Scottish Hospitals Inquiry
Witness Statement of
GRAEME GREER

PROFESSIONAL BACKGROUND

1. I am Graeme Greer. My address for the purposes of this inquiry is c/o Clyde & Co (Scotland) LLP, Albany House, 58 Albany Street, Edinburgh, EH1 3QR. I graduated in 2002 with BEng (Hons) degree in Civil Engineering. On leaving university I began employment with Babtie Group (which later became Jacobs UK), where I worked for about 10 years, initially as a graduate civil engineer in the reservoir and dams teams before moving to hydropower schemes and sewer design that involved interfacing with PFI projects, increasingly moving away from design and into project management. In 2011 I left Jacobs UK and took up employment with Mott MacDonald Limited (MML). I joined MML as a Consultant, and then in summer 2016 I was promoted to Associate.

2. On commencing employment at MML, I worked on various healthcare projects as project manager and technical advisor, working within MML's Strategic Consultancy Services team. The initial projects I worked on were on hub projects, such as Aberdeen Health and Care Village; Kittybrewster Custodial Centre; Stirling Care Village, and Tain, Woodside, and Forres, a bundle of three healthcare centres. I also worked on a number of NPD projects including the North Ayrshire Community Hospital, Dumfries and Galloway Royal Infirmary, and the Scottish National Blood Transfusion Centre. I worked on the technical advisory and project management side of Design Build Finance Maintain (DBFM) contracts. I am a Chartered Civil Engineer, and a member of the Institution of Civil Engineers.

3. In May 2013 I began working on the Royal Hospital for Children and Young People and Department of Clinical Neurosciences (RHCYP/DCN) project. I joined the team at around the stage of Competitive Dialogue meeting three. I took over as the MML internal Project Manager and Technical Advisor on RHCYP/DCN (although my job title was Consultant and then Associate). In addition, during the course of the RHCYP/DCN project, I was also: (1) MML health care lead in Scotland and Ireland; and 2) leader of the advisory team in Glasgow. From around September 2019, I handed over my Advisory team role and healthcare roles to focus on the remedial works at RHCYP/DCN. I continued to carry out this role until May 2022 when I then leftMML and joined NHS Lothian, where I currently work as Programme Director, working on the National Treatment Centre at St. John's Hospital, Livingston.

OVERVIEW

4. In this statement I will address the undernoted themes:

   i. An overview of my role within the project;
   ii. Procurement Process – The competitive dialogue;
   iii. Evaluation Manual - Draft Final Tender;
   iv. Evaluation Scoring Criteria;
   v. The Evaluation Manual – Final Tender;
   vi. Appointment of Preferred Bidder;
   vii. Preferred Bidder to Financial Close;
   viii. Project Management;
   ix. M&E Meetings;
   x. Project Co's Proposals;
   xi. Room Data Sheets;
   xii. The Environmental Matrix;
   xiii. Development of IHSL's Environmental Matrix;
   xiv. Risk Registers;
   xv. Project Agreement;
   xvi. Financial Close.

ROLE WITHIN THE PROJECT

5. I joined the RHCYP/DCN project as internal project manager and technical advisor for MML around the time of competitive dialogue three. At that time, the Invitation to Participate in Dialogue (ITPD) had already been issued. I therefore had no substantive involvement in the preparation of that document.

6. My first significant involvement during this early phase was taking the formal notes in the design and construction section of the Competitive Dialogue meetings. When I took over as internal project manager and technical advisor, Richard Cantlay of MML was leading on the project. I became more involved as time passed and Richard started to hand over the client facing role to me in the run up to financial close (FC), with Richard Peace (MML Project Director) and Richard Cantlay (Lead Technical Advisor) providing approvals and oversight to the team. In my role on the RHCYP/DCN project, I would lead the MML project management team and the technical advisor teams on the ground, and would regularly liaise with Brian Currie, the Project Director for the NHS Lothian Team as we were co-located, sharing the same office space.

7. My role in the RHCYP/DCN project included managing the MML project team, though I did not have any line management responsibility. Within the NHS Lothian Team were: Iain Graham, Director of Capital Planning; Janice Mackenzie, Clinical Director; Jackie Sansbury, commissioning lead; Fiona Halcrow, DCN lead and Neil McLennan, the equipment lead. I would work with all of those on the NHS Lothian team and attend meetings with bidders during the competitive dialogue and then, ultimately, the preferred bidder Integrated Health Solutions Lothian ("IHSL").

8. By the time I became involved in the project, MML's role was to provide project management and technical adviser services to NHS Lothian. During the Competitive Dialogue, MML attended the dialogue meetings and provided comments and advice to NHS Lothian on proposals and submissions produced by bidders. Later MML provided advice on the technical elements of the ISFT, as well as technical sections of the preferred bidder letter issued at the end of

the final tender process. MML continued to advise NHS Lothian during the preferred bidder to FC phase of the project and worked with NHS Lothian to provide comments to assist the preferred bidder in the development of their proposals. When it became apparent that the preferred bidder would not be in a position to produce fully developed Project Co proposals by financial close, including a full suite of room data sheets ("RDS"), we supported NHS Lothian in mitigation measures, and assisted in maintaining a design risk and technical risk register to Financial Close. It is important to note that while MML undertook sample reviews of aspects of the design of the project on behalf of NHS Lothian, IHSL were responsible for the design of the project and for ensuring that amongst other things, the design complied with the Board's Construction Requirements (BCRs), which was essentially the Board's specification for the hospital.

PROCUREMENT PROCESS – THE COMPETITIVE DIALOGUE

9. As I say I was not involved in drafting the ITPD, which was the document which set out the rules for the procurement process. By the time I began work on the project the ITPD had already been issued. I did attend one meeting on the drafting of the ITPD right at the start of my time with MML in 2011, but I was then quickly deployed on to other projects. By the time I joined the project in earnest, the competitive dialogue was underway. By that stage, the competitive dialogue process was well established and included monthly dialogue meetings in accordance with the programme in the ITPD. Each of the dialogue meetings were structured with a set agenda. For each monthly set of meetings, submissions based on the dialogue agenda would be issued from each bidder in advance. Each set of dialogue meetings would take place over the course of a week, with meetings scheduled for each day, Bidder A on Tuesday, Bidder B on Wednesday and Bidder C on Thursday, with pre and post meetings with NHS Lothian on Monday and Friday.

10. My own role during the competitive dialogue process had two functions. The first was a project management role, managing the MML team that facilitated

the flow of information between the bidders and NHS Lothian. This was managed through a system called Conject, which facilitated the flow of communication either from the bidders to NHS Lothian, and following NHS Lothian approval, answering queries on behalf of the NHS Lothian project team.

11. The other aspect of my role was managing the technical advisor team. Depending on what was being discussed at dialogue, MML would provide technical support to the NHS Lothian project team. This ranged from architectural support to mechanical and electrical engineering support, work on civil and structural matters, acoustics, energy modelling, and even aviation, due to the presence of the helipad. We also provided advisory support on matters such as facilities management which are a crucial aspect of any NPD or PFI project. I coordinated all of these separate disciplines with the support of the project management team as well as working collaboratively with the NHS Lothian team and their legal and financial advisors. NPD projects are extremely complex and incorporate a very wide range of disciplines relevant to the design and build, and then the twenty-five-year concession period following completion. MML's input therefore encompassed project management and a broad range of technical advisory services to support the NHS Lothian team in each of the relevant disciplines.

12. A typical dialogue week would include a pre-meet with the Core Evaluation Team. This would involve NHS Lothian, Ernst & Young ("EY") who were the NHS Lothians financial advisers, MacRoberts, who were NHS Lothians legal advisers and MML, for whom the attendees would be Richard Cantlay and me. The Core Evaluation Team is identified at section 3.1.2 of the RHSC DCN Dialogue Plan and Evaluation **(A36308885 - Dialogue Plan and Evaluation,[1])** (the "Evaluation Manual"). Section 3.2 of the Evaluation Manual sets out the key individuals involved in the evaluation process. I am listed under design and construction, along with Richard Cantlay and David Stillie of Mott MacDonald but in reality, I worked across the procurement and core evaluation workstreams too.

[1] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

13. The procedure to be followed in the Competitive Dialogue Process was set out at section 4 of the ITPD. Section 4.1.2 **(A34696936 – Draft ITPD Evaluation Criteria – 5 April 2012[2])** defined the dialogue process as a "series of meetings leading to submission of the Final Tender", making it clear that the "Board intends to continue the Dialogue until it is satisfied that Solutions from one or more Bidders are capable of meeting the Board's requirements". Section 4.1.3 set out the process to be followed during the dialogue, including discussion of aspects of the NPD Project Agreement, and the proposed risk allocation.

14. By the beginning of each dialogue week, we would already have received submissions from the bidders, which would come in around a week before the dialogue session, to allow the submissions to be reviewed. These submissions would be based on a set agenda. We would then have the dialogue meeting with the bidders on Tuesday, Wednesday and Thursday of each dialogue week, and then a debrief Core Evaluation team meeting on the Friday.

15. My recollection of the Bid teams was as follows: Bidder A included Balfour Beatty and BAM. Bidder B was Integrated Health Services Lothian (IHSL), and included Macquarie Capital, Brookfield Multiplex and Bouygues FM as FM contractor. Bidder C was Mosaic, which included Laing O'Rourke and Serco as the FM contractor. Each of the Bidders employed a contractor and their own design teams.

16. Prior to and during a dialogue week, NHS Lothian and MML would review the documents submitted by the bidders. NHS Lothian and MML would then provide comments to the MML Project Management Team. While I was not responsible for reviewing any particular submissions, I would familiarise myself as best I could with them in the time available, particularly if there were any discussion points raised by the NHS Lothian / MML reviewers. The various NHS Lothian, MML, MacRoberts and EY workstreams would meet and discuss

[2] Bundle 2 Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 9, p.578

the comments, and the outcome would then be fed into the Core Evaluation team. Any significant issues would be discussed at that stage. The aim of the dialogue meetings was to support the three bidders in developing their tenders.

17. Communications to any of the bidders or other stakeholders would generally be issued by the MML project management team on behalf of NHS Lothian via Conject. I recall that all communication required to be approved by NHS Lothian before issue, generally by either the Project Director or Clinical Director.

18. My recollection is that one of the main areas of focus in the competitive dialogue phase was the development of architectural layouts, and I recall additional dialogue sessions were implemented with each of the bidders to allow further development. I understand there was a particular focus on this point to ensure that the clinical teams were comfortable with the layouts. This was also important to NHS Lothian more generally. In relation to the design risk allocation in the Project Agreement, the architectural layouts and clinical adjacencies fell within the definition of Operational Functionality, which was the only element of the design where NHS Lothian accepted the design risk. All other elements of the design were for the Preferred Bidder / Project Co to develop and ensure were compliant with the BCRs. This approach to risk allocation is adopted as standard in NPD projects in my experience.

19. If matters needed to be escalated to NHS Lothian during the competitive dialogue process, then this was done through the Core Evaluation Team. This would include any technical issues. The dialogue phase was very structured in line with the meeting schedule set out in the ITPD. I understand this meeting schedule was adhered to up until dialogue four, when extra architectural sessions were put in place. That said this was also done in a very structured way.

20. After the appointment of the preferred bidder, there were a number of individual workstreams, such as a civil and structural workstream, a helipad

workstream, and a number of others. There was also a mechanical and electrical workstream. In the preferred bidder phase, I believe the structure changed so that the Core Evaluation Team became the Project Management Executive. Any issues arising would have been discussed in that forum, for example the contents of the risk registers would have been presented and discussed there. Throughout the project there was always a means of escalating any issues which arose.

21. I came into the project at stage three of the competitive dialogue process, following the submission of mechanical and electrical proposals by bidders. These had been considered at dialogue two so I was not involved in discussions on those aspects of the project. There was no formal scoring of the dialogue sessions. The dialogue process was set out at section 4.4 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[3])**, and paragraph 4 of ITPD volume 1**. (A34697102 – Invitation to Participate in Dialogue Vol 1, Revision B[4])** The bidders were invited to produce informal submissions in advance of each dialogue week. The informal submissions were produced to give NHS Lothian and the advisers a feel for how the tenders were progressing and allow them to give feedback to support the developers with the development of the tenders.

22. After dialogue five, the bidders submitted draft final tenders. According to the timetable in the ITPD, these were to be produced on 21 October 2013. Section 5.1 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation [5])** confirmed that the draft final tenders were not to be scored by NHS Lothian. Instead, they were to be used "as a tool for NHS Lothian to ensure that bidders have solutions capable of meeting its requirements, thus enabling NHS Lothian to proceed to conclude the Dialogue Period". The process for technical reviews was set out at section 5.2 of the Evaluation Manual. These all required to take place between 22 October and 7 November

[3] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[4] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 23, p.942
[5] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

2013. This would not have involved a detailed line by line check of each bid for compliance with all of the guidance in the BCRs. NHS Lothian was always mindful of the risk allocation inherent in an NPD project, and it was up to the potential NPD providers to produce a compliant design and undertake their own design assurance. From a technical perspective we would be undertaking a sample review and providing comments and feedback. There was not a lot of time available to review the tenders. Only two weeks had been allowed, and that might only allow for one or two days of a reviewer's time to be spent on reviewing all three bids, bearing in mind it was not a full-time design role for the reviewers, as MML had an advisory only role.

EVALUATION MANUAL – DRAFT FINAL TENDER

23. The aim of the draft final tender stage was to provide an opportunity for bidders to receive feedback on draft submissions to maximise bidders' opportunity to create a compliant bid. By "compliant" I mean compliance with the evaluation criteria set out in section five of the ITPD. At the draft final tender and final tender stage, bidders were expected to provide submissions in line with the level of detail set out in the ITPD, that complied with guidance such as the SHTMs.

24. At draft final tender stage, the guidance to the team reviewing each proposal from a technical perspective would be to highlight any areas which would result in a non- compliant bid. The process was well defined in the evaluation manual. The first step was a completeness check, in order to assess whether the bidders had responded to all the questions they were supposed to respond to. The draft final tender review examined whether there were any obvious areas which would have made bid non-compliant. A report was provided to each bidder, and then there was then a further dialogue session to discuss any issues arising from the draft final tenders. This had been provided for in the programme from the outset. The legal and financial advisers were also providing feedback at this point.

25. As was made clear at section 5.1.1 **(A36308885 - Dialogue Plan and**

Evaluation[6]) the draft final tenders were not scored by NHS Lothian or advisors. Instead, they were to be "used as tools during the Dialogue Period for Bidders to set out their Solutions to NHS Lothian and for subsequent feedback on whether aspects of the Informal Submissions and Draft Final Tenders meet the Board's requirements set out in the ITPD". The Evaluation Manual set out the procedure to be followed at draft final tender stage. As set out at paragraph 5.3 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[7])**, there was to be a technical review, involving "individual review and comment by the relevant member of the technical team". Paragraph 5 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[8])** indicated that "consistent with the Board's requirement to ensure fairness between bidders, there will be no detailed feedback going beyond setting out where that bidder does not meet minimum requirements". A final dialogue meeting (dialogue six), took place after the draft final tender stage to allow for clarification of any points arising at that point.

EVALUATION SCORING CRITERIA

26. Final tenders were produced in January 2014, in accordance with the programme set out at section 4.2 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[9])**. The Inquiry has asked me if I have any knowledge of the assessment criteria used for bidders on the Project and the 60/40 price/quality split. From my perspective I believe that this had been set following guidance provided to NHS Lothian by Scottish Futures Trust (SFT), but I was not involved in advising on an appropriate allocation.

27. The ITPD sets the evaluation process. In terms of the evaluation scoring criteria. 60% of the score was cost related and 40% was quality related. Of the 40% allocated to Quality, this was split into Strategic and Management (5%), Design and Construction (23%) and Facilities Management (12%).

[6] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

[7] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[8] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[9] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

28. A substantial proportion of the Design and Construction scoring questions and evaluation criteria weighting was allocated to the architectural related design elements. The weighting for C8, being clarity, robustness and quality of M&E engineering design proposals was 1.06% of the overall score.

29. In terms of the percentage ascribed to the mechanical and electrical elements, while I was not involved in determining the scoring breakdown, I understood there was an underlying requirement for the consortium ultimately appointed as preferred bidder to ensure that the mechanical and electrical design is compliant with the Board's Construction Requirements ("BCRs"), and that the final design required to comply with all of the applicable guidance.

EVALUATION MANUAL – FINAL TENDER

30. The Evaluation Manual sets out the process for evaluation of the final tenders. My understanding of the scope of MML's role in the evaluation process was very much determined by this document, which had been drafted by MML with input from MacRoberts and EY and had all been approved by NHS Lothian.

31. The process to be followed for evaluation of the final tender is set out in section 6 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[10])** as well as section five of ITPD volume 1 **(A34697102 – Invitation to Participate in Dialogue Vol 1, Revision B[11])**. The evaluation process involved the following steps:

- Completeness and compliance check,
- Check for compliance with the Stand Alone Requirements,
- Evaluation of all of the Quality Evaluation Criteria on a pass/fail basis,
- Evaluation of those Quality Evaluation Criteria that are evaluated on a scored basis,

[10] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[11] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 23, p.942

- Price Evaluation (including commercial aspects),
- Evaluation of funding proposals,
- Legal review,
- Combination of price evaluation mark and quality evaluation mark.

32. The first step was the completeness and compliance check. According to the detailed programme set out at section 6.2 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[12])**, this was due to take place over two days from 7 to 8 January 2014. This was not a technical compliance check. It was a review undertaken by the Procurement Management Team, to check that the bids were complete – i.e., that they had provided answers to all of the questions being asked of bidders – and that they otherwise complied with the submission requirements from a procurement perspective.

33. The next stage was a review of the technical submissions provided by each bidder. This required to be done between Thursday 9 January 2014 and Friday 31 January 2014. The process to be followed was set out at section 6.5 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[13])**, and broadly required review by individuals, recording any scores and comments, then a meeting to agree a consensus score, then collation of the final tender evaluation. The process all required to be completed by 12 February 2014, according to the timetable in section 6.2 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[14])**.

34. Guidance on the quality scoring was set out at section 6.6 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[15])**. This provided that "using the Final Tender Evaluation Proforma in Appendix E, the Evaluation Group members will each undertake individual evaluation of the relevant evaluation criteria within each Bidders' Final Tender Submissions against the prescribed scoring criteria before meeting with their Group in a workshop, chaired by the Core Evaluation Team member leading that Group, to agree

[12] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[13] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[14] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[15] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

the final consensus scores for each of the evaluation criteria for which that Group is responsible.

35. From an M&E MML perspective, Colin McCrae, Willie Stevenson and Paul Kelly were involved in reviewing the submissions. From NHS Lothian, Ernie Bain (estates manager) and Brian Currie (design and construction workstream chair) were involved in the mechanical and electrical evaluation. Each of the evaluators would produce individual comments and an individual score. Once again these were sample reviews, the bidders were required to undertake their own design assurance. Mechanical and electrical reviews were only a relatively small part of the work MML were undertaking at that stage. MML were undertaking technical reviews in a whole range of areas including acoustics, civil and structural, and facilities management aspects of each bid. The evaluators would then go to a meeting with the workstream lead, and then at the meeting the evaluation team would agree consensus comments and a consensus score. I would not have been involved in reviewing the M&E aspects of each bid as this is not my area of specialism. Once again, the reviewers would not have been undertaking a detailed audit of each bidder's proposals to check in detail for compliance against the guidance in the BCRs. The Evaluation Manual also included pro-formas for the evaluators to complete for each question and bidder.

36. I was involved in the consensus design and construction meetings, in which I or one of my colleagues would collate comments and scores agreed and discuss these with the MacRoberts procurement team. This involved collating the comments and challenging the comments if they did not seem consistent. I don't recall this happening specifically on the project, however an extreme example of the input I may have provided is as follows, if the evaluators were saying a proposal was excellent and only giving a score of 6, I would advise them that the scoring criteria says that if it is excellent then it should generate a score of 10. So, either the wording was wrong or the scoring wrong. This is the type of input I would have as opposed to a technical review. I was trying to assist with ensuring consistency in the scoring of the evaluations. I was not involved in the scoring itself just supporting the collating of the comments at the end.

37. Following the consensus meeting my role was to draft the Design and Construction Draft Final Tender report, and Final Tender reports based on the consensus comments and scores produced by the evaluators.

38. With regard to the scoring of the bidders I was aware that IHSL scored higher than other bidders in some areas. I believe that this was primarily in relation to architecture. I understand they took the best parts of the reference design and enhanced it, which the clinical teams saw as a massive benefit. I understand the other bidders tried to alter significantly the architectural elements of the reference design, but it did not fit the clinical layouts that NHS Lothian were looking for.

39. At the end of the tender evaluation process, a preferred bidder letter and unsuccessful bidder letters were prepared. I worked with NHS Lothian, the MML project management team, MacRoberts and EY to populate the letters based on the scores and comments in the completed tender evaluation proformas. Following the release of the letters, I then participated in de-brief sessions with the unsuccessful bidders.

40. The Inquiry has asked me to express a view on why the anomaly in the environmental matrix between guidance note 15 and the air change rates in critical care, was not identified when the tenders were evaluated. I was not involved in reviewing the detail of the mechanical and electrical submissions, but I am now aware that Bidder C produced a version of the environmental matrix which they had marked up, whereas Bidder B did not produce an environmental matrix with their final tender at all, instead adopting the environmental matrix produced with the ITPD stage for that purpose. I can't comment in detail on the differences in each bidder's approach, as I am not a mechanical and electrical engineer. However more generally, I do not think that the fact that the bidders were proposing two different solutions would of itself necessarily have rung any alarm bells. The bidders would be expected to produce different solutions generally. With specific reference to the EM, the preferred bidder would always have to develop the environmental matrix in

accordance with their own design. Even at final tender stage, the development work on the design is still to be done. The fact that the solutions proposed by each bidder were different, would not necessarily mean that one of them had complied with guidance and the other had not. The anomaly in the environmental matrix *could* have been picked up in the final tender review or in one of the subsequent reviews, but it does not necessarily follow that it *should* have been picked up, particularly if there was no environmental matrix with bidder B's bid. The sample reviews being done at that time did not involve a detailed audit of the design.

41. I have been asked how a bidder could show at final tender stage that they had complied with CEL19 (2010). By this I understand that I am being asked how the bidders could demonstrate that ADB had been used as a design and briefing tool. Bidders did require to produce sample RDS in the final tender, which I would have expected to have been generated from the ADB, and were also required to produce a full set of RDS by financial close, though in the event this did not actually happen as I will go on to explain.

42. The Inquiry has asked me to comment on how NHS Lothian and MML assessed compliance with CEL 19 (2010), given that this required health boards to use ADB as a design and briefing tool. CEL 19 (2010) was one of a number, indeed hundreds, of documents which were referred to in the Board's Construction Requirements ("BCRs"), as being guidance with which bidders were expected to comply. In my role at Mott MacDonald Limited I would not have been checking compliance with the requirements of this document.

43. The Inquiry has also asked specifically how CEL 19 was used to assess tenders for compliance. The tenders were evaluated against the criteria set out in the evaluation manual rather than being assessed in detail against each one of the very many guidance documents contained in the BCRs. It was not part of MML's role to undertake such a review, in addition there would not have been time to assess each tender against every individual document. Similarly, the reviews undertaken at final tender stage did not involve a line-by-line audit for compliance with all the applicable guidance. Ultimately

however, it would be for the successful bidder to ensure that they developed their own design in a manner which complied with the BCRs, reflective of the risk allocation in the project agreement.

44. I don't recall compliance with CEL 19 being discussed specifically, but obviously the procurement process took place a long time ago and I was not involved in the project from the beginning. In relation to whether ADB was used as a briefing tool, I am not aware of whether ADB was used by the reference design team when preparing their design. It might have been, and certainly the existence of an environmental matrix, and the use of ADB, are not mutually exclusive. The originators of the environmental matrix may well have used ADB in populating the services requirements for each room. It is worth highlighting that every NPD project which I have worked on has had an environmental matrix. In my experience, an environmental matrix has been used as standard in healthcare projects. From reading the ITPD, RDS had not been produced by the start of the procurement process, however it was clear key and generic rooms were to be produced by the bidders for final tender, and a full set of RDS were to be produced by the preferred bidder before financial close. The originators of the RDS may well have used ADB in preparing them.

APPOINTMENT OF PREFERRED BIDDER

45. IHSL were the Preferred Bidder (PB). I understand that they employed an SPV Management company which was HCP Social Infrastructure. Multiplex were the D&C Contractor, and then Bouygues were the Facilities Management provider. Multiplex then had a supply chain of designers, this included HLM, employed as architect, Wallace Whittle (who later became TUV SUD) as mechanical and electrical consultants. Robert Bird was appointed as the Structural engineer. Acoustic design was undertaken by Acoustic Logic. Fire Engineering was undertaken by Exova and then that changed to WSP early in the PB stage. Ironside Farrer was involved in planning. Multiplex also worked with the following sub-contractors: Mercury Engineering; Dunnes; Balfour Beatty Ground Engineering; and Crummock.

PREFERRED BIDDER TO FINANCIAL CLOSE

PROJECT MANAGEMENT

46. During the Preferred Bidder ("PB") phase, MML were on the Project Management Executive ("PME") which involved a pre-meet in preparation for meetings of the Project Delivery Group ("PDG"). The PDG managed escalated legal, technical and financial issues.

47. During the PB phase, there was also a Design Steering Group ("DSG"), and Project Management Group ("PMG"). The DSG managed escalated design issues. The PMG met weekly and managed process elements of the technical workstreams. I attended all of the above meetings. There was also an oversight meeting involving the executives of NHS Lothian, IHSL and possibly SFT, however MML were not involved in that meeting.

M&E MEETINGS

48. Throughout the PB phase of the project, workshops were scheduled for each workstream. Mechanical and electrical workshop number one took place on 7 April 2014. This was the start of series of nine planned workshops scheduled to take place between the appointment of the preferred bidder and financial close.

49. Early in the PB phase there was an M&E meeting (it might even have been M&E workshop 1) where we discussed the preferred bidder (PB) letter as IHSL had seen their M&E score and acknowledged that they were the lowest (5/10) out of all the bidders. In the preferred bidder stage, IHSL asked for some more detail on where they could improve from an M&E perspective. MML and NHS Lothian provided comments around 23 May 2014.

PROJECT CO'S PROPOSALS

50. On 2 April 2014, early into the Preferred Bidder stage, concerns were raised by MML about the initial development of the Project Co's Proposals (PCPs). This included concerns about the proposed structure of the PCPs, and concerns about regular reference to "Glasgow South" noting the following: *"Something else to be wary of is there is a common theme that the IHSL Designers are starting to rely on what they have done on Glasgow South, which is possibly a good starting point, but we need to see the detail of the proposals, and not assume that because Glasgow accepted it, NHS Lothian will too. First issue is we need the details, second issue is we need to review it".*

51. MML also noted a lack of appropriate lead/attendees at meetings and additional derogations being requested by the preferred bidder to those in the final tender. By "Glasgow South", IHSL were referring to the Queen Elizabeth University Hospital ("QEUH"). IHSL frequently sought to justify design choices made in RHCYP/DCN with reference to what Multiplex were doing at QEUH. This seemed to be a benefit to the RHCYP at that point, as at that stage the QEUH, a very significant project, seemed to be going well.

52. On 4 September 2014, following lengthy discussions about the operational functionality document stamp, NHSL responded to an email trail between NHSL, MML and MacRoberts. I recall the background to the matter related to two main issues;
(1) an additional Operational Functionality caveat that NHSL required due to a lack of developed C Sheets from the PB; and (2) the Clause 12 Project Agreement risk allocation, where I recall the final agreed RDD stamp reflected the Clause 12 Project Agreement risk allocation.

53. The lengthy conversation about the document stamp related to design risk allocation. I worked with MacRoberts on this as it was critical to the operational

functionality risk allocation in the contract, to ensure that any signing of the submitted design was limited to the operational functionality aspects of the project. This reflected the risk allocation in the project agreement. NHS Lothian was only accepting design risk for aspects of the project relevant to operational functionality. By stamping drawings as approved, there was a risk NHS Lothian could be deemed to be taking responsibility for the design, and it was only appropriate for them to be doing that for matters relevant to operational functionality. This matter was discussed by all parties, and I believe understood by all of them at the time.

54. On 14 October 2014, MML issued an email to NHS Lothian and MacRoberts stating the M&E drawings were largely level C and D, and not at the level we would expect for financial close. As there was pressure to reach financial close, the email also starts to explore possible mitigation measures including the following;

    a. *"An initial fall-back position for the Board could be to request that the Board has the "absolute right of comment" on the drawings post Financial Close…*
    b. *The absolute right of comment approach may not be acceptable to the Funder's Technical Adviser, and therefore as discussed, a further fall back position would be to provide a schedule of comments that are included in the Project Agreement, with an opening statement of "The following comments shall be incorporated into the drawing by Project Co at no additional cost to the Board, and the drawings shall be submitted by Project to the Board through Schedule* Part 8 (Review Procedure)…

55. On 10 of November 2014, following discussions with MacRoberts and NHSL, MML issued to NHSL and IHSL an updated RDD Schedule that had been expanded to include the following 4 Parts;

    "Part 1: Endorsed RDD Item - Level A or Level B but subject to re-submission to the Board through Schedule Part 8 (Review Procedure)

    Part 2: Non-Approved RDD Items - Level C or Level D:

Part 3: Reviewable Design Data:

Part 4: Non-Approved Project Co's Proposals Design Data comments:"
This started to include MML / NHSL collated workstream comments on Project Co's design data.

56. As a mitigation measure, MML explored with NHS Lothian the comments and qualifications on the PCPs, and one of those was the environmental matrix. The MML technical team in collaboration with NHS Lothian and IHSL developed those comments and qualifications, which went into the RDD schedule.

57. There then followed a number of emails back and forth between IHSL and MML/ NHS Lothian with regard to mitigation measures and in particular items to be included as Reviewable Design Data.

58. On 9 December 2014, following discussions between NHS Lothian, MML and MacRoberts, an updated RDD schedule was sent to IHSL rejecting the proposed amendments. On 11 December 2014, a meeting took place between NHS Lothian, IHSL and MML to discuss the RDD schedule. On 16 December 2014, I sent an email to NHS Lothian reflecting the points conceded by NHS Lothian in the meeting relative to revised RDD drafting, then on 18 December 2014, following approval from NHS Lothian, I issued an updated version of the RDD schedule to IHSL.

ROOM DATA SHEETS

59. My role in the development of IHSL's RDS included co-ordinating the responses from the MML / NHSL technical teams. I did not undertake any reviews and was not necessarily involved in all of the correspondence, but I have undertaken a review of the relevant parts of MML's file, and the key points were as set out below.

60. Paragraph 2.5.3 of the ITPD **(A34696936 – Draft ITPD Evaluation Criteria –**

5 April 2012[16]) sets out the plan for the development of Room Data Sheets (RDS). I think it is important to make the distinction between the template Activity Database Sheets (ADBs) versus the project specific RDS. The ADB is a central database which is now in private sector ownership, managed by a company called Talon. This contains standard form sheets setting out the design criteria for individual room types in a hospital, which need to be tailored into project specific RDS, to suit

each particular healthcare facility. I am aware that the ADB cannot always be relied upon for accuracy. My understanding on this point arises from a number of sources. Firstly, the ADB is based on the English guidance, or HTMs, rather than the guidance which applies to Scotland, which is contained in the SHTMs. Secondly, having worked on a number of healthcare projects, from my own experience, including recent project experience, the ADB is used with caution by statutory bodies, boards and private sector designers. This is in recognition of the fact that use of the ADB does not guarantee compliance with relevant standards. It can be out of date. I have seen examples of ADB containing two apparently contradictory sheets for the same area. An example of this would be two sheets which were present on the ADB at the same time relevant to multi-bedded rooms in critical care. Sheet number B1609 relates to a multi-bedroom, critical care, 4 beds including scrub up bay. Mechanical ventilation is given as 6 air changes per hour “to suit design and clinical requirements”. Sheet number B1610 on the other hand, which also relates to multi-bedded rooms in critical care, requires 10 air changes per hour. These are two apparently contradictory sheets in the ADB. My understanding therefore is that there is quite a lot of work involved, in developing RDS from the underlying ADB. The designer of the RDS would require to check that the sheets complied with the applicable guidance, rather than simply relying on what was in the ADB sheets. Aside from any issues with the ADB itself, it is well known that some of the underlying guidance can be contradictory, which is why my understanding is that there is a standard clause in NPD project agreements to the effect that the most onerous standard should always apply. In line with this approach this clause was added to the BCRs for the RHCYP/DCN project.

[16] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, p.578

61. I understand that different companies have different ways of developing room data sheets. It is possible that all companies do not necessarily go to Talon to get that information. There was a point where the Department of Health published a spreadsheet version of the ADBs and I believe some companies started to use that as opposed to those from Talon, who took over the licence to issue them.

62. Volume 1 of the ITPD states at section 2.5.3 **(A34696936 – Draft ITPD Evaluation Criteria – 5 April 2012[17])** that standard form RDS had not been prepared at that early stage. Guidance Note 1 to the draft environmental matrix, issued with the ITPD describes it as an easier reference tool to replace ADB RDS M&E sheets.

During the competitive dialogue phase, RDS were to be prepared by bidders for certain rooms. However, all remaining rooms required to have room datasheets completed before financial close. The preferred bidder was to have responsibility for ensuring that this was done.

63. During the Competitive Dialogue phase, the bidders were each to develop RDS for the key and generic rooms for final tender, and then the Preferred Bidder ("PB") was to develop RDS for all rooms at FC.

64. On 1 April 2014, early in the PB to FC phase, RDS were identified as a priority item for the preferred bidder to develop. This was identified on a technical schedule tracker that MML developed and issued with a view to trying to ensure that progress was being made with key aspects of the project. Throughout the summer of 2014, MML on behalf of NHS Lothian wrote to IHSL on a number of occasions, asking IHSL to expedite the RDS, and even just to produce templates for the RDS that they were planning to produce. On behalf of NHS Lothian, MML set up meetings with IHSL to try to move things along. At least one of these had to be cancelled because IHSL had not produced the documents in time.

[17] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, p.578

65. By autumn 2014 it was becoming clear that RDS would not be available by financial close. On 19 September 2014, NHS Lothian circulated an email to MML noting that NHS Lothian needed to agree a position, on whether to push for completion of all (or indeed any) RDS by FC. The email from NHS Lothian noted that " the IHSL response is that they cannot do it." By November 2014, discussions were underway to update the Completion Criteria and BCRs to reflect the lack of completed IHSL RDS for financial close. These were produced on 9 December 2014. Ultimately, by financial close, NHS Lothian did not have a complete set of RDS from IHSL. This meant that NHS Lothian were unable to approve the RDS by that stage. The solution was that the RDS required to be included as Reviewable Design Data (RDD). On 27 Jan 2015, MML wrote to IHSL on behalf of NHS Lothian noting that;

> *As the RDS are incomplete, the Board has not stamped the drawings. In accordance with the requirements in Section 5 (Reviewable Design Data) of Schedule Part 6 (Construction Requirements)* ***(A32435789 - Schedule Part 6: Construction matters, section 5 (Reviewable Design Data[18])*** *Appendix B (Completion Criteria) of Schedule Part 10 (Outline Commissioning Programme)* ***(A33405351 - Schedule Part 10: Outline Commissioning Programme Excerpt pages 299 to 313[19])***
>
> > *Project Co has to submit to the Board through the Review Procedure completed Room Data Sheets for all Rooms whilst taking into account Section 3 of Schedule Part 6 of the Boards Construction Requirements"* **(A41179262 - Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[20]).**

66. Following completion of the project, I reviewed the RDS which IHSL had produced prior to financial close. I noted that the Clinical Activities in the Draft Final Tender, Final Tender and FC RDS for the Critical Care bedrooms rooms have been altered from the ADB sheet Clinical Activities. The FC RDS Critical Care bedroom Clinical Activities appear more those to be expected in a

[18] Bundle 5 – Contract Documents, item 7, p.767
[19] Bundle 5 – Contract Documents, item 13, p.1504
[20] Bundle 5 – Contract Documents, item 4, p.341

normal bedroom, than a critical care bedroom. I say this because the activities specified for the rooms include taking refreshments in a sitting space, dressing and undressing, and arriving on foot. None of these activities would be expected to take place in a critical care area. This can be contrasted with the Clinical Activities in the Critical Care bedroom ADB sheets, that are clearly Critical Care Clinical Activities. This might have led any reviewers considering those RDS, to form the view that those RDS did not relate to critical care rooms, and so that specific aspects of guidance relative to critical care bedrooms in for example SHTM 03-01 was not applicable to those rooms. There may well have been a good explanation for this alteration, however I do not however recall being involved in any such discussions.

67. IHSL were unable to provide a full set of RDS prior to financial close. Due to those that were produced being submitted relatively late towards FC I do not believe they were capable of being reviewed by NHS Lothian or MML prior to financial close. I recall there being some correspondence to the effect that we had not stamped (signed off) the room datasheets.

68. The other thing we did, because the RDS had not been reviewed pre-financial close, was enhance the completion criteria relative to the RDS. There were extra clauses added, requiring IHSL to develop fully populated compliant RDS, which was agreed by all parties and added into the completion criteria. I think there might have been some changes to the BCRs as well, which related to that.

69. Having been unavailable prior to FC, the RDS would instead be reviewed when the project got to the construction phase. They would be presented in user group meetings and reviewed in the development of the design. I believe that Project Co's mechanical and electrical teams sat in on the early sessions to listen to the environmental information from the initial user group meetings, however I am not sure if that continued.

70. In terms of reviewing the mechanical and electrical data contained within the room datasheets, given that IHSL produced only a limited number of RDS

prior to financial close, and later than programmed, I do not recall MML undertaking a review of this data. When the review was undertaken in the construction phase, it would have been sample reviews and spot checks only as MML were not carrying out any design function on the project. Once again MML were not providing design assurance or undertaking an audit of IHSL's work. MML were undertaking an advisory role. The advisory team generally did sample reviews of the documents as opposed to carrying out any detailed analysis of them. MML's role was not to provide design assurance on the project.

71. I do not know how IHSL prepared their RDS, in terms of whether they used ADB or the environmental parameters for the room data sheets, I believe this information would have been taken from IHSL's own environmental matrix and then fed into the room data sheets, which may well have been produced from ADB templates. I do not think there was any changes from the environmental matrix through to the RDS. The building was almost complete I think by the time the final versions of the RDS actually became available so the majority of the environmental discussions were based on the environmental matrix as opposed to the RDS.

THE ENVIRONMENTAL MATRIX

72. I recall the environmental matrix was divided into three sections, a set of guidance notes, a room function reference sheet, and a table of environmental parameters for particular rooms organised by department. The guidance notes were instructions for the bidders to take into account in the preparation of their own design. I was however not involved in considering the detail of the environmental matrix. I understand Hulley

and Kirkwood produced the draft Environmental Matrix issued with the reference design and would be better placed to advise on the content. The room function sheet, I believe was part of the excel spreadsheet format, and I think in the original version you were able to select from a drop down list, hence if you selected a bedroom, you would copy and paste the bedroom

criteria into the table below.

73. I understand that the population of the draft environmental matrix issued to bidders with the ITPD with the data relative to the environmental parameters would have been the responsibility of Hulley and Kirkwood. I think all the mechanical and electrical information was shared in the data room to the bidders, for their use, to use how they wanted. The preferred bidder then had ownership of the environmental matrix and became responsible for developing it themselves.

74. The Inquiry has also asked me whether in my opinion the ITPD was requesting something impossible of bidders, being compliance with SHTMs and compliance with an environmental matrix which was itself not compliant with the SHTMs. I do not think that bidders were being asked to do the impossible. This is because the preferred bidder always had responsibility to design its own environmental matrix. The ITPD issue environmental matrix was a draft, for bidders to develop. The preferred bidder required to produce its own environmental matrix, and ultimately would have to construct the facility in alignment with that. It was IHSL's own, developed environmental matrix, which the BCRs required the preferred bidder to comply with. IHSL was aware of this responsibility and were they reminded of this frequently, as I will go on to explain below. In addition, IHSL did adopt the Hulley & Kirkwood matrix, applied their own branding to it, and amended it to suit their own design. All in all, IHSL produced at least eleven different iterations of the environmental matrix after they were appointed as preferred bidder. At no point do I recall IHSL saying that they were being asked to do something which was impossible.

75. The Inquiry has asked me if in my opinion, the information provided to prospective bidders in the ITPD lacked clarity in relation to the purpose of the environmental matrix, and whether bidders needed to formulate their tender to comply with the requirements set out in the environmental matrix. I do not recall the ITPD issue environmental matrix being discussed after Dialogue 3. I played no part in the drafting of the ITPD. That said, as I will go on to explain,

IHSL did adopt the environmental matrix, and developed it, making some significant changes to it. I am also confident that they were reminded at a number of points that they had responsibility for the design, including the environmental matrix, and for ensuring compliance with the BCRs. It was specifically pointed out to IHSL that the reference design had no contractual status as far as the environmental matrix was concerned. IHSL also confirmed that their design for the environmental matrix was compliant with SHTM 03-01.

76. My understanding as to the status of the environmental matrix is that it was provided to bidders in draft form to assist them with formulating their own design. It was always the responsibility of IHSL to develop their own design, including the mechanical and electrical elements contained in the environmental matrix.

77. There were mandatory elements and indicative elements in the ITPD. The environmental matrix was not one of the mandatory elements, which meant that the preferred bidder would have design responsibility for it. I understand that all information issued to bidders was issued as Disclosed Data for the purposes of Clause
7.1 of the Project Agreement. In relation to the environmental matrix, this meant that no warranties were given in relation to it, and bidders were required to prepare their own design and then verify that it complied with all of the guidance and, where there were any contradictions, with the most onerous of standards. IHSL's own environmental matrix was ultimately added into the contract as reviewable data design (RDD), because IHSL had not developed it sufficiently by the time of FC.

DEVELOPMENT OF IHSL'S ENVIRONMENTAL MATRIX

78. My role in the development of IHSL's environmental matrix was limited to co-ordinating comments from the MML / NHS Lothian technical teams. I did not undertake any reviews and was not necessarily involved in all of the correspondence, but I have undertaken review of the relevant parts of MML's

file, and the key points were as set out below.

79. The development of the environmental matrix in the PB to FC phase started with a discussion on transferring the ownership of the environmental matrix to IHSL. I recall being involved in a conversation to the effect that it was now IHSL's EM and was for IHSL to develop, following which on 3 July 2014, IHSL asked for an excel version of the environmental matrix in order that they could develop it in accordance with their own design. NHS Lothian requested the excel version of the EM from Hulley and Kirkwood, which when received was then issued to IHSL via email on the 11 July 2014. IHSL did then adopt the environmental matrix and amended it. They removed the Hulley and Kirkwood logo, updated the environmental matrix with their own document reference (WW-XX-XX-DC-001), and produced several different iterations of it. In later versions, the preferred bidder included their own logo on the environmental matrix. All in all, IHSL produced at least eleven different consecutive versions of the environmental matrix as they continued to develop their own design for the facility.

80. On 11 June 2014, IHSL issued RFI 005 relating to Guidance Note 15 of the environmental matrix and the provision of humidification in Critical Care and HDU. Guidance note 15 to the environmental matrix stipulated that "Critical Care areas - Design Criteria – SHTM 03-01 – esp Appendix 1 for air change rates – 10ac/hr Supply". IHSL did not query any discrepancy between the air change rates required for critical care in guidance note 15, and the data in the body of the spreadsheet. The RFI was passed onto the MML technical team and NHS Lothian clinical team who responded on 6 August 2014, among other things, reminding IHSL that "IHSL should also update their environmental matrix to reflect the BCR requirement". This reflected the fact that as the preferred bidder, IHSL now had design responsibility for the environmental matrix. I understand that as a result of the RFI response was IHSL altered Guidance Note 15 to reflect the humidification requirements.

81. Along with NHS Lothian, we continued to remind IHSL that they had responsibility for designing the environmental matrix so that it was compliant with the BCRs. On 24 September 2014, NHS Lothian issued an instruction to

IHSL that requested additional agenda items for the Design Steering Group including as item 1 *"1 Environmental Matrix – compliance with BCRs"*

82. On 29 Sept 2014 IHSL issued the first IHSL excel version of the EM. When reviewing this document in connection with my preparatory work for the Inquiry, it was noted that IHSL have removed HDU from this version of the environmental matrix, and also altered the humidification reference in relation to critical care in guidance note 15 to reflect the RFI.

83. In the construction phase, Project Co later altered guidance note 15 in their second version of the matrix so that it required 10 air changes per hour in critical care isolation rooms only. Contrary to an agreement between IHSL and NHS Lothian, Project Co did not highlight the changes that they had made. This meant that the changes would not have been obvious to the reviewers.

84. On 6 October 2014, the MML mechanical and electrical team undertook a sample review of IHSL's environmental matrix and then discussed the review with the NHS Lothian project team. There was an internal discussion about whether any non- compliances identified by MML might have previously been agreed by NHS Lothian directly in the reference design or competitive dialogue phase. It was decided the best course of action was to raise any concerns with NHS Lothian, and then if they agreed, flag the concerns to IHSL. This is what we then proceeded to do. The reviewers including NHS Lothian reviewers would feed comments to the project management team, and MML would issue the collated comments to NHS Lothian for approval.

85. On 6 October 2014, the environmental matrix was noted on the MML / NHS Lothian design issues register as a risk, as it did not appear to have been sufficiently developed by IHSL by that stage.

86. On 14 October 2014, MML issued comments on the environmental matrix on behalf of NHS Lothian to IHSL. NHS Lothian Estates had not yet given us any comments on the matrix at that point, which MML also raised to NHS Lothian as a project risk. One of the MML comments was that despite having changed

the matrix by that point, IHSL had kept the Hulley & Kirkwood branding on it, which was inappropriate as by that stage IHSL had become the designer.

87. Throughout autumn 2014 and after the turn of the year, there was further correspondence back and forth between NHS Lothian/ MML and IHSL with regard to IHSL's environmental matrix. There were various concerns with regard to IHSL's approach. One of these concerns arose from a HAI-SCRIBE review which took place in November 2014 relative to positive/ negative pressure in single bedrooms.

88. Following discussion with NHSL and IHSL, the following comments relative to the EM were included in Part 4 of the RDD schedule.

"Project Co shall update the Environmental Matrix to reflect the following Board comments

- *The Environmental Matrix shall by updated by Project Co to reflect all the rooms and room types in the proposed Facility, this should be based on an updated Schedule of Accommodation that has been commented on separately by the Board. This also needs to reflect the names and room numbers in the GSU table.*
- *Include the requirements contained in the Clinical Output Specification including but not limited to the requirement that theatre temperatures are to be able to be raised to 31°C for certain operations*
- *Measures shall be assessed, modelled and implemented to demonstrate that the internal air temperature of the following room types to reduce the temperature control from 28°C to 25°C;*
  - *Treatment Rooms;*
  - *Consulting Rooms;*
  - *Laboratory;*
  - *Physiotherapy Studio;*
  - *Recovery.*

These room shall not exceed the maximum acceptable level of 25°C for more than 50 hours per annum

- *Detailed proposal awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor.*

- *Colour rendering all stated as 80 where certain areas should be 90.*
- *There also need to have a consistent approach e.g. guidance notes and ED body view room stated as 28 -8, bereavement suite body view room stated as 25 -8.*
- *Further discussion is required on the minimum temperate requirement for the Body View Room".*

89. The Inquiry have asked me to what extent did these identified elements of the RDD bear upon the issues of ventilation issues which later arose. Whilst not a mechanical engineer, I believe the compliance elements of the ventilation issues were generally covered by the RDD comments, and in addition, there was an overarching project agreement requirement for IHSL to ensure their design complied with all the relevant guidance.

90. On 30 January 2015, ventilation was recorded on the MML Design Risk to NHS Lothian to FC register as a high-risk item.

91. On 13 February 2015, the Project Agreement was signed. This included NHS Lothian comments on the environmental matrix for Project Co to incorporate. Project Co continued to develop the environmental matrix post financial close. The Inquiry has asked me whether this meant that the ventilation specification had not been fully agreed by financial close. I think it would be more accurate to say that the ventilation specification was to be found in the BCRs and so was agreed by financial close, but that IHSL design for the environmental matrix was not complete by that stage. IHSL produced a number of further iterations of their environmental matrix following that point. Clearly this was not ideal, and not what would have been anticipated in the project timetable, which is why mitigation measures such as the extended RDD schedule were necessary. IHSL continued to be regularly reminded that they had responsibility for ensuring that the design and content of the environmental matrix was compliant with the relevant guidance.

92. On 15 April 2015 for example, shortly after financial close, MML wrote to Project Co in relation to the environmental matrix, saying that "IHSL are also

reminded that the reference design has no relevance to the current contract, and IHSL are to comply with the Project Agreement and in particular the BCR's and PCP's. Any non-compliance with the BCRs or PCPs should be highlighted to the Board."

93. As late as 7 November 2016, MML wrote to NHS Lothian saying: "the Board still does not believe the environmental matrix and resultant design complies with the Project Agreement. Project Co's failure to comply with the BCRs / PCPs (as per MM-GC- 002084), the Board believes would result in a non-compliant Facility. The Board would suggest that Project resolve the non-compliant issues as a matter of urgency, and requests that Project Co issues a strategy for resolution of these issues". There were a number of other examples during the life of the project of IHSL being reminded that it was their responsibility to ensure that their environmental matrix complied with the BCRs, and that any non-compliances with the applicable guidance required to be highlighted by them.

94. The Inquiry has asked me if I believe the decision to use the concept of an environmental matrix was a cause or part of the cause of the discrepancies within the ventilation parameters for the critical care rooms, and whether the same errors would have resulted from using room data sheets. I believe that the same issues could have happened either way and do not think the use of the environmental matrix was a critical factor. With room data sheets, it is much harder to cross check against similar room types and you would need to look at all rooms on an individual basis. The production of RDS for a project of this scale will run to hundreds of documents as an additional datasheet is required for each room, whereas the environmental matrix condenses that information into a spreadsheet. Environmental matrices are still used frequently on healthcare projects.

95. I have been asked for my opinion on whether there are any benefits to the use of an environmental matrix. In my opinion it does have some benefits in comparison to room data sheets, as you can compare similar room types and make sure that consistent criteria have been applied across similar room

types. However, as it is a spreadsheet you do not have the direct correlation to the clinical activity that you would have within the RDS. I don't know whether Hulley & Kirkwood used the ADB when preparing their draft environmental matrix. I therefore cannot comment on whether ADB was used in the preparation of the matrix. It would make sense if the environmental matrix had been prepared using ADB however as the designers would be able to review clinical activities of a room in order to get the right room function and therefore the correct environmental characteristics.

ENVIRONMENTAL MATRIX DEROGATIONS IN THE PROJECT AGREEMENT

96. As I describe below, the project agreement included a derogation register and Project Co's proposals, which included entries relating to the environmental matrix and mechanical ventilation air conditioning. The derogation request relating to the environmental matrix stated: *"Anomalies within the* environmental *matrix have been reviewed and proposals incorporated within the room datasheets. This shall be further developed in conjunction with the Board on the basis of the schedule of comments contained in section 5 of RDD*." This was raised to clarify the status of the environmental matrix i.e., for Project Co (IHSL) to update the matrix in accordance with the part 4 of the RDD comments. The Inquiry has asked me if this would have impacted upon the ventilation issues which later arose. I think indirectly yes, because there was a general requirement to update the matrix to make it compliant.

97. On 8 September 2014, the PB issued the first draft of the Schedule of Derogations, this included IHSL-MEP-015 titled "01 DRAFT Environmental Matrix".

98. On 7 October 2014, an M&E meeting took place to discuss the proposed PB M&E derogations. Whilst I did not attend the meeting, I understand the action for MEP-015 included the following - "MEP 015 – Board Action. IHSL await Environmental Matrix feedback prior to reviewing need or not for derogation".

99. On 14 October 2014, the PB issued a second draft (rev 0B) of the Schedule of Derogations, followed by the third draft (Rev 0C) on 16 October 2014, and the fourth draft (rev 0D) on 30 October 2014.

100. On 6 November 2014, a collated set of updated individual derogations was issued by the PB to MML.

101. On 7 November 2014, collated comments were issued by MML to the NHSL project team including collated comments on Rev 0D of the Schedule of Derogations (issued 30th October). For MEP-015 NHSL comments included the following;

"30/09/14 Project Co's Environmental Matrix shows maximum room temperatures of 28°C where BCR maximum states 25°C & 30/10/14 Further to meeting 29/10/14 Environmental Data Matrix has been revised to reflect agreement. Derogation now withdrawn".

102. On 5 November 2014, the PB commented MEP-15 could not be withdrawn, and it was agreed that NHSL / MML would provide comments in the RDD Schedule Part 4 for IHSL to incorporate and update the EM and RDS.

RISK REGISTERS

103. Starting in June 2014 through to FC, MML produced technical and design risk registers to financial close. The purpose of these risk registers was to inform NHSL of technical and design risks, and where possible mitigate these risks before financial close. These registers were shared with NHS Lothian and IHSL as a collaborative approach to ensure that everyone was aware of the risks as the project approached financial close.

104. On 25 August 2014, the following item was considered high risk on the technical risk register for financial close, "*Project Co proposals were insufficiently developed to the required level for* financial *close*." These proposals were the bidder's response to the BCRs. A workshop was held setting out the board's expectations and as a result a decision was made to

increase the length of the Reviewable Design Data (RDD) post FC with a greater focus on the specific design risks which IHSL still had to address.

105. Within the design risk to FC register one of the categories highlighted as high risk was ventilation issue within the single room ensuite, which NHS Lothian felt was not compliant with SHTM 03-01. The action taken by NHS Lothian and IHSL was to agree comments in terms of what still needed to be done and they would be added to part 4 of the RDD schedule for follow up after financial close.

PROJECT AGREEMENT

106. Paragraph 8 of the BCRs provides that Project Co (IHSL) shall take cognisance of all the building services implications of the requirements described in section D, and specific clinical requirements, subsection E. I have been asked by the Inquiry if any of the provisions of the clinical requirements in section D bear upon the ventilation issues which later arose. The clinical requirements were generally broken up by department, hence there was a B1 Critical Care clinical output specification that contained information within that document to determine the clinical activities in the departments.

FINANCIAL CLOSE

107. The Inquiry has asked me if I know why FC was not achieved until February 2015, despite the full business case being submitted to CIG in August 2014. I am aware that the Competitive Dialogue sessions took longer than anticipated as more sessions were implemented to develop the architectural design. As we approached FC there were issues with the development and submissions of the technical documents and legal issues in respect of the project agreement. There were issues over IHSL's ventilation strategy however my colleagues Colin McRae and William Stephenson had highlighted that as a high-risk item on the design risk register and better placed to advise on

comments raised.

108. The Inquiry has asked me if I was aware of tensions between NHS Lothian and IHSL in the last quarter of 2014, due to project not progressing smoothly. Due to the delays to financial close, I was aware of a general increase in pressure / tension, however that is not uncommon in the build up to financial close. I recall discussions post a board meeting that IHSL had suggested that NHS Lothian / MML were requesting more detail than they'd had to provide on other projects, however as MML were not involved in the board meeting I do not know the detail of the discussion.

I believe that the facts stated in this witness statement are true. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.

Signed:

23 February 2023