. I'm sorry if  
22 we have been holding you up for most of today.

23 Mr Pun, you have helpfully prepared for us a witness  
24 statement, which is in bundle FF at page 9, in the  
25 Chinese version, and FF13 in the English version.

26 Do you have the Chinese version in front of you,

1 Mr Pun?

2 A. I do.

3 Q. Can you confirm that that is the witness statement that  
4 you have recently prepared for the Commission?

5 A. 係。

6 Q. If you could go, please, to page FF12, is the signature  
7 that we see there yours?

8 A. 係。

9 Q. Mr Pun, do you confirm that this is the evidence  
10 contained in this statement that you wish to give to the  
11 Commission?

12 A. 係。

13 Q. Mr Pun, I understand that there may be one error, slight  
14 error, in the witness statement, at paragraph 6.  
15 I think it's just a question of dates.

16 Could you look at paragraph 6, please?

17 A. 係。

18 Q. You say there:

19 "Fang Sheung staff worked at the site for  
20 approximately 10 months (excluding the minor piecemeal  
21 works at the beginning and at the end) from about  
22 mid-2015 to early 2016."

23 Did you want to change those dates, Mr Pun?

24 A. 應該係2017年嘅年頭嘅。

25 Q. Right, so ...

1 A. 就--係。

2 Q. ... mid-2015 to early 2017?

3 A. 係呀。

4 Q. Now, as you have told us before and indeed repeated in  
5 this statement, Mr Pun, you are the sole proprietor of  
6 Fang Sheung Construction Company?

7 A. 係。

8 Q. And, so far as this part of the Inquiry is concerned,  
9 Fang Sheung was originally engaged by Leighton to do the  
10 rebar fixing work in the NAT, that's the North Approach  
11 Tunnels, but Leighton switched it around so that you  
12 ended up doing the rebar fixing in the South Approach  
13 Tunnels; is that correct?

14 A. 正確。

15 Q. The reason you give for that, Mr Pun, in your statement  
16 is that it was "due to the constraint posed by the  
17 location of rebar yard". I'm reading from paragraph 3.

18 Could you just explain to us a bit more what you  
19 mean by "the constraint posed by the location of rebar  
20 yard", why that was the reason for the switch?

21 A. 因為我哋個南--個個yard喺南面嘅，咁我哋如果通過個個紅磡體育館下面去  
22 運去北面，係相當困難，當時係全部都根本冇到--冇路行㗎嘞，所以就係大家  
23 稍稍調一調。

24 Q. Okay. Understood. So it was essentially a matter of  
25 convenience and it made sense?

1 A. 係。

2 Q. Mr Pun, previously you told the Commission that you had  
3 had little involvement with the platform slab work, and  
4 I think we all recall that you left that work largely in  
5 the hands of Mr Joe Cheung. Do you remember all of  
6 that?

7 A. 係。

8 Q. But you tell us that so far as the SAT is concerned, you  
9 were much more hands-on; is that right?

10 A. 係呀。

11 Q. Indeed, you say, in paragraph 5 of your statement, that  
12 you were personally responsible for supervising the  
13 Fang Sheung workers in the SAT area; is that right?

14 A. 係呀。

15 Q. And indeed, further, you attended, you tell us,  
16 bi-weekly meetings with Leighton and other  
17 sub-contractors. As I understand it, that is  
18 specifically in relation to the SAT area; is that right,  
19 Mr Pun?

20 A. 嗰啲係進度係關於南隧道嘅，冇錯。

21 Q. Could I ask you, please, to look at paragraph 8 of your  
22 witness statement. You say there:

23 "During the process of rebar fixing, after  
24 Fang Sheung has completed fixing one layer of rebar, MTR  
25 and Leighton would have to inspect this layer of rebar



1 and confirm that the work quality of such layer of rebar  
2 is up to standard."

3 Do you see that?

4 A. 係，睇到。

5 Q. I don't know whether you will recall but in the first  
6 part of the Inquiry, we made a distinction between what  
7 was described as one layer of rebar and a mat of rebar  
8 which comprised a number of different layers. Do you  
9 recall that?

10 A. 係吖。

11 Q. Now, when you say here, in this sentence, "fixing one  
12 layer of rebar", are you referring literally to one  
13 layer, or are you referring to a mat of rebar which may  
14 comprise a number of different individual, single  
15 layers?

16 A. 南隧道的鋼筋稍為少啲咁多嘅，咁我哋所謂嘅一層就係底層嘅鋼筋，底層嘅鋼  
17 筋。因為以前EW check嗰啲鋼筋係好多--底都好多浸，咁南隧道呢面係得T1  
18 同埋T--唔係，B1同埋B2，大概都係咁上下嘍，係少好多嘅。所以我哋就係紮  
19 到B1同埋B2之後，就地鐵即係監管嗰啲就會上嚟睇。

20 Q. Right. So the inspection would take place after you had  
21 done B1 and B2, then the inspection would take place; is  
22 that right?

23 A. 係呀。

24 Q. You go on to tell us, in paragraph 8 of your witness  
25 statement, that when those inspections took place by MTR

1 and Leighton, either you personally or one of your  
2 colleagues would be in attendance at that inspection.

3 Is that correct?

4 A. 通常我哋都在場嘅，佢哋驗收個陣時。

5 Q. Right. Would they invite you, would they request you,  
6 would they instruct you to be present when the  
7 inspection took place?

8 A. 我哋應該在場嘅。係，佢哋通常都係邀請我哋又係好--總言之我哋係一定要喺  
9 在場喇，佢哋睇鐵就。

10 Q. All right. They requested you to be there?

11 A. 其實呢啲係我哋嘅責任嚟嘅，咁唔使佢邀請，我哋都要去嘅。

12 Q. Right. The reason that you were there was what? What  
13 was the logic of you being present at these inspections?

14 A. 佢嘅檢查可能發現到我哋會有啲錯處嘅，咁要即時--我哋要即時知道之後，  
15 馬上跟進嘅，如果我哋紮唔得啲嘅話。因為佢哋係工程師，或者係唔合乎地鐵  
16 嘅要求，咁都要即刻去改進咁樣。

17 Q. Right. Mr Pun, when the MTR and Leighton were doing the  
18 inspection, if there were couplers involved, would they  
19 be inspecting both the couplers and the rebar?

20 A. 一定嘅。

21 Q. Do you have any recollection, from your attendance at  
22 a typical inspection, as to how long that inspection  
23 might take?

24 A. 睇下個個實際情況，睇下複唔複雜。如果係相對簡單啲嘅，或者會好快啲，數  
25 下啲鐵，或者睇下coupler呢個啲唔啲，有冇擺錯鐵咁，咁就會完成初步嘅

1 步驟㗎嘞。

2 Q. All right. Would, typically, the MTR inspectors or  
3 Leighton inspectors have with them any documents, any  
4 drawings?

5 A. 揸住則，揸住啲則睇，一定要嘅，揸住啲則去睇鐵，唔係你對唔到佢哋錯定啱  
6 㗎嘛，做唔做得啱㗎嘛，一定要有則嘅。

7 Q. Right. So let me just press you a little bit further.  
8 I appreciate your point that how long it takes rather  
9 depends on the exact circumstances, but are we talking  
10 somewhere between 15 minutes and an hour, or what are we  
11 talking about?

12 A. 通常都--通常最少都一個鐘、半個鐘㗎嘞，最少㗎嘞，冇話十幾鐘咁就走㗎。

13 Q. That's the minimum, half an hour minimum?

14 A. 最少㗎嘞。

15 Q. All right.

16 In paragraph 14 of your witness statement, Mr Pun,  
17 you describe the process by which the batches of rebar,  
18 or rebar within the batches, came to be tested. Do you  
19 see that?

20 A. 係。

21 Q. You say that:

22 "Leighton would notify Fang Sheung whether the test  
23 results of the ... samples were satisfactory. If the  
24 samples from a batch of rebars could not pass quality  
25 testing, the whole batch of rebars could not be used and

1 had to be scrapped."

2 Mr Pun, did it happen very often that the batches  
3 would fail the testing procedure?

4 A. 相反係好少，好少嘅。

5 Q. Did it happen at all?

6 A. 我記得就好似我哋落order嘅鐵就好似係冇，除咗係嗰啲鐵太鏽，即係話所謂  
7 表面上太生鏽，禮頓reject佢返轉頭，嗰啲就係唔屬於未驗，即係表面上睇嗰  
8 啲鐵已經係好鏽嘅，咁唔可以用嘅嗰啲就，一定係彈番轉頭嗰啲就。驗嘅呢，  
9 我記憶所及係絕少，絕少，絕少，究竟有冇？就唔係多記得嘞，但係係好少，  
10 好少，好少。

11 Q. All right. Then finally from me, Mr Pun, in the last  
12 section of your witness statement -- sorry, the  
13 penultimate section of your witness statement, starting  
14 at paragraph 16, you refer to the rectification work at  
15 the NAT stitch joint; do you see that?

16 A. 睇到。

17 Q. And you say that you did not personally have any direct  
18 involvement in that work; is that correct?

19 A. 冇錯。

20 Q. But what happened, as I understand it, is that you,  
21 Fang Sheung, were asked by Leighton to do the remedial  
22 work to the stitch joints, and you put Joe Cheung in  
23 charge of that; is that correct?

24 A. 佢都係喺咁嘅角色裏面，喺呢個補救工程裏面，都係得一個熟練嘅工人，去帶  
25 住啲工人去做嘍咋。

1 Q. Yes. Mr Pun, is it your understanding that when you  
2 were asked to do that remedial work, the demolition work  
3 which you refer to in your witness statement had already  
4 been done and completed by others?

5 A. 係呀，冇錯，乾乾淨淨㗎嘞。

6 MR PENNICOTT: It was clean. Thank you very much.

7 Sir, I have no further questions. I don't know  
8 whether anybody else has.

9 CHAIRMAN: Perhaps we can take it --

10 MR PENNICOTT: It's up to you which order.

11 CHAIRMAN: We will go from closest to you.

12 Mr Shieh?

13 MR SHIEH: No questions from us.

14 MS LAU: No questions.

15 MR CHOW: One or two questions for Mr Pun.

16 CHAIRMAN: Yes.

17 Cross-examination by MR CHOW

18 MR CHOW: Mr Pun, I appreciate that you mentioned you were  
19 more involved in the steel fixing work in the SAT than  
20 the platform slab, but we now know that in SAT, we do  
21 have similar couplers connection to be done between the  
22 slab and the diaphragm wall. Do you recall that?

23 A. 係，係。

24 Q. My question is this. From your recollection, insofar as  
25 the level of supervision from Leighton's site staff on  
26 your coupler connection work, for your work in SAT, is

1           it similar to the level of supervision provided by  
2           Leighton in the platform slab?

3       A.   應該係差唔多嘅。

4       MR CHOW:   Thank you very much.

5           Sir, I have no more questions.

6       CHAIRMAN:   Mr Boulding?

7       MR BOULDING:   No questions, sir. No, thank you.

8       MR CLAYTON:   No questions from me, sir.

9       CHAIRMAN:   Thank you.

10           Anything?

11       COMMISSIONER HANSFORD:   No.

12       MR PENNICOTT:   Sir, I was right.

13       CHAIRMAN:   Yes.

14       MR PENNICOTT:   Mr Pun, unless -- you have no further  
15           questions?

16       CHAIRMAN:   No, no further questions.

17           Mr Pun, thank you very much for your attendance  
18           today. It seems your evidence is completed. Our  
19           apologies if we kept you waiting.

20       WITNESS:   唔緊要。

21           (The witness was released)

22       MR PENNICOTT:   Sir, I think that completes the substantive  
23           business for today.

24           However, can I just say this, because I'm not quite  
25           sure whether it's gone fully public in the sense that  
26           the next timetable has been produced. We've had to have

1 a bit of a rethink on the timetable and the order of the  
2 next three to four witnesses. Can I just tell everybody  
3 what is going to happen? I have had a brief word with  
4 Ms Lau who this directly affects.

5 Sir, we take the view that one of the Leighton  
6 witnesses, that is Mr Henry Lai, who is unable to give  
7 evidence during the course of next week, although he has  
8 kindly indicated that he is available on Saturday, of  
9 which more in a moment, he must give his evidence this  
10 week. That is the view that I have taken.

11 As a consequence of that, what is proposed is that  
12 Mr Ng Man Chun, or known as Ah Chun, that is the site  
13 supervisor from Loyal Ease Engineering, the  
14 sub-sub-contractors of Wing & Kwong, will give evidence  
15 first, and he will give that starting tomorrow morning  
16 at 10 o'clock.

17 He will be followed by Mr Leung, one of his  
18 co-workers from Loyal Ease.

19 We are hopeful that the evidence of those two  
20 witnesses can be completed during the course of  
21 Wednesday and Thursday, and we expect Mr Ng to be much  
22 longer than Mr Leung, at which point we will switch to  
23 Mr Henry Lai of Leighton, and the remaining Wing & Kwong  
24 witness, Mr Ben Cheung, will come after Mr Henry Lai.

25 So, as I say, we do think it very important that the  
26 evidence of Mr Leung, Mr Ng and Mr Henry Lai, as best as

1 possible, be kept together in one reasonable package of  
2 time. So that's the logic of that.

3 Just a word of warning that Mr Lai is not available  
4 beyond Saturday, and if we don't finish him on Friday we  
5 are going to be sitting Saturday. That, I'm afraid, is  
6 that.

7 CHAIRMAN: There is no echo of a warning there.

8 Thank you very much. That finishes the business for  
9 today?

10 MR PENNICOTT: It does, sir. Thank you very much.

11 CHAIRMAN: And tomorrow morning at 10 am, is that the time  
12 we will have the witnesses?

13 MR PENNICOTT: Yes.

14 CHAIRMAN: Thank you all very much. Until 10 am tomorrow.

15 (3.27 pm)

16 (The hearing adjourned until 10.00 am the following day)

17

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